

# Windows 10

Most computers use an operating system called **Windows**, invented by Microsoft.

## Variants

This chapter explains **Windows 10**, which Microsoft began distributing on July 29, 2015. Computers built before that date use earlier Windows versions, such as **Windows 7**, **Windows 8**, and **Windows 8.1**, which I explain in later chapters. (There was no “Windows 9”.)

Microsoft **patches** (improves) Windows 10 often, especially on the afternoons of some Tuesdays (called **patch Tuesdays**). Examples: The typical patch Tuesday is the 2<sup>nd</sup> Tuesday of the month, though Microsoft often patches on other Tuesdays and on other days of the week. Examples:

Windows 10 improved *significantly* on Tuesday, November 3, 2015. The improvement was made available to experts on that date, to the general public 9 days later. That’s called the **November Update**. It’s also called **version 1511**, since it was invented in 2015’s month 11.

Windows 10 improved *significantly further* on Tuesday, August 2, 2016 (about a year after Windows 10 was first invented), in what’s called the **Windows 10 Anniversary Update (Windows 10 AU)**. It’s also called **version 1607**, since it was invented in 2016’s month 7 (though not distributed until the beginning of month 8).

Windows 10 comes in 5 **editions**:

The normal edition, called **Windows 10 Home**, is for use in homes and small businesses.

A fancier edition, **Windows 10 Pro**, is for big businesses that insist on more security.

An even fancier edition, **Windows 10 Enterprise**, is for even bigger businesses that require even more security.

**Windows 10 Education** resembles Windows 10 Enterprise but is for schools instead of businesses.

A stripped-down edition, called **Windows 10 Mobile**, handles screens smaller than 8 inches (phones & tiny tablets).

This chapter explains the normal edition (**Windows 10 Home**) and **how Windows 10 AU differs from old Windows 10**.

Windows 10 Mobile requires ½G of RAM. All other Windows edition levels require 1G of RAM to run at all, 4G to run well. Most computers running Windows 10 have 4G, 6G, 8G, or 12G.

Windows 10 works best if you have 3 tools:

a nice keyboard (including even a **Menu key**, which shows the symbol “≡”)  
a screen that can detect where you touch it (a **touchscreen**)  
a **mouse**

If you don’t have a mouse, you must use a **touchpad** instead and make it imitate a mouse.

Here are other substitutions you must make, if you don’t have the 3 tools to do things the easy way:

<b>Easy way</b>	On touchscreen, tap an object.
<b>No touchscreen</b>	Using mouse (or touchpad), click an object.
<b>Easy way</b>	On touchscreen, swipe up.
<b>No touchscreen</b>	Rotate mouse’s wheel toward you.
<b>&amp; no mouse</b>	Using touchpad, click “▼” (on list’s bottom-right corner).
<b>Easy way</b>	On touchscreen, swipe down.
<b>No touchscreen</b>	Rotate mouse’s wheel toward the screen.
<b>&amp; no mouse</b>	Using touchpad, click “^” (on list’s top-right corner).

<b>Easy way</b>	On touchscreen, press an object awhile.
<b>No touchscreen</b>	Using mouse (or touchpad), right-click an object.
<b>Easy way</b>	On touchscreen, pinch 2 fingers together.
<b>No touchscreen</b>	While pressing Ctrl key, rotate mouse’s wheel toward you.
<b>Easy way</b>	On a touchscreen, spread 2 fingers apart.
<b>No touchscreen</b>	While pressing Ctrl key, rotate mouse’s wheel toward screen.
<b>Easy way</b>	On keyboard, press the Windows Start key.
<b>No keyboard</b>	Press Windows Start button (in screen’s bottom black border).
<b>&amp; no such button</b>	Tap (or click) the screen’s bottom-left corner.
<b>Easy way</b>	On keyboard, press the Menu key.
<b>No Menu key</b>	On touchscreen, press a blank space awhile.
<b>&amp; no touchscreen</b>	Using mouse (or touchpad), right-click a blank space.

Microsoft wants everybody to use Windows 10.

New Windows computers include Windows 10.

Old computers that have Windows 7 or 8.1 can be upgraded to Windows 10. (That upgrade was free before July 30, 2016 but now costs \$119.)

Old computers that have Windows 8 can be upgraded to Windows 8.1 (free), then upgraded to Windows 10 (free before July 30, 2016 but now \$119).

Old computers that have Windows XP or Vista cannot be upgraded free to Windows 10. Replace them with new computers instead.

This book explains how to use Windows 10 on 6 types of computers:

a **new 2-in-1 laptop** that came with Windows 10 already installed (**Toshiba’s Satellite P55W-C5200X**, which is fast and has a touchscreen)

a **new standard laptop** that came with Windows 10 already installed (**Hewlett-Packard’s Notebook 15-ay091ms**, which has a touchscreen and is sold directly by Microsoft, which calls it a “Signature Edition” because it has no junky apps added)

an **older laptop** that came with Windows 8 upgraded to Windows 8.1 and is now upgrading to Windows 10 (**Acer’s Aspire V5-571P-6866**, which has a touchscreen)

a **very old laptop** that came with Windows 7 and is now upgrading to Windows 10 (**Hewlett-Packard’s G71-340US**, which has no touchscreen)

an **all-in-one computer** that came with Windows 8 upgraded to Windows 8.1 and is now upgrading to Windows 10 (**Hewlett-Packard’s Envy 20-d013w**, which has a touchscreen)

a **tablet** that came with Windows 8.1 and is now upgrading to Windows 10 (**Toshiba’s Encore WT8-A32**, which has a touchscreen).

Other computers are similar. **For free help using YOUR computer, phone me anytime at 603-666-6644.**

## Fundamentals

Here’s how to start using the computer and have fun.

### Unpack & turn on

When you buy a computer, it comes in a cardboard box. Unpack it and turn it on.

**Laptop** For example, here’s how to unpack & turn on these 2 new laptop computers, which came with Windows 10:

**HP’s Notebook 15-ay091ms**  
**Toshiba’s Satellite P55W-C5200X**

(To unpack & turn on older laptops, read older chapters. For example, to unpack & turn on Acer’s laptop that came with Windows 8, read page 98 in the Windows 8 chapter. To unpack & turn on HP’s laptop that came with Windows 7, read page 121 in the Windows 7 chapter.)

The new computer comes in a cardboard box. (HP’s is brown. Toshiba’s is black.)

The box is taped shut. Using a knife, break that tape.

Open the box. (To open Toshiba's, pull toward you the little tab that was under the tape.)

Put the box's contents on your desk (or table).  
The box contains 3 electronic devices.

the **computer itself**

HP's is 15 inches wide, 10 inches front-to-back, 1 inch thick.  
Toshiba's is smaller: 15 inches wide, 9 $\frac{3}{4}$  inches front-to-back,  $\frac{3}{4}$ -inch thick.

an **outlet connector** (to plug into an electrical outlet)

a **power adapter** (black box that converts AC power to DC)  
HP's is 3 $\frac{3}{8}$ " $\times$ 1 $\frac{1}{2}$ " $\times$ 1".  
Toshiba's is smaller: 3 $\frac{3}{8}$ " $\times$ 1 $\frac{3}{8}$ " $\times$ 1".

Each device is protected in its own plastic sheath. Remove those sheaths and throw them away.

The box also contains **instructional materials**.

HP's contains 3 instructional materials: setup instructions, a warranty, and a list of HP's international tech-support phone numbers.

Toshiba's contains 4 instructional materials: a quick-start pamphlet, a warranty, a list of optional accessories, and a warning about how to make a backup.

Using just your fingers, pry open the **computer itself**, so you see its keyboard and screen.

Remove the cloth that protected the keyboard. (HP's cloth is black. Toshiba's cloth is white). Throw the cloth away or, if you prefer, save it for future use someday.

Position the computer on your desk (or table), so the computer's screen stands up, faces you, and is tilted slightly back (so it's perpendicular to your line of sight).

Plug the **power adapter** into the keyboard's left edge, near the screen.

Plug the **outlet connector** into the power adapter (unless you or your friends did that already). Plug the outlet connector's free end into an electrical outlet (in your room's wall or power strip or surge protector). Make sure the electrical outlet is on.

A light glows. It's often orange, but it turns white when the computer's battery is fully charged.

HP's light is on the keyboard's left edge.

Toshiba's light is on the keyboard's front edge.

Find the computer's **power button**. (It's silver and shows a circle that has a line sticking up.)

HP's power button is on the keyboard's top-left corner, near the screen.  
Toshiba's power button is on the keyboard's right-hand edge, near the screen.

Press that button. The screen will light up.

HP's screen will say "hp".

Toshiba's screen will say "TOSHIBA".

**Tablet** Here's how to unpack & turn on a tablet computer (Toshiba's Encore WT8-A32).

The computer comes in a white cardboard box. Open the box and put the contents on your desk (or table).

The box contains 3 electronic devices:

the **tablet itself** (8 $\frac{3}{8}$  inches tall, 5 $\frac{3}{8}$  inches wide,  $\frac{3}{8}$  of an inch thick)  
a **power adapter** (black box, 2" $\times$ 1 $\frac{3}{4}$ " $\times$ 1 $\frac{1}{8}$ ", to convert AC power to DC)  
a **USB cable** (for connecting your tablet to the power adapter or a computer)

Each device is enclosed in its own protective sheath, made of clear plastic. Remove the sheaths and throw them away. (For example, remove the sheath that says "encore" in red, by using your fingernail to pry that sheath off the tablet.)

The box also contains **instructions** and **software licenses**.

The tablet's **backside** is silver and says "intel inside". The tablet's **front side** is a black **screen**, surrounded by a black **border** (which is also called a **bezel**).

Lay the tablet on your desk so the tablet lies on its backside and its front side is facing up at you.

On the front side's border, you see "TOSHIBA" in white letters. Position the tablet so "TOSHIBA" is close to your tummy.

The tablet's **bottom edge** is the edge that's near "TOSHIBA". The opposite edge is called the **top edge**.

Plug the USB cable's small end into the tablet's top edge. Plug the USB cable's other end into the power adapter. Plug the power adapter into your home's electrical outlet.

Find the tablet's **power button**. (It's the small black button on the tablet's right edge. It's near the top edge and next to a circle that has a line sticking up.) If the screen is blank (all black, with no writing on it yet), press the power button for at least 5 seconds; that will make writing appear.

Make sure the writing is right-side-up. If the writing is upside-down or sideways, fix that by lifting the tablet's top edge off your desk for a few seconds.

**All-in-one** Here's how to unpack & turn on an all-in-one computer (HP's Envy 20-d013w, which came with Windows 8).

The computer comes in a white cardboard box. Open the box and put the contents on your desk (or table).

The box contains 5 electronic devices:

the **computer itself** (20 $\frac{1}{4}$  inches wide, 16 $\frac{1}{2}$  inches tall, 7 $\frac{3}{4}$  inches deep)  
a **power adapter** (black box, 6 $\frac{1}{2}$ " $\times$ 2 $\frac{3}{4}$ " $\times$ 1 $\frac{1}{2}$ ", to convert AC power to DC)  
an **outlet connector** (to plug into an electrical outlet)  
a **keyboard** (containing letters, numbers, and symbols on keys for typing)  
a **mouse** (curved box that fits in your palm and can slide across the desk)

Each device is protected (in its own brown box or protective clear plastic sheath). Remove those boxes and sheaths and throw them away.

The box also contains 4 **instruction manuals** (brief pamphlets).

**Activate the batteries**, by doing this:

Flip the keyboard upside-down. You see a white plastic tab with a red arrow on it. Pull that tab out of the keyboard. (That activates the keyboard's battery.) Then put the keyboard right-side-up again.

Do the same thing for the mouse. (Flip the mouse upside-down. You see a white plastic tab with a red arrow on it. Pull that tab out of the mouse. That activates the mouse's battery. Then put the mouse right-side-up again.)

The keyboard and mouse will communicate with the computer wirelessly.

Position all the computer devices correctly:

Put the **computer itself** on your desk (or table), so the computer's screen stands up, faces you, and is tilted slightly back (so it's perpendicular to your line of sight).

Put the **keyboard** in front of the computer. Put the **mouse** to the right of the keyboard.

Hide the **power adapter** behind the computer. Plug the power adapter into the computer's back. Plug the **outlet connector** into the power adapter.

Plug the outlet connector's free end into an electrical outlet (in your room's wall or power strip or surge protector). Make sure the electrical outlet is on.

On the power adapter, a green light will glow. On the computer's rear, a white light will glow.

Find the computer's **power button**. (It's at the computer's top edge, near the right-hand corner, and shows a circle with a line sticking up). Press that button. The screen will light up and say "hp".

## Examine the keyboard

Look at the keyboard.

If you have a tablet that didn't come with a keyboard, make a keyboard appear temporarily by tapping the **keyboard icon** (which is on the screen, near the screen's bottom-right corner, and looks like a miniature keyboard). Tapping the keyboard icon makes a **virtual keyboard** appear on the screen. Whenever you want the virtual keyboard to disappear, tap the X at the virtual keyboard's top-right corner.

On the keyboard, try to find the following keys (but don't press them yet)...

Find the **Enter key**. That's the big key on the right side of the keyboard's main section. It has a bent arrow on it. It's also called the **Return key**. Pressing it makes the computer read what you typed and proceed.

## Upgrade to Windows 10

Find the **Backspace key**. It's above the Enter key and to the right of the + key. It has a left-arrow on it. You press it when you want to erase a mistake.

Find the key that has the letter A on it. When you press the A key, you'll be typing a small "a".

Near the keyboard's bottom left corner, find the **Shift key**. It has an up-arrow on it. Under the Enter key, you'll see another Shift key. Press either Shift key when you want to capitalize a letter. For example, to type a capital A, hold down a Shift key; and while you keep holding down the Shift key, tap the A key.

Find the key that looks like this:



It's near the keyboard's top left corner. That's the **1 key**. You press it when you want to type the number 1. Press the keys to its right when you want to type the numbers 2, 3, 4, 5, 6, 7, 8, 9, and 0. If you press the 1 key while holding down a Shift key, you'll be typing an exclamation point (!). Here's the rule: if a key shows two symbols (such as ! and 1), and you want to type the top symbol (!), you must typically hold down a Shift key.

Find the key that has the letter U on it. To the right of that key, you'll see the letters I and O. Don't confuse the letter I with the number 1; don't confuse the letter O with the number 0.

In the keyboard's bottom row, find the wide key that has nothing written on it. That's the **Space bar**. Press it whenever you want to leave a blank space.

### Try moving the mouse pointer

**If your computer has a mouse**, try this experiment:

If a cord comes out of the mouse, plug the cord into the computer. If no cord comes out of the mouse, the mouse is **wireless**, so make sure it contains a battery, the battery is activated, and the mouse's On-Off switch (on the mouse's bottom) is pushed to "On".

Put the mouse on your desk and directly in front of your right arm. Make the mouse lie flat. **Make the mouse face you** so you can read its brand name (such as "hp").

Move the mouse across your desk. As you move the mouse, remember to keep it flat and facing you.

On the screen, you'll see an arrow, which is called the **mouse pointer**. As you move the mouse, the arrow moves also.

If you move the mouse to the left, the arrow moves to the left.  
If you move the mouse to the right, the arrow moves to the right.  
If you move the mouse toward you, the arrow moves down.  
If you move the mouse away from you, the arrow moves up.

Practice moving the arrow by moving the mouse. Remember to keep the mouse facing you at all times.

If you want to move the arrow far and your desk is small, move the mouse until it reaches the desk's edge; then lift the mouse off the desk, lay the mouse gently on the middle of the desk, and rub the mouse across the desk in the same direction as before.

**If your computer's a laptop**, it comes with no mouse. I recommend you add a mouse (to make Windows easier), but in the meantime use the **touchpad** instead. Here's how:

Find the touchpad. (It's between the Space bar and the keyboard's front edge. It's typically a silver box with rounded corners.)

Rest your finger gently on the touchpad's middle (but don't press). Slide your finger gently across the touchpad.

On the screen, you'll see an arrow, called the **mouse pointer**. As you slide your finger across the touchpad, the arrow moves also.

If you slide your finger to the left, the arrow moves to the left.  
If you slide your finger to the right, the arrow moves to the right.  
If you slide your finger toward you, the arrow moves down.  
If you slide your finger toward the screen, the arrow moves up.

Practice moving the arrow by sliding your finger on the touchpad.

If you want to move the arrow far, slide your finger until it reaches the touchpad's edge; then lift your finger off the touchpad, rest your finger gently on the touchpad's middle, and slide your finger across the touchpad in the same direction as before.

Here's how you could upgrade to Windows 10, free, if your computer came with an older Windows. (But after July 29, 2016, the upgrade is no longer free.)

**If your computer came with Windows 8 or 8.1**, do this:

Learn how to use Windows 8 or 8.1 (by reading pages 98-103).

Then update to the *newest* version of Windows 8.1, by following the "Update Windows" procedure on page 103. If you have enough patience, do the "Update Windows" procedure *several* times (by tapping "Check Now" *again*), to make sure you get even the "updates to the updates", so you get the *very newest* version of Windows 8.1.

Then go to the Desktop screen (by tapping the Desktop tile). At the screen's bottom, you see the Windows logo (4 white windowpanes) at the screen's bottom-left corner, but you also see an extra Windows logo near the screen's bottom-right corner. Tap that extra Windows logo. The computer says "Get Windows 10".

**If your computer came with Windows 7**, do this instead:

Learn how to use Windows 7 (by reading pages 121-123).

Then upgrade to the *newest* version of Windows 7, by doing this: click the Start button then "All Programs" then "Windows Update" (which appears when you scroll down). Following the instructions on the screen, choose all updates (except don't bother updating Skype). Click "Install updates".

Shut down the computer, then turn it back on. About a minute after you turn it back on, you see the Windows 10 logo (4 white windowpanes) at the screen's bottom, near the right corner. Click that logo. The computer says "Get Windows 10".

**Then continue the upgrade, by doing the following....**

Tap (or click) "Reserve your free upgrade". The computer says "Great, your upgrade is reserved!"

Tap "Please enter your email address". Type your email address. Tap the "Yes" box then the "Send confirmation" box then "Close".

Microsoft promises to send Windows 10 to your computer eventually. (after a few hours or days or weeks, when Microsoft isn't busy and has worked with your computer's manufacturer to make sure your computer is completely compatible).

When Windows 10's been sent to you, the computer might write this note on your screen: "That free Windows 10 upgrade you reserved — it's ready!" (But your computer might not bother to write that note.) If you see that note — or wonder whether the computer was too lazy to write it — tap the Windows 10 logo (near the Desktop screen's bottom-right corner) and see if you get an optimistic message ("Upgrade Now" or "OK, let's continue").

If you don't get an optimistic message yet, are you willing to wait longer, to make sure Microsoft confirms you'll get a perfect upgrade?

**If you're willing to wait for an optimistic message**, do this when you get the optimistic message:

Tap the optimistic message ("Upgrade Now" or "OK, let's continue").

If the computer says "Downloading Windows 10" (because the computer didn't secretly download Windows 10 already), the computer slowly copies Windows 10 from the Internet to your computer, while the computer says 1% then 2% then 3%, etc., then 100% then "Preparing for Installation"; wait awhile until it says "Great, we'll get the upgrade started". If the screen temporarily goes black during that process (because the computer's screen went to sleep), wake up the screen by doing this: rub your finger across the screen (or touchpad) or jiggle the mouse.

Tap "Accept".

Tap "Start the upgrade now" (or "Restart now", whichever you see). The computer turns itself off then back on, says "Configuring update for Windows 10", then turns itself off then back on again.

**If you're not willing to wait for an optimistic message,** do this procedure instead, which forces Microsoft to upgrade your computer immediately:

Your computer is probably modern enough to be 64-bit instead of 32-bit. To make sure, hold down the Windows Start key, and while you keep holding down that key, tap the Pause/Break key. Notice whether the computer says "32-bit" or "64-bit". Then close that window (by clicking its X).

If your computer is indeed 64-bit, use the Internet to go to "<http://go.microsoft.com/fwlink/?LinkID=616936>". (If your computer is 32-bit, go to 616935 instead of 616936.)

Tap "Run" then "Yes". Press Enter. The computer says "Downloading Windows 10". The computer slowly copies Windows 10 from the Internet to your computer, while the computer says 1% then 2% then 3%, etc.

Then the computer says "Verifying your Download" then "Creating Windows 10 media" then just "Windows". Tap "Windows".

The computer says "Preparing" then "Getting updates" then "License terms". Tap "Accept".

The computer says "Getting updates" again then "Making sure you're ready to install" then "Ready to install".

Tap "Install". The computer says "Installing Windows 10. Your PC will restart several times. This might take a while."

### Here are the final steps:

Eventually, the computer says "Upgrading Windows. Your PC will restart several times. Sit back and relax."

Then you have a long delay, while a pie chart slowly says 1% then 2% then 3%, etc. (In the middle of that process, if the screen might go black for a minute or two. Be patient; but if the screen goes black for *many* minutes, tap the power button. If doing that doesn't make the screen light up, temporarily remove the power by doing this: unplug the computer, remove the computer's battery if any, wait a minute, reinsert the battery, plug the computer in, and press the computer's power button).

Finally, the computer says "Hi there, welcome back!" Press the Enter key 3 times (or tap "Next" then "Use Express settings" then "Next").

## Get to the Desktop screen

If the computer has Windows 10 and this is the first time the computer is being used, it does this **setup procedure**:

The computer says "Hi there".

In the box under "What time zone are you in?" the computer temporarily says "Pacific Time". If you're not in the Pacific Time zone, do the following. Tap "Pacific Time". You start see a list of time zones. To see the rest of the list, put your finger in the list and swipe up or down. Find your time zone. If you're in the United States, your time zone is one of these:

(UTC-10:00) Hawaii  
(UTC-09:00) Alaska  
(UTC-08:00) Pacific Time (US & Canada)  
(UTC-07:00) Arizona  
(UTC-07:00) Mountain Time (US & Canada)  
(UTC-06:00) Central Time (US & Canada)  
(UTC-05:00) Eastern Time (US & Canada)  
(UTC-05:00) Indiana (East)

When you've found your time zone, tap it.

Tap "Next" (near the screen's bottom-right corner).

The computer says "Here's the legal stuff". Tap "Accept" (near the screen's bottom-right corner).

The computer says "Let's get connected". Make sure you've properly set up your room's wireless router (which lets a computer communicate with the Internet). Tap the router's name.

If the computer says "Enter the network security key", type the router's password (which is probably printed on the router's bottom).

Tap "Next" then "Use Express Settings".

The computer says "Make it yours." If you don't have a Microsoft account yet, tap "Create one!" and follow its instructions; otherwise, answer questions about your Microsoft account then tap "Sign in". During that process, the computer lets you create a **personal identification number (PIN)** for this computer; create the PIN by following the instructions.

If the computer says "Get your files here, there, and everywhere", Microsoft wants you to tap "Next" (so files you save are copied to Microsoft's Website, to share with your other computers), but you can instead choose "Save new files only to this PC by default", which is simpler. Tap one or the other.

The computer says "Meet Cortana". Tap the button on the screen's bottom-right corner. (On new computers, that button says "Use Cortana". On older computers, that button says "Next".)

On new computers, you see "Register and Protect". On older computers, you see "Register My Product". If you see little square boxes, you can put check marks in them by tapping them; up to you!

Tap "Next".

The computer says some messages. (If your computer is new, it says "We're happy you're here" then "Lots of great features to get excited about" then "Getting everything ready for you". If your computer is older, it says "Setting up your apps".)

Finally, the computer says "Let's Start".

If the computer was set up previously, it typically does this **lock-screen procedure** instead:

You see the **Lock screen**, which shows the time and date. (If you're not in the Pacific time zone, the time might be temporarily wrong.)

Press the keyboard's Enter key or Space bar. (If you don't have a keyboard, do this instead: put your finger in the screen's middle then swipe up, toward the screen's top edge.)

If the computer says "PIN," type the PIN you created for this computer. (If the computer does *not* say PIN, type the password you created then press the Enter key, which has the symbol ↵ on it.)

But some of my computers skip that lock-screen procedure.

Eventually, you see the **Desktop screen**:

The screen's bottom-right corner shows the time and date.

The screen's bottom-left corner shows the **Windows Start button**, which is a black square containing the **Windows logo** (a window containing 4 white windowpanes, which are boxes).

Those things (the time & date and the Windows Start button) are on the **taskbar**, which is a *black bar* that runs all the way across the screen's *bottom* and is about 3/8" tall. The taskbar includes the time & date, the Windows Start button, and many things between them.

## Avoid tablet & portrait modes

**If your computer has no keyboard** (because it's a tablet or a smartphone or a "2-in-1" whose keyboard is temporarily detached or hidden"), **do this procedure**:

Unfortunately, because your computer has no keyboard, Windows activates **tablet mode**, which is supposed to make your computer easier but actually makes it more difficult because it hides many on-screen controls that this book wants you to use. **Turn off tablet mode** by doing the following.

On the Desktop screen, next to the time, you see the **notification button** (which looks like a cartoon character's dialog box). Tap it.

Tap "Tablet mode", so its box turns gray (instead of blue). The gray mean "turned off".

When you've finished that, tap a blank spot in the screen's middle.

Next, make sure the screen's width is bigger than its height. (That's called **landscape mode**.) If instead the screen's height is bigger than its width, you're in **portrait mode**, whose taskbar unfortunately lacks a search box; switch to **landscape mode** by rotating the screen 90 degrees then lifting the screen's top edge off the desk.

## Get the Anniversary Update

If your computer has an old version of Windows 10, here's how to get the **Windows 10 Anniversary Update (Windows 10 AU)**, free. (But this procedure fails on the typical *tablet*, which doesn't have at least 16 gigabytes of unused memory.)

**Tap the Windows Start button.**

**Tap "Settings"**. (If you don't see that word yet, make it appear by tapping the "≡" at the screen's top-left corner.)

**Tap "Update & security" then "Learn more"** (which is blue). The computer will say "Join the celebration — get the Windows 10 Anniversary Update today".

**Tap "Get the Anniversary Update now"**, which is in a blue box. (If you don't see that box yet, make it appear by scrolling down. To scroll down, put your finger in the screen's middle and swipe up, or repeatedly click the "▼" near the screen's bottom-right corner.) The computer will say "Windows10Upgrade28084.exe finished downloading."

**Tap "Run" then "Yes" then "Update Now".** The computer will say "Downloading Windows 10 update". 15 minutes afterwards (or later, if your Internet connection is slow), the computer will say "Verifying" then "Updating Windows 10". 17 minutes afterwards (or later, if your computer is slow), the computer will say "Your update is ready. Your PC needs to restart to complete the update."

**Tap "Restart now" then "Close".** The computer will say "Restarting" then "Working on updates. Don't turn off your PC. This will take a while. Your PC will restart several times." 45 minutes afterwards (or later, if your computer is slow), the computer will say something interesting.

If the computer says "Welcome to Windows 10!" press the Enter key thrice. The screen will go black awhile. Eventually, the computer will restart.

If your old Windows 10 required you to press Enter then your password then Enter again, the computer will make you do that login procedure.

The computer will say "Hi." The screen will go black again. The computer will say "Getting things ready, please don't turn of your PC" then "These updates help protect you in an online world".

The computer will say "Go to Start > Get Start app to see what's new" and "Don't turn off your PC".

If the computer says "Thank you for updating to the latest version of Windows 10", tap "Exit".

## Start menu

Tap the Windows Start button, or press the **Windows Start key** (which has the Windows logo and is left of the Space bar), or press the Toshiba laptop's **Windows Start edge button** (which is the *tiny* button on the keyboard's left *edge*, in front of the power cord and near the left Shift key).

If you do that procedure, you see the **Start menu**, which is a huge black box consuming half the screen. If you repeat that procedure immediately, the Start menu disappears.

**Practice clicking** If your computer includes a mouse or touchpad, try to **click** by using those devices.

To practice clicking, try to **click the Windows Start button**. Here how:

**Mouse method** While you're looking at the Desktop screen, slide the mouse across your desk or table, until the tip of the arrowhead (mouse pointer) is on the Windows Start button. Then, while holding the mouse perfectly still, tap the mouse's left button.

**Touchpad method** While you're looking at the Desktop screen, rest your finger gently on the touchpad's middle (but don't press). Slide your finger across the touchpad, until the tip of the arrowhead (mouse pointer) is on the Desktop tile. Lift your finger off the touchpad. Then press the touchpad's bottom-left corner (which is called the **left button**) or, if you prefer, do this: tap the touchpad once, firmly but briefly, anywhere on the touchpad (except the touchpad's bottom-right corner, which is special).

That's called **clicking** the Windows Start button. It has the same effect as tapping the Windows Start button with your finger. It makes the Start menu appear.

**Services** In the Start menu's bottom-left corner (at the screen's left edge, immediately above the Start button), you see a list of **services**.

**Windows 10 AU** You see these 3 services, each represented by a black-and-white symbol:

**File Explorer** (whose symbol is a box, in the shape of a manila folder)

**Settings** (whose symbol is a gear, which looks like a bumpy circle)

**Power** (whose symbol is a circle with a line coming up from it).

You see those 3 symbols. To choose a service, tap (or click) its symbol.

**Old Windows 10** You see these 4 services:

File Explorer

Settings

Power

All apps

You see those words. To choose a service, tap (or click) it.

**Whenever you finish using the computer, tap (or click) the "Power" service then "Shut down"** then wait while the computer tidies the info on your hard disk. Finally, the computer will turn its own power off.

Microsoft improves Windows 10 often. To make sure you have the newest improvements, tap the Settings service then "Update & security" then "Windows Update" then follow the instructions on the screen.

**Tiles** In the Start menu, you see "Life at a glance" atop a group of **10 tiles** (boxes), like this:

Life at a glance

Calendar	Mail	
Microsoft Edge	Photos	Cortana
Weather	Phone Companion	Twitter
Store	Candy Crush Saga	

Exceptions:

On some computers, the Twitter tile is missing.

On HP's new laptop, the Store tile is narrower, to squeeze in a Skype tile to its right, and you get Candy Crush Soda Saga instead of plain Candy Crush Saga.

You also see "Play and explore" atop a group of 11 tiles, like this:

Play and explore

Xbox	Groove Music	Movies & TV
Microsoft Solitaire Collection	Minecraft	Flipboard
Money	News	
USA Today	OneNote	Get Office

Exceptions:

Toshiba's laptop says "Microsoft Office" instead of "Get Office".

Old laptops by Acer & HP say "iHeartRadio" instead of "USA Today".

HP's new laptop says "PicsArt" instead of "Flipboard", says "Flipboard" instead of "USA Today", and says "Word 2016" and "Excel 2016" and "PowerPoint 2016" instead of "Get Office".

Where's that "Play an explore" group?

On Toshiba's laptop and HP's new laptop, the "Play and explore" tiles are to the *right* of the "Life at a glance" tiles.

On the other computers, the "Play and explore" tiles are *below* the "Life at a glance" tiles and are partly hidden until you do this: if you have a touchscreen, put your finger on a blank black spot in the tile area and swipe up; if you don't have a touch screen, repeatedly click the "✓" (which is at the Start menu's bottom-right corner).

All those 21 tiles (or their substitutes) are provided by Microsoft.

Below those 21 tiles, the computer's manufacturer can provide extra tiles. For example, Toshiba's laptop provides these 21 extra tiles:

Adobe creative, Amazon 1, Amazon 2, AOL On, Evernote, iHeartRadio, Insteon for hub, Kindle, McAfee LiveSafe, MGO, my Toshiba, MyMusicCloud, Netflix, Next Issue magazines, Prey, SocialSafe, Spotify, TripAdvisor, Zappos, Zinio reader, Zuus

Toshiba's tablet provides these 21 extra tiles instead:

Amazon, Book Place, camera, create recovery, eBay, food&drink, get Skype, health&fitness, iHeartRadio, Kindle, maps, Microsoft Office, Netflix, Norton Internet Security, Norton Studio, Reading List, sports, Toshiba Central, TruCapture, Xbox 360 SmartGlass, Zinio reader

Acer's laptop provides these 32 extra tiles instead:

-games-, Acer Crystal Eye, Acer explorer, Acer remote files, Acer system information, Amazon, ebay, ChaCha, Encyclopaedia Britannica, Evernote, food&drink, get Skype, health&fitness, Hulu Plus, iCookbook, Internet Explorer, Kindle, maps, Merriam-Webster dictionary, Microsoft Office, Netflix, newsXpresso, Norton Security, Reading List, Shark Dash, Social Jogger, sports, Spotify, travel, TuneIn Radio, Zinio reader, 7digital music store

HP's new laptop provides *no* extra tiles (because it's sold directly by Microsoft, which brags the laptop is a "Signature Edition" containing no extra junk).

Each tile represents an **application program (app)**. If you tap a tile, you run its app.

**App lists** Besides the tiles, your computer contains many other apps. Here's how to find them.

**Windows 10 AU** In the Start menu, near the screen's left edge, you see a column that starts listing all your apps. That list is divided into 3 sections. **The top section says "Recently added"** and lists the 2 apps that are new; if you updated from old Windows 10 recently, that list says "Connect" and "Windows 10 Upgrade Assistant". **The next section says "Most used"** and tries to list the 6 apps you've used most often recently (but that list is unreliable). **The bottom section lists all app choices in alphabetical order** but is too tall to fit on the screen; to see the rest of the list, put your finger on a black area in the list and swipe up (or repeatedly tap the keyboard's down-arrow key, or move your mouse's pointer to that list then rotate the mouse's wheel toward you.)

**Old Windows 10** In the Start menu's top-left corner, you see your name. Under your name, the computer tries to list of the 6 apps you've used most often recently (but that list is unreliable). If you haven't used any apps often yet, Toshiba's laptop shows this list temporarily:

WinZip  
Get Started  
Get Skype  
Maps  
People  
Calculator

If you've recently put extra programs into your computer, you see a list of them also. To see *all* the apps in your computer, tap "**All apps**" (which is in the Start menu's list of 4 services). Then you starting see an alphabetical list of all app choices. (To see the rest of the list, put your finger on a black area in the list and swipe up.) Below the list of apps, you see "**Back**". Tap "Back" to return to the normal Start menu.

For example, Toshiba's laptop comes with these 73 app choices:

-games-, 3D builder, Adobe creative, alarms & clock, Amazon 1, Amazon 2, AOL On, app explorer, Booking, calculator, calendar, camera, Candy Crush Saga, contact support, Cortana, CyberLink PhotoDirector, CyberLink PowerDirector, DTS, Evernote, games, get Dropbox, get Office, get Skype, get started, Groove music, iHeartRadio, Insteon for hub, Internet Explorer, Kindle, mail, maps, McAfee, MGO, Microsoft Edge, Microsoft Office, Microsoft Solitaire Collection, Money, movies & TV, my Toshiba, MyMusicCloud, Netflix, news, Next Issue magazines, OneDrive, OneNote, people, phone companion, photos, Prey, settings, SocialSafe, sports, Spotify, store, Toshiba, Toshiba registration, Toshiba start, TripAdvisor, TruRecorder, Twitter, voice recorder, weather, Windows accessories, Windows administrative tools, Windows ease of access, Windows feedback, Windows PowerShell, Windows system, WinZip, Xbox, Zappos, Zinio reader, Zuus

HP's new laptop (which brags about having less junk) comes with these 52 app choices:

3D builder, Access 2016, alarms & clock, calculator, calendar, camera, Candy Crush Soda Saga, contact support, Cortana, CyberLink Power Media Player 14, DTS audio control panel, Excel 2016, get Office, get Skype, get started, Groove music, HP, mail, maps, messaging, Microsoft Edge, Microsoft Office 2016 Tools, Microsoft Solitaire Collection, Microsoft Wi-Fi, Money, moves & TV, news, OneDrive, OneNote, OneNote 2016,

Outlook 2016, people, phone, phone companion, photos, PowerPoint 2016, Publisher 2016, settings, Skype video, sports, Sway, Twitter, voice recorder, weather, Windows accessories, Windows administrative tools, Windows ease of access, Windows feedback, Windows PowerShell, Windows system, Word 2016, Xbox

Most of those app choices are simple apps, but some of those app choices (such as "Windows accessories") are *collections* of apps; click the collection's name to see the details.

**Sleep** To turn the computer *partly* off, so it uses very little power, choose one these methods:

**Reliable method** Tap "Power" (which is on the Start menu) then "Sleep".

**Quick method** Tap the power button (the same button you used to turn the computer on).

**Shut method (works well just on modern laptops)** Shut the laptop (so its screen covers up the keyboard).

That makes the screen go black; the computer **sleeps** (uses very little power). While the computer sleeps, the power button's light flashes repeatedly.

**To make the computer wake up from its sleep, press the flashing power button** (or move the mouse once or twice). Then the screen turns on again.

If your computer is fussy (such as HP's laptop), you unfortunately see just the lock screen (which shows just the date & time), until you press the Enter key then click "Sign in" (or, if requested, type a password and press the Enter key).

Finally, the computer shows where you left off: the same tiles are still open.

The computer can be in 3 states:

**off** (consumes no power, so the screen is black)

**on** (so you can use the computer)

**sleeps** (consumes very little power; the screen is black, but the computer keeps remembering what you'd been doing and waits for you to press the flashing power button, to turn the computer back on fully)

Another way to make the computer sleep is to keep your hands off the computer equipment awhile: don't touch the touchscreen, keyboard, touchpad, or mouse. Toshiba's laptop uses this rule about when to blacken the screen and sleep:

If the computer equipment is untouched for **5 minutes** and the computer is running on battery power (instead of being plugged in), **blacken** the screen.

If the computer equipment is untouched for **10 minutes**, **blacken** the screen (even if the computer is plugged in).

If the computer equipment is untouched for **15 minutes**, **blacken** the screen and also make the computer's brain (CPU) **sleep** (so the CPU chip uses less power).

HP's new laptop uses this rule instead:

If the computer equipment is untouched for **5 minutes** and the computer is running on battery power (instead of being plugged in), **blacken** the screen.

If the computer equipment is untouched for **10 minutes**, **blacken** the screen (even if the computer is plugged in). If the computer is running on battery power, also make the computer's brain (CPU) **sleep** (so the CPU chip uses less power).

If the computer equipment is untouched for **20 minutes**, **blacken** the screen and make the computer's brain (CPU) **sleep**, even if the computer is plugged in.

If you want to change the rule, do this:

Choose Settings (which is on the Start menu). Tap "System" then "Power & sleep". Change the number of minutes (by tapping "▼" then how many minutes you want). When you finish, close the Settings window (by tapping the X at the screen's top).

## Tiles we love

These tiles (on the Start menu) are nice & easy to use. They've been improved. I'll explain how they work *now*. (They worked differently when Windows 10 was first invented.)

### News

On the Start menu, find the **News tile**. (It's normally the last tile in the 3<sup>rd</sup> row of "Play and explore".)

Tap it. Then you see the **News window**, which consumes most of the screen.

**Maximize** In the window's top-right corner, you see an X.

Left of the X, you see either a little square (called the **maximize button**) or a pair of overlapping squares (called the **resize-down button**). Try tapping the maximize button or resize-down button several times, to see what happens. If you tap the maximize button, the window gets bigger, so it consumes the whole screen; if you click the resize-down button, the window gets smaller, so it consumes about half the screen.

**Maximize the News window** (by clicking the maximize button if necessary), so the News window consumes the whole screen.

If the computer says "Personalize your News", tap "Skip". If the computer says "Breaking News Alerts", tap "Yes".

**See headlines** You start seeing the beginning of news articles. Each article begins with a photo and headline. To see more articles, put your finger in the screen's middle and swipe up.

At the top, you see headlines from the top 2 articles. Below, you see a headline from each of these categories:

US, world, crime, offbeat, technology, politics, opinion, entertainment, money top stories, sports, Microsoft

Farther down, you see more headlines from those categories.

At the screen's top, you see a menu of news categories, which looks like this in 2016:

My News My Sources Top Stories US World Crime Offbeat Technology Election 2016 Good News Opinion Entertainment Money Sports

If you care about just one category, tap the category you care about.

If you care about just one narrow topic (such as "soccer"), do this:

Tap "Search" (which is near the window's top-right corner).

Type the topic that interests you. At the end of your typing, press the Enter key.

**Read an article** When you find a headline that interests you, tap it. Then you start seeing the whole article. To see the rest of it, put your finger in the screen's middle and swipe up.

**Finish** When you finish reading an article or using a category, tap the **Back button** (the left-arrow at the screen's top-left corner), which makes the computer go back to the previous screenful.

When you finish using the News window, **close the window** by tapping its **close button** (the X in the window's top-right corner). That makes the window disappear. Then you can see other things on the screen instead, and the computer can stop wasting time thinking about that window.

### Weather

On the Start menu, find the **Weather tile**. (It's normally the first tile in the 3<sup>rd</sup> row.) Tap it. Then you see the **Weather window**, which consumes most of the screen.

**Maximize** In the window's top-right corner, you see an X.

Left of the X, you see either a little square (called the **maximize button**) or a pair of overlapping squares (called the **resize-down button**). Try tapping the maximize button or resize-down button several times, to see what happens. (If you click the maximize button, the window gets bigger, so it consumes the whole screen; if you click the resize-down button, the window gets smaller, so it consumes about half the screen.)

**Maximize the Weather window** (by clicking the maximize button if necessary), so the Weather window consumes the whole screen.

**Welcome** If the computer says "Welcome", tap "Detect my location" then "Yes" then "Start".

**Enjoy** The screen's top shows the city's name, current temperature, and lots of details about the current weather.

Below that, you see the city's weather forecast for today & the next 9 days. For each day, you see the high temperature, low temperature, and weather.

Tap the day that interests you. Then the screen's bottom shows more details about that day.

To make sure you see *lots* of details, tap the Details button (which is near the screen's right edge) instead of the Summary button. Then for each hour you see the temperature, weather, percentage chance of precipitation, and wind speed.

To see even *more* about that day, put your finger in the screen's middle and swipe up.

To temporarily switch to a different city, do this:

Tap the **Favorites icon** (the black-and-white half-star at the screen's left edge). You see cities.

*If you want one of those cities, tap it.*

*If you want a different city, tap "+" then type the city you want (such as "Boston MA" or "Paris, France" or its ZIP code); at the end of your typing, press the Enter key then tap the city you want.*

**Finish** When you finish using the Weather window, tap the X in the window's top-right corner.

### Money

To see news about money and finances, tap the **Money tile** (which is normally the first tile in the 3<sup>rd</sup> row of "Play and explore").

You see the **Money window**. Maximize it (by tapping its maximize button, if necessary).

If the computer says "Personalize your Money", tap "Skip". If the computer says "Breaking News Alerts", tap "Yes".

At the top, you see headlines from the top 2 articles about money.

Below, you see data about 3 U.S. stock markets (the Dow, Nasdaq, and S&P 500), 3 major stocks (Microsoft, 3M, and Boeing, unless you choose differently), 3 foreign-exchange rates (the dollar versus the Euro, Mexican peso, and Japanese yen), 3 commodities (gold, crude oil, and silver), and 3 stocks that are moving fast.

Further down (which you'll see if you put your finger in the window's middle and swipe up), you see more headlines about money.

What interests you?

If you tap a headline, you see the whole article.  
If you tap data, you see details.

To return to the previous screenful, tap the left-arrow (at the screen's top-left corner).

When you finish using the Money window, tap the X (at the window's top-right corner).

## Calendar

To see a calendar, tap the **Calendar tile** (which is normally the first tile).

If nobody's used that tile before, the computer says "Accounts"; to reply, tap "Ready to go".

If the computer asks "Let Mail and Calendar access your location?", tap "Yes".

You see the **Calendar window**. Maximize it (by tapping its maximize button, if necessary).

If the computer says "Welcome", tap "Get started" then "Ready to go". If the computer asks "Let Mail and Calendar access your precise location?" tap "Yes".

**See this month** Normally, the calendar shows the whole month; but it might show just a day or week instead.

Tap "Month" (which is near the screen's top-right corner). That makes sure you see the whole month.

You see 2 calendars. On each calendar, today's date is highlighted in blue.

For now, ignore the little calendar at the screen's left edge; focus your attention on the big calendar at the screen's right edge.

On the big month calendar, you might also see the weather forecast for today and the next 4 days, including each day's high temperature, low temperature, and whether it will be sunny or cloudy or worse. If you tap the weather's icon (sun or clouds or worse), you'll see more details about the weather; to return to the calendar, tap the X at the screen's top-right corner.

On that calendar, each holiday is written already in dark ink (green in old Windows 10, usually brown in Windows 10 AU, blue on HP's laptop). August has no holidays.

**Switch months** Here's how to see different months:

To see the next month, put your finger in the screen's middle and swipe up, so you see the month that's below.

To see the previous month, put your finger in the screen's middle and swipe down, so you see the month that's above.

If you accidentally tap instead of swipe, escape from your mistake by pressing the Escape key (which is at the keyboard's top-left corner and says "Esc") or tap a different day.

To return to the current month, swipe several times or tap "Today" (which is near the screen's top).

**Add an event** Here's how to write an event on the calendar.

On the big month calendar, tap the event's date (such as 28). Type the event's name.

If the event won't last all day, do this:

Remove the check mark from the "All day" box (by tapping the check mark).

Then the computer tentatively assumes the event will start at 8:00 AM. If the event will *not* begin at 8:00 AM, tap the "8:00 AM" then tap the correct starting time, by choosing from the menu of times that appears. (To see the whole menu, put your finger in the menu's middle and swipe up or down.)

The computer tentatively assumes the event will last 30 minutes. If the event will *not* last 30 minutes, tap the wrong ending time then tap the correct ending time, by choosing from the menu of times that appears.

If you're satisfied, tap "Done". If instead you prefer to type details about the event, do this:

Tap "More details". You see a new window.

Tap in the big box at that window's bottom. Type your comments about the event.

If the event is all-day, the computer assumes you want a reminder 12 hours before the event. If the event is shorter than all-day, the computer assumes you want a reminder 15 minutes before the event starts. If you don't like that assumption, tap in the Reminder box (which is near the screen's top) then tap one of these choices about the reminder:

None (which means no reminder at all)  
0 minutes (send the reminder when the event starts)  
5 minutes (send the reminder 5 minutes before the event)

15 minutes (send the reminder 15 minutes before the event)

30 minutes (send the reminder 30 minutes before the event)

1 hour (send the reminder an hour before the event)

12 hours (send the reminder 12 hours before the event)

1 day (send the reminder on the day before the event)

1 week (send the reminder a week before the event)

When you finish editing those details, tap "Save and close" (which is near the screen's top-left corner).

On the month calendar, that day will show the event's name, written in blue. If the event lasts all day, it has a white background; if the event is shorter, it has a pale blue background and shows the starting time.

If a day includes *several* events, the month calendar will show just the first 3 events, because there's not enough room to show more.

On the day of the event, the Calendar tile (on the Start menu) will show the event's name and starting time.

Before the event, the computer will remind you: it will play a brief musical alarm. Then the screen's bottom-right corner will show the event's name and starting time, until you tap "Dismiss".

To see an event's details, tap the event. To see even more details about the event, do this:

Tap "More details". Look at those details. Edit them if you wish. If you want to delete the event, tap "Delete"; otherwise, tap "Save and close".

## Microsoft Edge

To use the Internet's main part (the World Wide Web), tap the **Microsoft Edge tile** (which is normally first tile in the 2<sup>nd</sup> row) or tap the **blue "e"** (which is at the screen's bottom edge, to the right of the Windows Start button, on the taskbar).

You see the **Microsoft Edge window**. Maximize it (by tapping its maximize button if not maximized yet).

Near the screen's top-left corner, you see 3 arrows (an arrow pointing left, an arrow pointing right, and an arrow pointing in a circle).

To the right of those arrows, you see the **address box**. It's a white area that's almost as wide as the screen and has words in it.

If Microsoft Edge hasn't been used on your computer before, the address box might say:

[microsoftedgewelcome.microsoft.com/en-us/?source=fre](https://microsoftedgewelcome.microsoft.com/en-us/?source=fre)

The address box's right edge might show a picture of an open book and a star. Above the address box, you might see "Where to next?"

**Tap the address box's middle.**

Type the Web address you want to visit. For example, if you want to visit [www.yahoo.com](http://www.yahoo.com), type:

[www.yahoo.com](http://www.yahoo.com)

While you're typing a Web address, you see a list of Web pages matching what you've typed so far. If you want one of those Web pages, tap it; otherwise, finish your typing (then press the Delete key to erase any extra typing then press the Enter key).

To switch to a different Web page, tap in that same address box again and type the new Web address you want to visit, such as:

[www.WashingtonPost.com](http://www.WashingtonPost.com)

**Magnify** If a Web page shows *several* columns of type, try **double-tapping** a column. (Here's how to **double-tap**: tap but then, with a delay of less than half a second, tap exactly the same spot again.) That magnifies the column, so it fills more of the screen (and you don't see the other columns as much.) To make that column return to its normal size, double-tap it again.

Double-tapping works on some Web pages but not others. It works *usually*. It works just if you tap by using your *finger* (not mouse, not trackpad).

**Flick up** If a Web page is too tall to fit on the screen, here's how to see the page's bottom. Put your finger in the screen's middle, then **slide** up (or, to move faster, **flick** your finger up, as if you were flicking an insect off your screen). To return to the Web page's top, **slide** down or **flick** your finger down.

**Back** After viewing several Web pages, you can go back to the previous Web page by doing this: tap the **Back button** (the left-arrow near the screen's top-left corner).

**Forward** After going back to the previous Web page, here's how to go forward (undo the "back"): tap the **Forward button** (the right-arrow near the screen's top-left corner).

**Favorites** If you find a Web page you like a lot, do this while viewing it: tap the **Favorites button** (the star near the screen's top-right corner) then the star below it then "Add".

To see a list of your favorite Web pages, do this:

Tap the **Hub button** (which is to the right of the star and looks like 3 horizontal lines). Then tap the star below the Hub button.

Then tap the Web page you want to return to.

To delete a Web page from the favorites list, do this:

Make the favorites list appear (by tapping the Hub button then the star below). Put your finger on the Web page you want to delete, and hold your finger there for at least half a second. (That's called **press & hold**.) Tap "Remove".

**History** To see a list of all Web pages you visited recently, do this:

Tap the **Hub button** (which is to the right of the star and looks like 3 horizontal lines). Then tap **History button** (an arrow circling around a clock).

You start seeing a list of Web pages you visited recently. The list includes what you visited through Microsoft Edge but also includes what you visited through other tiles, such as the Weather tile.

Some of the Web pages are hidden under a date. To see what's hidden there, tap that date. To hide that date's details again, tap that date again.

If the list is too long to fit your screen, put your finger in the list's middle and swipe up.

Then tap the Web page you want to return to.

**Pin** If you find a Web page you like a lot, you can include it on the Start menu, by doing this:

While visiting the Web page, tap the **More button** (which is at the screen's right edge and says "...") then "Pin this page to Start" then "Yes".

That creates a new tile on your Start menu. That tile is below the other tiles.

To see the new tile, tap the Start button (so you see the Start menu), then put your finger on a blank space in the middle of the tiles and swipe up. Like the Microsoft Edge tile, the new tile is blue and has "e" on it.

Whenever you tap the new tile, the computer restarts Microsoft Edge and sends you to the tile's Web page.

To delete a tile, **press & hold** it (by resting your finger on it for more than half a second) then tap the tile's top-right corner.

**Print** If you have an all-in-one or laptop computer, you can **print** the Web page onto paper by doing this:

Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer. While viewing the Web page, tap the **More button** (which is at the screen's right edge and says "...") then "Print".

Near the screen's top-left corner, you see the word "Printer". Under "Printer", you see the Printer box. Make sure that box contains your printer's name. If it contains something else (such as "Microsoft Print to PDF"), tap it then tap your printer's name.

Tap the Print button (which is near the screen's bottom-left corner).

## Store

On the Start screen, tap the **Store tile** (which is normally the first tile in the 4<sup>th</sup> row).

You see the **Store window**. Maximize it (by tapping its maximize button if not maximized yet).

You see Microsoft's **app store**, which lets you buy (or get free!) apps from the Internet and copy them to your computer.

If you put your finger in the screen's middle and swipe up, you see these choices:

Top apps  
Top games  
  
Countdown deals  
Picks for you  
Most popular  
Top free apps  
Top free games  
New music  
New movies  
Top-selling TV shows  
Collections

If you tap "Top apps", you *might* start seeing these choices at the screen's left edge by swiping up (though Microsoft has recently suppressed them):

Chart: top free, top paid, best-rated, new and rising  
Category: books (& reference), business, developer tools, education, entertainment, food (& dining), government (& politics), health (& fitness), kids (& family), lifestyle, medical, multimedia design, music, navigation (& maps), news (& weather), personal finance, personalization, photo (& video), productivity, security, shopping, social, sports, travel, utilities (& tools)

If instead you tap "Top games", you might see these choices (though recently suppressed):

Chart: top free, top paid, best-rated, new and rising  
Category: action (& adventure), avatar, card (& board), casino, classics, companion, educational, family (& kids), fighting, multi-player online battle arena, music, other, platformer, puzzle (& trivia), racing (& flying), role playing, shooter, simulation, social, sports, strategy, tools, video, word

At the screen's very top, you see this menu:

Home Apps Games Music Movies & TV

Go explore! Tap whatever interests you, or tap "Show all" (at the screen's right edge) to see more choices, or tap the Search box (which is at the screen's top-right corner, then type a topic to search for and press the Enter key).

Whenever you want to return to the previous screen, tap the left-arrow at the screen's top-left corner. Whenever you want to stop browsing through the app store, close the Store window by tapping its X (at the screen's top-right corner).

For each app, you see its price (or it's marked "Free", though the typical "Free" app will encourage you to spend money later to add extra features). When you find an app that interests you, do this:

Tap the app.  
You'll see more info about the app. (If you want to see even more info about the app, look farther down, by swiping up).  
If you decide to get the app, tap the blue button that shows its price or "Free". If it's not free, answer any questions about your identity (your PIN, address, and credit card).

The app will be copied from the Internet to your computer. Then the computer will say "This product is installed."

To run the app immediately, tap the blue "Open" button. To run the app soon afterwards, tap the app on the part of the Start menu called "Recently added". To run the app much later, tap "All apps" on the Start menu then tap the app.

If you change your mind and want to delete the app from your computer, right-click the app (which is in the "All apps" list) then tap "Uninstall". But deleting an app does *not* get you a refund.

## Cortana

Cortana is a fun but unreliable way to chat with your computer. Try it!

Tap the **Cortana tile** (which is normally the 2<sup>nd</sup> row's 3<sup>rd</sup> tile).

If Cortana hasn't been used on your computer before, set up Cortana by doing this:

Tap "Next" then "I agree". Type what you want the computer to call you (such as your nickname or first name) then press the Enter key. Tap "Got it".

To the right of the Windows Start button, you see "Ask me anything". To ask the computer a question or give it an order, choose one of these methods:

**Typing method** Tap "Ask me anything" (to make sure its box is white) then type your question or command. At the end of your typing, press the Enter key. The computer will type a written reply.

**Voice method** Tap the microphone icon (little picture of a microphone) that's to the right of "Ask me anything". The "Ask me anything" changes to "Listening". Using your voice, immediately say your question or command. The computer will type what you said. When you finish speaking, pause. If you're lucky, you'll hear an actress (Jen Taylor, portraying the female robot "Cortana") answer your question or command; and you'll see, on the screen, a transcript of what she's saying. If you're *unlucky*, you'll just see a Web page about the topic.

When you finish, tap the window's X.

For example, if you say "Tell me a story", Cortana will say:

Feuding families. Forbidden love. Poison. For never was a story of more woe than this of Juliet and her Romeo. The end.

If you say "Tell me a joke", Cortana will tell a lame joke, such as —

I wondered why the baseball was getting bigger. Then it hit me.

or —

What do Winnie the Pooh and Ivan the Terrible have in common? The same middle name.

or:

What did one ocean say to the other ocean? Nothing, they just waved.

If you ask "What is your favorite drink?" Cortana will say:

A very, very dry martini. Evaporated, in fact.

Give any command about anything. For example, tell Cortana to solve a math problem or perform some task on your computer or find something on the Internet or in your computer or give you directions.

If you can't hear Cortana's voice on HP's all-in-one computer, update the audio driver by doing this:

Right-click the Windows Start button. Click "Device manager". Click the ">" left of "Sound, video and game controllers". Right-click "IDT High Definition Audio Codec". Click "Update Driver Software" then "Search automatically for updated driver software" then "Close" then close the Device Manager window (by clicking its X).

## Hidden apps we love

The following apps are nice & easy to use, though they don't typically have tiles.

### Sports

Some sports news is in the News tile; but to see more news about sports, run the Sports app by one of these methods:

**Standard method** Tap the Start button. (For old Windows 10, then tap "All apps".) You start seeing an alphabetical list of all apps. Get to the "S" part of that list (by putting your finger in the list's middle and swiping up, or by tapping "A" then "S"). Tap "Sports".

**Shortcut method (just on Acer)** While looking at the Start menu, put your finger on a blank black spot in the tile area and swipe up, until you see the Sports tile. Tap the Sports tile.

You see the **Sports window**. Maximize it (by tapping its maximize button if not maximized yet).

You start seeing sports news. To see more sports news, put your finger in the screen's middle and swipe up. When you see a headline that interests you, tap it to read the whole article.

**Menus** At the screen's top, you see this menu:

News Scoreboard Slideshows Videos

The computer assumes you want "News", but tap a different choice if you wish.

At the screen's top-left corner, you see "≡". If you tap that, you see many choices, starting with this list of sports:

today (all sports), NFL (football), NBA (basketball), MLB (baseball), NHL (hockey), golf, major-league soccer, NASCAR Sprint Cup (car racing), tennis, my favorites, more sports

To concentrate on one sport, tap the sport that interests you. (To return to "all sports", choose "today".)

**Finish** When you finish using the Sports app, close its window (by tapping its X).

## Calculator

To run the Calculator app, do this:

Tap the Start button. (For old Windows 10, then tap "All apps".) You start seeing an alphabetical list of all apps. If you don't see "Calculator" yet, get to the "C" part of that list (by putting your finger in the list's middle and swiping up, or by tapping "A" then "C"). Tap "Calculator".

You see the **Calculator window** (a big picture of a pocket calculator). Maximize it (by tapping its maximize button if not maximized yet).

**How to calculate** To compute 42+5, you can use 4 methods:

**Touch method** On the screen, tap the calculator's 4 button, then tap 2, then +, then 5, then =.

**Mouse method** On the screen, click the calculator's 4 button (by using the mouse or touchpad or to point at the 4 button and then clicking), then click 2, then +, then 5, then =.

**Main-keyboard method** On the physical keyboard's main section (the left section), press the 4 key (which is above the E and R keys), then the 2 key (which is above the Q and W keys), then (while holding down the Shift key) the + key, then 5. Then press the = key (or the Enter key).

**Numeric-keypad method** On the physical keyboard's far-right section (called the **numeric keypad**), try pressing the 4 key, which is below the 7 key. (If that doesn't make 4 appear on the screen, press the Num Lock key then try again to press the 4 key.) Then, still using the numeric keypad, press the 2 key, then the + key, then the 5 key, then the Enter key.

If you use any of those methods successfully, the calculator will show the answer, 47, in the **main box**.

**Try all 4 methods**, and see which one you prefer. (You'll prefer whichever method you've practiced the most.)

Try fancier calculations, by tapping these calculator buttons on the screen (or pressing keys on the keyboard):

Button on screen	Keyboard	Meaning
+	+	plus
-	-	minus
x	*	times
÷	/	divided by
=	= or Enter	show the final answer, the "total"
.	.	decimal point
C	Esc	clear the total, so it becomes zero
CE	Del	clear this entry, so you can retype it
⌫	Backspace	erase the last digit you typed
±	F9	create (or erase) this entry's minus sign

(To tap the F9 key on new computers by Microsoft, HP, Lenovo, and Toshiba, you must do so *while holding down the Fn key*.)

**Standard versus scientific** You can choose 2 popular kinds of calculators:

A **standard calculator** is simple and cute: it does just arithmetic.  
A **scientific calculator** includes extra buttons, so you can do advanced math.

The first time you (or your colleagues) ask for the calculator, the computer shows a standard calculator (which is simple and cute). If you want to switch the calculator from standard to scientific, tap “STANDARD” (or “≡”) then “SCIENTIFIC”.

Then you’ll see extra buttons, such as these:

Button	Meaning
n!	factorial
$\pi$	pi (a circle’s circumference divided by the circle’s diameter)

If you tap the 7 button and then say “**factorial**” (by pressing the n! button), the computer will multiply together all the numbers up to 7 (1 times 2 times 3 times 4 times 5 times 6 times 7) and say 5,040 (which is called “7 factorial”). If you say “**pi**” (by pressing the  $\pi$  button), the computer will say 3.1415926535897932384626433832795.

After making the calculator scientific, you can switch the calculator back to standard again by tapping “SCIENTIFIC” then STANDARD”.

**Order of operations** The calculator’s answer to “2+3×4=” depends on whether you chose standard or scientific:

If you said you wanted the calculator to be standard, the computer does 2+3 (which totals 5), then multiplies by 4, giving a final total of 20.

If you said you wanted the calculator to be scientific instead, the computer does “2+3×4=” by doing the multiplication first, like scientists do: 3×4 is 12, and 2+12 gives a final total of 14 (not 20).

**Tricky buttons** These 4 buttons are tricky:

Button	Meaning
$x^2$	square of the previous number example: “7 $x^2$ ” is 49 (because 7 times 7 is 49)
$\sqrt{\quad}$	square root of the previous number example: “49 $\sqrt{\quad}$ ” is 7 (because 49 is 7 times 7)
1/x	divide 1 by the previous number example: “4 1/x” is .25 (because 1/4 is .25) on the standard calculator, this button is visible on the scientific, this button hides until you press the $\uparrow$ button
%	multiply the 2 previous numbers, then divide by 100 example: “2 × 3 %” is .06 (because it’s 2×3/100) afterwards, click the C button (to clear the total) this button is on just the standard calculator, not the scientific

**Memory** When the Calculator window is maximized, its top-right corner says “History” and “Memory”. The computer assumes you want “History” (which shows a history of what calculations you did). If you tap “Memory” instead, the computer shows what numbers you saved in memory, if any.

The calculator includes these **memory buttons**:

Button	Meaning
MS	memory store (copy the main box’s number to memory)
MR	memory retrieve (copy memory’s newest number to the main box)
M+	memory add (edit memory’s newest number, by adding the main box’s number to it)
M-	memory subtract (edit memory’s newest number, by subtracting the main box’s number from it)
MC	memory clear (erase memory, so no numbers are in memory)

**Close** When you finish using the Calculator window, tap its X (in the window’s top-right corner).

## Camera

The **Camera app** lets you use the computer’s built-in camera. Run the Camera app by doing this:

Tap the Start button. (For old Windows 10, then tap “All apps”.) You start seeing an alphabetical list of all apps. If you don’t see “Camera” yet, get to the “C” part of that list (by putting your finger in the list’s middle and swiping up, or by tapping “A” then “C”). Tap “Camera”.

If the computer asks “Let Windows Camera access your location?” tap “Yes”.

You see the **Camera window**. Maximize it (by tapping its maximize button, if necessary).

**Enjoy the mirror** The screen can act as a mirror, so you see yourself staring at the screen! Here’s why:

**Toshiba laptop** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the blue light). The camera is aimed toward you. The camera is medium-quality (1280×720 resolution, 9 megapixels).

**Acer laptop** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the green light). The camera is aimed toward you. The camera is medium-quality (1280×1024 resolution, 1.3 megapixels).

**HP laptop** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the white light). The camera is aimed toward you. The camera is low-quality (640×480 resolution, .3 megapixels).

**HP all-in-one** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the white light). The camera is aimed down at you. The camera is medium-quality (1280×800 resolution, 1 megapixel).

**Toshiba tablet** The screen is surrounded by a black border. That border’s top-right corner includes a tiny pinhole camera aimed toward you. That’s called the **front camera** (or **front-facing camera**). Behind that camera, on the computer’s backside, is another pinhole camera, aimed in the opposite direction (such as toward your desktop), in the same direction as your eye sees; that’s called the **back camera** (or **rear-facing camera**). To make the rear-facing camera show something useful, lift the tablet off the desk. To switch from one camera to the other, tap “Change camera” (which you’ll see when you swipe up from the bottom black border). The front camera is 2-megapixel; the back camera is higher quality (8-megapixel).

To have fun, grab your friends and favorite objects and put them next to you, so the screen shows them all! The quality will be better if the room is brightly lit, flooded with bright daylight, not at night. You can tilt the screen, to let the camera get a different view.

Anything near the camera will look bigger. For example, if you put your hand near the camera, your hand will look bigger than your head.

**Snap a photo** To snap a photo, use one of these methods:

**Keyboard method** Press the keyboard’s Space bar.

**Touchscreen method** Tap the **photo-camera icon** (the big drawing of a photo camera, at the screen’s right edge).

To see a photo you snapped, tap the **photos icon** (the tiny drawing of 2 mountaintops, or tiny photo, at the screen’s top-left corner). You see the **Photos window**. Maximize it. It shows the newest photo; to see the previous photo (if any), press the left-arrow key (or put your finger in the screen’s middle and swipe to the right). When you finish looking at the Photos window, close it (by clicking its X). Then you can snap another photo.

If you put a book in front of the screen, the book’s writing will look backwards (a mirror image) on the screen before you take the photo, but the final photo will show the book’s writing correctly.

**Print a photo** While you’re looking at a photo you took, here’s how to print it onto paper:

Make sure the printer is turned on, has paper, and is connected to the computer. Tap “...” (which is near the screen’s top-right corner) then “Print”. If the orientation box says “Portrait” but the photo is wider than its height, change “Portrait” to “Landscape” by tapping “Portrait” then “Landscape”. Tap “Print”.

**Edit a photo** While you're looking at a photo you took, you can edit it.

To **delete** the photo, use one of these methods:

**Keyboard method** Press the Delete key then the Enter key.

**Touchscreen method** Tap the Delete icon (the white trash can near the screen's top-right corner) then the blue "Delete" button.

To **rotate** the photo 90 degrees clockwise, tap the Rotate icon (the white circling arrow near the screen's top-right corner). Tap the Rotate icon again to rotate an extra 90 degrees.

To do **advanced editing**, tap the Edit icon (the white pencil near the screen's top-right corner). Then you see this menu:

Basic fixes  
Filters  
Light  
Color  
Effects

Here's how to use that menu....

If you tap "**Basic fixes**", you see 6 choices:

Tap "**Enhance**" to enhance the photo. If you don't like that enhancement, tap "Enhance" again to undo it.

Tapping "**Rotate**" has the same effect as the Rotate icon I mentioned before.

If you tap "**Crop**", you see a big white box surrounding the photo's middle. At the box's 4 corners, you see white circles. Slide (drag) the circles until the big white box surrounds just the part of the photo you want to keep. Then tap the Apply icon (the white check mark near the screen's top-right corner). The computer will keep that part of the photo and hide the rest.

If the photo is tilted, straighten it doing this: put your finger on the **Straighten** icon, then slide your finger around black circle. The farther you slide, the more the photo will rotate.

To erase red from a person's eye pupil, tap "**Red eye**" then the person's eye.

To erase a blemish (such as a scratch, pimple, wrinkle, mosquito, or ex-lover), do this: zoom in (by putting your fingers on the photo then spreading them apart), then tap "**Retouch**", then tap each part of the blemish. The blemish will be hidden (because it will acquire the same color as what surrounds it), though the photo will look less natural. When you finish retouching, tap "Retouch" again, then zoom back out (by putting your fingers on the photo then pinching them together).

If you tap "**Filters**", the screen's right edge shows 6 different colorizations of the photo. Try tapping each of them! Finally, tap the version you prefer. (Usually the second version looks best.)

If you tap "**Light**", you see 4 choices:

To make the photo brighter, put your finger on the **Brightness** icon then slide your finger clockwise around the black circle. (To darken, slide counterclockwise.)

To increase the contrast (make the light areas lighter and the dark areas darker), put your finger on the **Contrast** icon then slide clockwise.

To increase the highlights (make the light areas lighter), put your finger on the **Highlights** icon then slide clockwise.

To remove shadows (make the dark areas lighter), put your finger on the **Shadows** icon then slide clockwise.

If you tap "**Color**", you see 4 choices:

To change the photo's temperature, put your finger on the **Temperature** icon then slide your finger around the black circle. (Sliding clockwise makes the photo more orange, so it looks fiery hot; sliding counterclockwise makes the photo bluer, so it looks ice cold.)

To change the photo's tint, put your finger on the **Tint** icon then slide: clockwise makes the photo more magenta (reddish purple); counterclockwise makes the photo greener.

To change the photo's saturation, put your finger on the **Saturation** icon then slide: clockwise makes the photo more colorful; counterclockwise makes the photo grayer.

To make a particular color more vibrant (brighter and more saturated), tap the **Color boost** icon, so it hops up and down. Then tap, in your photo, the color you want to saturate (so the Color boost icon's tip is on that color, and Color boost's inner circle shows a sample of that color). Finally, slide clockwise around the black circle. In the photo, *everywhere* having that color becomes more saturated.

If you tap "Effects", you see 2 choices:

To make a vignette (where the photo's corners are darkened, so the photo's center is emphasized), put your finger on the **Vignette** icon then slide your finger clockwise around the black circle.

To make selective focus (where the photo's corners are blurred, so the photo's middle is emphasized), tap "**Selective focus**". On the photo, you see a circle, with a cross in its center. Drag the cross until it's the center of what you want to emphasize; then drag the circle's white dots until the circle (or oval) surrounds the part of the photo you want to emphasize. Finally, press the Apply icon (the white check mark near the screen's top-right corner). The computer will keep the photo's emphasized part in focus and make the photo's outside be blurred (purposely out of focus).

When you finish doing advanced editing, tap "... " (which is near the screen's top-right corner). Then you see this menu:

Undo Redo Compare Save a copy Save Cancel ...

Here's how to use that menu:

To undo your most recent change, tap "**Undo**". (To undo your 2 most recent changes, tap "Undo" twice.) If you said "Undo" then wish you didn't, tap "**Redo**" (to undo the "Undo").

To peek at the original unedited photo again (so you can compare it to your edited version), the "**Compare**" choice is unreliable, so do this instead: while holding down the Ctrl key, hold down the "/" key awhile. That shows you the original unedited photo again. When you remove your finger from the "/" key, you see the edited photo again. That feature works for most edits but not for shape changing (cropping, rotating, straightening).

Do you like the edited photo better than the original? You have 3 choices:

To keep all your edits (and destroy the original photo), tap "**Save**".

To return to the original photo (and destroy all edits), tap "**Cancel**" then "Leave".

To keep *both* versions (the original and the edited), tap "**Save a copy**".

**Photos tile** On the Start screen, the **Photos tile** might show one of the photos you made. To see all the photos you took, do this:

Tap the Photos tile. You see tiny copies of all the photos you took recently. Put your finger in the screen's middle and swipe up; then you see older photos (if any).

Tap your favorite photo. Then that photo consumes the whole screen. Swipe left to see earlier photos; swipe right to see newer photos.

If you want to return to seeing tiny copies of many photos, press the **Escape key** (which says "Esc" on it and is at the keyboard's top-left corner).

**Timer** The usual way to snap a photo is to press the Space bar (or tap the camera icon). Immediately before doing that, try this experiment:

Tap the "... " (which is near the screen's top-right corner) then "Photo timer" then the check mark (which is near the screen's bottom-right corner).

Then when you press the Space bar (or tap the camera icon), the computer will delay 5 seconds before snapping the picture, so you have 5 seconds to practice your smile before the photo is snapped.

All future photos will be affected by the timer, until you turn off the timer by doing this: tap the "... " then "Photo timer" then the X near the screen's bottom-right corner.

**Record a movie** The computer treats a movie as if it were a fancy photo. So before you try to record a movie, practice snapping and editing a simple photo, which is easier. After you've practiced photography, do the following....

To record a movie (instead of snapping a photo), tap the **movie-camera icon** (the small drawing of a movie camera, at the screen's right edge) instead of the photo-camera icon. Then the screen's bottom says 00:00.

Tap the Space bar. Wait briefly for the movie-camera icon to be surrounded by a blue circle, then start recording. The screen's bottom shows how many minutes and seconds have elapsed so far. To finish recording, press the Space bar again.

Treat the movie as if it were a fancy photo:

To access the movie you created, tap the **photos icon** (the tiny drawing of 2 mountaintops, at the screen's top-right corner). You see the **Photos window**. In that window, the movie starts to play.

If you want to pause, tap the Space bar; to resume, tap the Space bar again (or the triangle in the screen's middle). When the movie finishes playing, you can watch it again by tapping the Space bar (or the triangle in the screen's middle).

To see an earlier movie or photo, tap the left-arrow key. When access a movie, a triangle appears in the screen's movie; to play the movie, tap the Space bar (or triangle).

**Edit a movie** To **delete** a movie, get it onto the screen, then use one of these methods:

**Keyboard method** Press the Delete key then the Enter key.

**Touchscreen method** Tap the Delete icon (the white trash can near the screen's top-right corner) then the blue "Delete" button.

To **trim** a movie (delete its beginning or ending), get the movie onto the screen. While a still frame from the movie is on the screen (because you paused the movie, or the movie is at its beginning or end), tap the **trim icon** (which is left of the trash can). Then start playing the movie (by tapping the Space bar). Which part do you want to delete?

To **delete the movie's beginning**, tap the Space bar at the beginning of the part you want to keep. The playing will pause. Drag a completely white circle from the screen's left edge to the middle circle.

To **delete the movie's ending** instead, tap the Space bar at the end of the part you want to keep. The playing will pause. Drag a completely white circle from the screen's right edge to the middle circle.

After dragging the white circle, tap the "Save a copy icon" (which is left of the lower X). You'll have 2 versions of the video: the original version and the trimmed version. You're seeing the trimmed version; if you want to see the original version (which is left of the trimmed version), tap the left-arrow key (then the Space bar).

## Maps

The **Maps app** lets you see maps.

Run the Maps app by doing this:

**Standard method** Tap the Start button. (For old Windows 10, then tap "All apps".) You start seeing an alphabetical list of all apps. Get to the "M" part of that list (by putting your finger in the list's middle and swiping up, or by tapping "A" then "M"). Tap "Maps".

**Shortcut method (just on Acer)** While looking at the Start menu, put your finger on a blank black spot in the tile area and swipe up, until you see the Maps tile. Tap the Maps tile.

If the computer says "Welcome to the new Maps app", tap "Let's go". If the computer asks "Let Windows Maps access your location?" tap "Yes". That lets the computer's GPS system figure out where you are.

You see the **Maps window**. Maximize it (by tapping its maximize button, if necessary).

**Zoom in** You see a map of part of the world. If you want to zoom in (so you see more details), use one of these methods....

**Double-tap method** Double-tap where you want to zoom in.

**Stretch method** Put two fingers where you want to zoom in. Then **stretch** (slide your fingers apart).

**Address method** Tap in the white Search box (at the screen's top-left corner). Type a location (such as "196 Tiffany Lane, Manchester NH" or "Los Angeles airport" or "White House"). At the end of your typing, press the Enter key.

**Zoom out** If you want to zoom out (so you see fewer details but see a bigger part of the world), shrink the map by doing this: **pinch** your fingers (by putting two fingers on the screen then sliding the fingers toward each other). If you do that several times, you'll see the whole world on your screen.

**Yourself** While holding down the Ctrl key, tap the Home key. That adjusts the map so your location is in the map's middle. You see a blue circle there.

**Map views** Tap the "Map views" icon (which is above the + sign, near the screen's right edge) then "Aerial". That shows you an aerial photo from a satellite.

To return to the normal view, tap the "Map views" icon again then "Road".

## WordPad

Your computer has some built-in word-processing programs. The simplest is called **WordPad**.

To run WordPad, do this:

Next to the Windows Start button is the **Windows Search box**. Make sure that box is white or light gray. (If it's black or dark gray, make it lighter by tapping it or the Windows Start button.)

**Type "wordp"**. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) Your typing appears in the Windows Search box.

You see a list of things that contain "wordp". Tap **"WordPad: Desktop app"**.

You see the **WordPad window**. Maximize it (by tapping its maximize button if not maximized yet).

Now that the WordPad window consumes the whole screen, you can easily do word processing: you can easily type words and sentences. Try it! Type whatever sentences you wish to make up. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) For example, try typing a memo to your friends, or a story, or a poem. Be creative! Whatever you type is called a **document**.

## Use the keyboard

On pages 66-67, I explained how to examine the keyboard. Here are more hints to help you type.

**Capitals** Find the **Shift keys**. (One Shift key is next to the Z key. The other Shift key is next to the question-mark key. Each Shift key has an up-arrow on it.)

To capitalize a letter of the alphabet, do this:

**Physical keyboard** Type that letter while holding down the Shift key.

**On-screen keyboard** Tap the Shift key. Then type that letter.

To capitalize a whole passage, do this:

**Physical keyboard** Tap the **Caps Lock key**. Then type the passage. The computer will automatically capitalize the passage as you type it. When you finish typing the passage, tap the Caps Lock key again: that tells the computer to stop capitalizing.

**On-screen keyboard** Double-tap the Shift key. Then type the passage. The computer will automatically capitalize the passage as you type it. When you finish typing the passage, tap the Shift key again: that tells the computer to stop capitalizing.

**Backspace Key** If you make a mistake, press the **Backspace key**. That makes the computer erase the last character you typed.

**Physical keyboard** The Backspace key is in the top-right corner of the keyboard's main section. It's to the right of the + key and has a left-arrow on it.

**On-screen keyboard** The Backspace key is at the keyboard's top-right corner. It's to the right of the p key and has the symbol ⌫ on it.

To erase the last *two* characters you typed, press the Backspace key *twice*.

**Word wrap** If you're typing near the screen's right edge, and you type a word that's too long to fit on the screen, the computer will automatically move the word to the line below. Moving the word to the line below is called **word wrap**.

**Enter Key** When you finish typing a paragraph, press the **Enter key**, which has the symbol ↵ on it. That makes the computer move to the line underneath so you can start typing the next paragraph.

The computer automatically leaves a slight gap between the paragraphs, to separate them. If you want the computer to leave a bigger gap between the paragraphs, press the Enter key *twice* instead of once.

**Press & hold (just on-screen keyboard)** When you're in the middle of typing a word using the on-screen keyboard, rest your finger on the "e" key awhile. (Resting your finger on a key is called "**press & hold**" or "**touch & hold**".) Then you see extra symbols:

è	3	ë
ê	e	é
ẽ		

To type one of those symbols, slide your finger from the "e" to the symbol you want.

Similarly, to type the symbol "ñ", rest your finger on the "n" key awhile then slide to the "ñ".

These letters offer accents: a, c, d, e, g, h, i, j, n, o, s, t, u, w, y.  
All letters on the top row offer numbers.  
The comma offers a semicolon.  
The period offers a colon.  
The question mark offers many symbols.

**Symbol Key (just on-screen keyboard)** While you're using the on-screen keyboard, tap the **Symbol key** (which is at the keyboard's bottom-left corner and says "&123" on it). Then you see keys containing numbers and symbols (instead of letters). Then to see different symbols, press the right-arrow key (which is above the Symbol key).

To return to seeing the letter keys, tap the Symbols key again.

**Tab key** If you want to indent a line (such as the first line of a paragraph), begin the line by pressing the **Tab key**. (On a physical keyboard, the Tab key shows a right-arrow crashing into a wall. To see the Tab key on an on-screen keyboard, tap the Symbol key first.) The computer will indent the line a half inch.

**Nudge a phrase** To move a phrase toward the right, press the Tab key several times before typing the phrase. To move a phrase down, press the Enter key several times before typing the phrase.

**Ctrl symbols (just physical keyboard)** The following trick works just on a physical keyboard.

On your keyboard, below the two Shift keys, are two Control keys, which say "Ctrl" on them. You can use them to type special symbols:

**Symbol How to type it**

€	While pressing the Ctrl and Alt keys, type the letter "e".
ç	While pressing the Ctrl key, tap the "," key. Then type the letter "c".
ñ	While pressing Ctrl (and Shift), tap the "~" key. Then type the letter "n".
ô	While pressing Ctrl (and Shift), tap the "^" key. Then type the letter "o".
ü	While pressing Ctrl (and Shift), tap the ":" key. Then type the letter "u".
è	While pressing the Ctrl key, type the symbol ` . Then type the letter "e".
é	While pressing the Ctrl key, type the symbol ' . Then type the letter "e".

**Alt symbols (just physical keyboard)** On a full-size physical keyboard, you can type these alternative symbols:

128 Ç	144 É	160 á	225 ß
129 ü	145 æ	161 í	
130 é	146 Æ	162 ó	
131 â	147 ô	163 ú	
132 ä	148 ö	164 ñ	230 µ
133 à	149 ò	165 Ñ	
134 å	150 û	166 ª	241 ±
135 ç	151 ù	167 °	
136 è	152 ÿ	168 ÿ	246 ÷
137 ë	153 Ö	169	
138 è	154 Ü	170 ¬	248 °
139 ï	155 £	171 ½	
140 î	156 £	172 ¼	250 ·
141 ï	157 ¥	173 ¡	
142 Ä	158 P	174 «	
143 Å	159 f	175 »	253 ²

For example, here's how to type the symbol ç, whose code number is 155. Hold down the Alt key; and while you keep holding down the Alt key, type 155 by using the *numeric keypad* (the number keys on the keyboard's far right side). When you finish typing 155, lift your finger from the Alt key, and you'll see ç on your screen! Try it!

That chart skips numbers whose results are unreliable (producing different results on different printers and on different versions of Windows).

Windows copied that chart from DOS. But Windows goes beyond DOS by letting you also use this fancier chart:

0128 €		0192 À	0224 à
	0161 ¡	0193 Á	0225 á
0130 ,	0162 ¢	0194 Â	0226 â
0131 f	0163 £	0195 Ã	0227 ã
0132 ,,	0164 ¤	0196 Ä	0228 ä
0133 ...	0165 ¥	0197 Å	0229 å
0134 †	0166 §	0198 Æ	0230 æ
0135 ‡	0167 §	0199 Ç	0231 ç
0136 ^	0168 ¨	0200 È	0232 è
0137 ‰	0169 ©	0201 É	0233 é
0138 Š	0170 ª	0202 Ê	0234 ê
0139 ‹	0171 «	0203 Ë	0235 ë
0140 Œ	0172 ¬	0204 Ì	0236 ì
	0173 -	0205 Í	0237 í
0142 Ž	0174 ®	0206 Î	0238 î
	0175 ¯	0207 Ï	0239 ï
	0176 °	0208 Ð	0240 ð
0145 ´	0177 ±	0209 Ñ	0241 ñ
0146 `	0178 ²	0210 Ò	0242 ò
0147 “	0179 ³	0211 Ó	0243 ó
0148 ”	0180 ´	0212 Ô	0244 ô
0149 •	0181 µ	0213 Õ	0245 õ
0150 –	0182 ¶	0214 Ö	0246 ö
0151 —	0183 ·	0215 ×	0247 ÷
0152 ~	0184 ,	0216 Ø	0248 ø
0153 ™	0185 ¹	0217 Ù	0249 ù
0154 š	0186 °	0218 Ú	0250 ú
0155 ›	0187 »	0219 Û	0251 û
0156 œ	0188 ¼	0220 Ü	0252 ü
	0189 ½	0221 Ý	0253 ý
0158 ž	0190 ¾	0222 Þ	0254 þ
0159 Ÿ	0191 ¿	0223 ß	0255 ÿ

For example, here's how to type the symbol ©, whose code number is 0169: while holding down the Alt key, type 0169 on the numeric keypad.

## Scroll arrows

If your document contains too many lines to fit on the screen, the screen will show just *part* of the document, accompanied by two arrows at the screen's right edge: a **scroll-up arrow** (which is  $\wedge$ ) and a **scroll-down arrow** (which is  $\vee$ ).

To see a higher part of your document, click the scroll-up arrow ( $\wedge$ ) or do this: put your finger in the screen's middle and swipe down.

To see a lower part of your document, click the scroll-down arrow ( $\vee$ ) or do this: put your finger in the screen's middle and swipe up.

## Insert characters

To insert extra characters anywhere in your document, you can click where you want the extra characters to appear (by moving the mouse's pointer there and then pressing the mouse's button). Then type the extra characters.

For example, suppose you typed the word "fat" and want to change it to "fault". Click between the "a" and the "t", then type "ul". (Instead of clicking, you can tap the screen there with your finger.)

As you type the extra characters, the screen's other characters move out of the way to make room for the extra characters.

**4 ways to move the cursor** While you're inserting the extra characters, you see a blinking vertical line there, called the **cursor** (or **caret** or **insertion point**). To move the cursor to a different place in your document (so you can insert characters there instead), you can use 5 methods.

**Tap method** Tap the screen there.

**Mouse method** Move the mouse pointer there, then click the mouse's left button.

**Touchpad method** Move the mouse pointer there, then tap the touchpad.

**On-screen-keyboard method** Press the "<" key (to move left to the previous character) or the ">" key (to move right to the next character).

**Physical-keyboard method** Press these **movement keys**:

**Key you press** **Where the cursor will move**

right-arrow	right to the next character
left-arrow	left to the previous character
down-arrow	down to the line below
up-arrow	up to the line above
End	right to the end of the line
Home	left to beginning of the line
Page Down	down to the next screenful
Page Up	up to the previous screenful

Here's what happens if you press those movement keys while holding down the Ctrl key:

Key you press	Where the cursor will move
Ctrl with right-arrow	right (to the next word or punctuation symbol)
Ctrl with left-arrow	left (to the beginning of a word or punctuation)
Ctrl with down-arrow	down to the next paragraph
Ctrl with up-arrow	up to the beginning of a paragraph
Ctrl with Page Down	down to the end of the screen's last word
Ctrl with Page Up	up to the beginning of the screen's first word
Ctrl with End	down to the end of the document
Ctrl with Home	up to the beginning of the document

**2 ways to erase** You can erase nearby mistakes by pressing the **Backspace key** or **Delete key**.

The **Backspace key** erases the character that's *before* the cursor.

The **Delete key** (which is just on a physical keyboard and says "Delete" or "Del") erases the character that's *after* the cursor.

## Split a paragraph

Here's how to split a long paragraph in half, to form two short paragraphs.

Decide which word should begin the second short paragraph. Click the left edge of that word's first letter.

Press the Backspace key (to erase the space before that word), then press the Enter key. Now you've split the long paragraph in two!

If you want to double-space between the two short paragraphs, press the Enter key again. If you want to indent the second paragraph, press the Tab key.

## Combine paragraphs

After typing two paragraphs, here's how to combine them, to form a single paragraph that's longer.

Click at the first paragraph's end. Press the Delete key several times, to delete unwanted Enters and Tabs. Now you've combined the two paragraphs into one!

Then press the Space bar (to insert a space between the two sentences).

## Zoom

You can zoom in two ways.

**Stretch zoom** Try this experiment: put two fingers together at the screen's middle, then spread those fingers apart. That's called **stretch** or **zoom in**. That makes the screen's characters enlarge, so you can read them even if you're sitting far from the screen or have poor vision. It's like looking at the document through a magnifying glass: the document looks enlarged, so you can see the details of each word and character more clearly; but not as many words and characters fit on the screen. Use the arrow keys to see different parts of the page.

To make the screen's characters shrink, do the opposite: put two fingers apart at the screen's middle, then pinch those fingers together. That's called **pinch** or **zoom out**. That makes the screen's characters shrink, so they're harder to read but you can fit more characters and pages onto the screen.

When you finish playing with the zoom, stretch or pinch until the screen's bottom-right corner says "100%", which means you're back to normal size.

**Slider zoom** At the screen's bottom-right corner, you see a plus sign (+). Left of it, you see a minus sign (-). Between those signs, you see the **zoom slider**, which is a pentagon.

Try this experiment: **drag the zoom slider toward the right**, using one of these methods:

**Touch method** Put your finger on the zoom slider, then drag it toward the right.

**Mouse method** Put the mouse pointer on the zoom slider. Then while pressing the mouse's main button (the left button), move the mouse toward the right.

If you drag the zoom slider toward the right, the screen's characters enlarge, so you can read them even if you're sitting far from the screen or have poor vision. It's like looking at the document through a magnifying glass: the document looks enlarged, so you can see the details of each word and character more clearly; but not as many words and characters fit on the screen. Use the arrow keys to see different parts of the page.

If you drag that slider toward the left, the screen's characters shrink, so they're harder to read but you can fit more characters and pages onto the screen.

When you finish playing with the zoom slider, put it back to its normal position (the middle), so the number left of the minus sign is "100%" (or a number close to 100%, such "98%"), by dragging the slider (or pressing the keyboard's arrow keys, which give you more accurate control).

## All delete

Here's how to delete the entire document, so you can start over:

While holding down the Ctrl key, press the A key. That means "all". All of the document turns blue.

Then press the Delete key (or Backspace key). All of the document disappears, so you can start over!

## Quick Access Toolbar

At the screen's top-left corner, you see a gray bar (called the **Quick Access Toolbar**), which includes these **icons** (little pictures) called **buttons**:

The **Save button** is a purple-and-white square that's supposed to look like a floppy disk (though it also looks like a TV set).

The **Undo button** is an arrow curving toward the left. The arrow is blue (unless you haven't typed anything yet).

If you **hover** over a button (by moving your mouse's arrow there, without clicking), the computer will tell you the button's name.

Here's how to use those buttons....

**Save button** To save the document you've been typing (copy it onto the disk), tap (or click) the **Save button**.

Then invent a name for your document.

Type the name. Your typing will appear in the "File name" box. At the end of your typing, press the Enter key (which has the symbol ↵). That tells the computer to copy the document onto the hard disk. (On a tablet, which has no hard disk, the computer copies the document onto a solid-state drive, which made of RAM chips imitating a hard disk.)

For example, if you named the document "mary", the computer puts a document called "mary.rtf" into the Documents folder. (The ".rtf" is hidden from you but stands for "rich text format".)

Afterwards, if you change your mind and want to do more editing, go ahead! When you finish that extra editing, save it by clicking the Save button again.

Save often! If you're typing a long document, **click the Save button about every 10 minutes**. Click it whenever you get to a good stopping place and think, "What I've typed so far looks good!" Then if an accident happens, you'll lose at most 10 minutes of work, and you can return to the last version you felt good about.

Instead of clicking the Save button, you can use this shortcut: while holding down the Ctrl key, tap the S key (which stands for "Save").

**Undo button** If you make a mistake (such as accidentally deleting some text or accidentally inserting some useless text), tap (or click) the **Undo button** (which is an arrow turning back). That makes the computer undo your last activity, so your text returns to the way it looked before you made your boo-boo. (To undo your last *two* activities, click the Undo button *twice*.)

Instead of clicking the Undo button, you can use this shortcut: while holding down the Ctrl key, tap the Z key (which stands for "Zap").

If you click the Undo button, the computer might undo a different activity than you expected. For example, it might even erase everything you typed! If clicking the Undo button accidentally makes the text look even worse instead of better, and you wish you hadn't clicked the Undo button, you can "undo the undo" by clicking the **Redo button** (which is next to the Undo button and shows a blue arrow curving to the right, so it bends forward).

Instead of clicking the Redo button, you can use this shortcut: while holding down the Ctrl key, tap the Y key (which stands for "Yes, I do want it, very much").

## File menu

Near the screen's top-left corner, you see the word "**File**". Click it. Then you see the **File menu**:

New  
Open  
Save  
Save as  
Print  
Page setup  
Send in email  
About WordPad  
Exit

From that menu, choose whatever you wish (by clicking it). Here are the most popular choices....

**Save** If you choose **Save** from the File menu (by clicking the word "Save" after clicking "File"), you get the same result as clicking the Save button that's on the Quick Access Toolbar.

**Save as** Suppose you've already saved a document then edited it some more, but you're not sure you like the new editing. Try this experiment....

Choose "**Save as**" from the File menu (by clicking the phrase "Save as" after clicking the "File"); when you do that, make sure you click the phrase "Save as", not just the arrow next to it.

Then invent (and type) a new name for the document. At the end of the new name, press Enter.

The computer will copy the document's new, edited version onto the hard disk. That new, edited version will have the new name you invented.

The document's old original version will be on the disk also and keep its old original name. The disk will contain *both* versions of the document.

## How to finish

When you finish working on a document, choose **Exit** or **New** or **a previous document** from the File menu.

**Exit** Whenever you want to stop using WordPad, choose **Exit** from the File menu (or click the WordPad window's X button). You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

**New** If you choose **New** (instead of Exit) from the File menu, the computer will let you start typing a new, different document.

**A previous document** If you want to reuse a previous document you had saved, click "File", so you see the File menu. To the right of the File menu, you see a list of the **9 documents you used most recently**: that list starts with the most recent. Click whichever document you want to use. If you want to use a different document, which is not on that list of 9, do this:

Choose **Open** from the File menu (by clicking Open).

The computer starts showing you a list of *all* documents in the Documents library. To see the rest of the list, either "click in that list then rotate the mouse's wheel toward you" or "repeatedly click the down-arrow that's to the right of that list".

If you want to *use* one of those documents, **double-click** the document's name. (To double-click, tap the mouse's left button twice *quickly*, so the taps are less than .4 seconds apart. While tapping the left button twice, make sure the mouse remains still: don't let the mouse jiggle, not even a smidgen! Double-clicking is also called **opening**.) The computer will put that document onto the screen and let you edit it. If instead you want to *delete* one of those documents, click the document's name then press the Delete key then the Enter key; the computer will move that document to the Recycle Bin.

**Didn't save?** If you didn't save your document before doing those "how to finish" procedures, the computer asks, "Do you want to save?" If you click "Save", the computer copies your document's most recent version to the hard disk; if you click "Don't Save" instead, the computer ignores and forgets your most recent editing.

**How to hide from the recently-used list** To the right of the File menu, you see a list of the 9 documents you used most recently. That list might annoy you, for two reasons:

One of the documents might be embarrassing (perhaps because it's pornographic or a private letter), and you want to hide it from your colleagues and family.

Even after you've deleted a document, that document's name might still be on that list.

If the **document list annoys you**, delete documents from it, as follows....

The recently-used list shows just the names of *the last 9* documents you mentioned. Go use other WordPad documents; they'll go onto the recently-used list and bump off the older documents.

## Print

Here's how to print a document onto paper.

Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer.

If your computer has never used that printer before, do this:

Get out of WordPad (by choosing Exit from the File menu and answering any questions about saving a document). Then go back into WordPad. That resets WordPad, so it can find the new printer you just attached. Get onto the screen whatever document you want to print (by typing a new document or choosing an old document from the File menu).

Choose **Print** from the File menu (by clicking the word "Print" after clicking "File"); when you do that, make sure you click the word "Print", not just the arrow next to it.

Press Enter. The computer will print the document onto paper.

## Font group

To make sure your computer acts normal, click the word "**Home**" (which is near the screen's top-left corner).

Then you see these 5 words: **Clipboard, Font, Paragraph, Insert, Editing**. Above each word, you see a **group** of icons. I'll explain how to use each group. Let's start with the **Font group**, which looks like this:



**Underline** Here's how to underline a phrase (*like this*).

Activate the **Underline button** (which says U on it) by clicking it. **Activating the button makes the button turn medium-blue** (not just light blue). Then type the phrase you want underlined. Then deactivate the Underline button (by clicking it again).

Go ahead: try it now! Practice using the underline button before you progress to more advanced buttons!

Instead of clicking the Underline button, you can tap it or use this shortcut: while holding down the Ctrl key, tap the U key.

**Bold** Here's how to make a phrase be bold (*like this*). Activate the **Bold button** (which says **B** on it) by clicking it. Then type the phrase you want emboldened. Then deactivate the Bold button (by clicking it again).

Here's how to make a phrase be bold and underlined (*like this*). Activate the Bold and Underline buttons (by clicking them both). Then type the phrase. Then deactivate those buttons (by clicking them again).

Instead of clicking the Bold button, you can use this shortcut: while holding down the Ctrl key, tap the B key.

**Italic** Here's how to italicize a phrase (*like this*). Activate the **Italic button** (which says *I* on it) by clicking it. Then type the phrase you want italicized. Then deactivate the Italic button (by clicking it again).

Instead of clicking the Italic button, you can use this shortcut: while holding down the Ctrl key, tap the I key.

**Superscript** Here's how to make a phrase be tiny and raised (*like this*). Activate the **Superscript button** (which says  $x^2$  on it) by clicking it. Then type the phrase you want superscripted. Then deactivate the Superscript button (by clicking it again).

The superscript button helps you type math formulas, such as the Pythagorean Theorem ( $a^2 + b^2 = c^2$ ).

**Subscript** Here's how to make a phrase be tiny and lowered (*like this*). Activate the **Subscript button** (which says  $x_2$  on it) by clicking it. Then type the phrase you want subscripted. Then deactivate the Subscript button (by clicking it again).

The subscript button helps you type math formulas, such as the Fibonacci Series ( $F_{n+2} = F_n + F_{n+1}$ ) and the Slope Formula:  $m = (y_2 - y_1) / (x_2 - x_1)$ .

**Strikethrough** Here's how to make a phrase be crossed out (*like this*). Activate the **Strikethrough button** (which says ~~abc~~ on it) by clicking it. Then type the phrase you want crossed out. Then deactivate the Strikethrough button (by clicking it again).

The Strikethrough button helps you type semi-censored sentences, such as "You're ~~an asshole~~ showing little sympathy for the team's needs."

**Font size** Look at the **Font Size box** (which has a number in it). Usually that box contains the number 11, so you're typing characters that are **11 points high**.

To type characters that are bigger or smaller, you can use 4 methods:

**Typist method** Click the Font Size box. In that box, type a size number from 8 to 72. The number can end in .5; the number can be 8 or 8.5 or 9 or 9.5 or 10 or bigger. (Theoretically, you can pick a number even smaller than 8 or even bigger than 72, but those extreme numbers create ugly results.) When you finish typing the number, press the Enter key.

**Down-arrow method** Click the down-arrow that's to the *right* of the Font Size box. You see this list of popular sizes: 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 36, 48, and 72. That list of popular sizes is called the **Font Size menu**. Click the size you want.

**Grow method** Click the **Grow Font button** (which says  $A^{\wedge}$  on it). That makes the font be slightly bigger (the next popular size). To make the font grow even bigger than that, click the Grow Font button again.

**Shrink method** Click the **Shrink Font button** (which says  $A^{\vee}$  on it). That makes the font be slightly smaller (the next popular size down). To make the font shrink even smaller than that, click the Shrink Font button again.

Any new characters you type afterwards will be the size you chose. (Characters typed earlier don't change size.)

The popular sizes look like this:

This text is 8 points high, 9 points high, 10 points high, 11 points high, 12 points high, 14 points high, 16 points high, 18 points high, 20 pt., 22 pt., 24 pt., 26 pt., 28 pt.,

36pt., 48pt., 72pt.

When you finish typing the enlarged or reduced characters, here's how to return to typing characters that are normal size (11 points high): click the down-arrow that's to the right of the Font Size box, then click 11.

**Font** You see a box saying "Calibri". That's called the **Font box**.

Next to that box is the symbol ▼. Click it.

You'll start seeing the **Font menu**, which is a list of fonts in alphabetical order. (To see the rest of the list, press the down-arrow key or rotate the mouse's wheel toward you.)

Click whichever font you want. Though Microsoft likes the font called "Calibri", the best fonts are "Times New Roman", "Tahoma", "Comic Sans MS", and "Courier New". Here's how they look:

This font is called "Times New Roman". It's the best for typing long passages of text, such as paragraphs in books, newspapers, magazines, and reports. It squeezes lots of words onto a small amount of paper but remains easy to read. You can make it plain or **bold** or *italic* or **bold italic**.

**If you make it big & bold, like this, it imitates an old-fashioned news headline.**

This font is called "Tahoma". It's simple. It resembles Calibri and Arial but has several advantages, such as a better capital "I". You can make it plain or **bold** or *italic* or **bold italic**. It's best for typing short phrases that attract attention. For example...

**If you make it big & bold, like this, it's good for titles, signs, and posters.**

If you make it small, like this, it's good for footnotes, photo captions, classified ads, telephone books, directories, and catalogs.

This font is called "Comic Sans MS". It resembles Tahoma but looks hand-drawn, like the words in a funny comic book. You can make it plain or **bold** or *italic* or **bold italic**. It's best for typing short phrases that draw attention and giggles. For example...

**If you make it big & bold, like this, it's good for funny titles, signs, and posters.**

This font is called "Courier New".

If you make it 12 points high, like this, it resembles the printout from a typewriter.

It makes each character have the same width: for example, the "m" has the same width as the "i". It's a good font for typing tables of numbers, since the uniform width lets you line up each column of numbers easily.

Choose plain, **bold**, *italic*, or **bold italic**.

After you've clicked a font, any new characters you type will be in that font. (The characters you typed earlier remain unaffected.)

When you finish typing in that font, here's how you can return to typing characters in the Calibri font: click the Font box's down-arrow then click "Calibri".

**Text color** Normally, the characters you type are black. Here's how to make them a different color, such as red.

Look at the **Text color button**, which has an underlined A on it. Notice the color of the A's underline. If it's the color you want, click the underline. If it's *not* the color you want, do this instead:

Click the down-arrow that's to the right of the A's underline. You see 30 colors.

If you like one of those colors, click it.

If you *don't* like any of those colors, click "More Colors", which shows you 48 colors: click your favorite then "OK".

Afterwards, whatever characters you type will be in the color you chose. (The characters you typed earlier remain unaffected.)

When you finish typing in that color, here's how to return to typing characters that are normal (black): click the down-arrow that's to the right of the A's underline, then click "Automatic" (which means "normal").

**Text highlight color** Normally, the characters have a white background, as if they were on plain paper. Here's how to make the background be a different color, such as yellow, as if you were using a yellow highlighting pen.

Look at the **Text highlight color button**, which is just left of the Text color button and shows a pen writing on paper. Notice the paper's color. If it's the color you want, click the underline. If it's *not* the color you want (if it's just white or pale blue), do this instead:

Click the down-arrow that's to the right of the pen. You see 15 colors. Click the color you want (such as yellow).

Afterwards, whatever characters you type will be highlighted in the background color you chose. (The characters you typed earlier remain unaffected.)

When you finish using that highlighter, here's how to return to typing normal characters (on a white background): click the Text color button's down-arrow, then click "No color" (which means "normal").

## Select

Here's how to dramatically change a phrase you typed.

Point at the phrase's beginning. Then hold down the mouse's left button; and while you keep holding down that button, move to the phrase's end.

(Moving the mouse while holding down the left button is called **dragging**. You're **dragging** from the phrase's beginning to the phrase's end.)

The phrase you dragged across gets highlighted: its white background turns blue. Turning the phrase blue is called **selecting the phrase**.

Then say what to do to the phrase. For example, choose one of these activities:

To underline the phrase, activate the Underline button (by clicking it).  
To make the phrase be bold, activate the Bold button (by clicking it).  
To italicize the phrase, activate the Italic button (by clicking it).  
To make the phrase be tiny and raised, activate the Superscript button (by clicking it).  
To make the phrase be tiny and lowered, activate the Subscript button (by clicking it).  
To make the phrase look crossed out, activate the Strikethrough button (by clicking it).  
To prevent the phrase from being underlined, bold, italicized, superscripted, subscripted, or crossed out, deactivate those buttons (by clicking them again).  
To change the phrase's point size, choose the size you want from the Font Size menu.  
To change the phrase's font, choose the font you want from the Font menu.  
To delete the phrase, press the **Delete key**.  
To replace the phrase, just type whatever words you want the phrase to become.

Go ahead! Try it now! It's fun!

**Other ways to select** The usual way to select a phrase is to point at the phrase's beginning, then drag to the phrase's end. But sometimes other methods are faster!

**To select a phrase, choose one of these methods....**

**Drag method** Point at the phrase's beginning. Then **drag** to the phrase's end.  
**Shift-click method** Click the phrase's beginning. Then while holding down the **Shift key**, click the phrase's end.  
**Movement-key method** By using your keyboard's **movement keys** (such as up-arrow, down-arrow, left-arrow, and right-arrow), move to the phrase's beginning. Then while holding down the Shift key, use the movement keys to move to the phrase's end.  
**Line method** To select just **one line**, click in its left margin.  
**Multiline method** To select **several lines**, click in the first line's left margin; then while holding down the Shift key, click in the bottom line's left margin.  
**Word method** To select just **one word**, double-click in its middle.  
**Paragraph method** To select just **one paragraph**, triple-click in its middle (or double-click in its left margin).  
**Multiparagraph method** To select **several paragraphs**, triple-click in the first paragraph's middle; then while holding down the Shift key, click in the last paragraph's middle.  
**All method** To select the **entire document** (all!), tap the A key while holding down the Ctrl key.

**Document vanishes** While you're typing a document, if the whole document suddenly disappears, you accidentally deleted it. Here's why:

You tried to type a capital A, but instead of pressing the Shift key you accidentally pressed the Ctrl key. "Ctrl with A" tells the computer to "select the whole document", so the whole document becomes highlighted. The next character you type replaces the highlighted text, so the highlighted text is all lost.

Cure:

Immediately say "undo" (by clicking the Undo button or pressing Ctrl with Z). That undoes your last action. Say "undo" several times, until you've undone enough of your actions to undo the calamity.

**Drag a phrase** To move a phrase to a new location, just "select the phrase, and then drag from the phrase's middle to the new location." Here are the details:

First, select the phrase you want to move, so the phrase turns blue.

Then take your finger off the mouse's button. Move the mouse's pointer to the phrase's middle (so you see an arrow). Finally, hold down the mouse's button; and while you keep holding down the mouse's button, move the mouse slightly. You'll see a vertical line (red or black); drag that line to wherever you want the phrase to move. (Drag anywhere you wish in the document, or drag to the document's end. The computer won't let you drag past the document's end.)

At the end of the drag, lift your finger from the mouse's button. Presto, the phrase moves where you wished!

In that procedure, you drag the phrase to a new location then drop it there. That procedure is called **drag & drop**.

## Clipboard group

In the Clipboard group, you see 3 choices: **Cut**, **Paste**, and **Copy**.

**Cut and paste** Here's another way to move a phrase to a new location.

Select the phrase (by dragging across it with the mouse, so the phrase turns blue). Click the **Cut button** (which looks like a pair of scissors). The phrase will vanish from its original location.

Click the new location where you want the phrase to reappear. Then click the **Paste button**'s picture of a clipboard (not the word "Paste"). The phrase will appear at that new location.

Here are shortcuts:

Instead of clicking the **Cut button**, you can press **Ctrl with X** (which means "X it out").  
Instead of clicking the **Paste button**, you can press **Ctrl with V** (which stands for "Velcro").

**Copy** Here's another way to copy a phrase, so the phrase appears in your document *twice*.

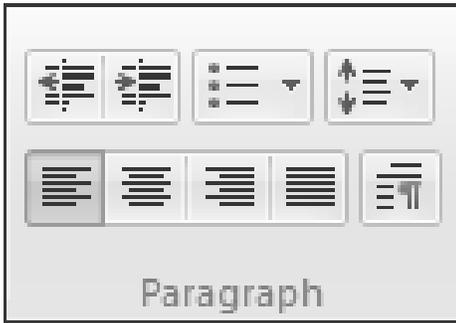
Select the phrase (by dragging across it with the mouse, so the phrase turns blue). Click the **Copy button** (which looks like a pair of dog-eared pages). Click where you want the copy of the phrase to appear, and click the **Paste button**'s clipboard. The copy will appear at the new location, so the phrase will be in your document *twice*.

If you want the phrase to appear in your document a *third* time, click where you want that additional copy to appear, then click the Paste button's clipboard again. If you want the phrase to appear in your document a *fourth* time, click where you want that additional copy, then click the Paste button's clipboard again.

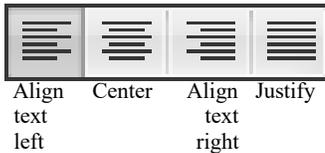
Here's a shortcut: instead of clicking the Copy button, you can press Ctrl with C.

## Paragraph group

The **Paragraph group** looks like this:



**Alignment buttons** While typing a line, you can click one of these **alignment buttons**:



Clicking the **Center button** makes the line be centered,

like this line

Clicking the **Align text right button** makes the line be at the right margin,

like this line

Clicking the **Align text left button** makes the line be at the left margin,

like this line

Clicking one of those buttons affects not just the line you're typing but also all other lines in the same paragraph.

Clicking the **Justify button** makes the paragraph be **justified**, so the paragraph's bottom line is at the left margin, and each of the paragraph's other lines is at *both* margins (by inserting extra space between the words),

like this line

When you click one of those alignment buttons, you're activating it. That button deactivates when you click a different alignment button instead.

When you start typing a new document, the computer assumes you want the document to be aligned left, so the computer activates the Align Left button. If you want a different alignment, click a different alignment button instead.

Examples:

If you're typing a title or headline and want it to be centered, click the **Center button**.

If you're typing a business letter and want it to begin by showing the date next to the right margin, click the **Align text right button**.

If you're typing an informal memo or letter to a colleague or friend, and want the paragraph to look plain, ordinary, modest, and unassuming (like Clark Kent), click the **Align text left button**.

If you're creating something formal (such as a newspaper or textbook) and want the paragraph to have perfectly straight edges (so it looks official, uptight, and professional, like Robocop), click the **Justify button**.

Clicking one of those alignment buttons affects the entire paragraph you're typing, but the paragraphs you typed earlier remain unaffected, unless you do this:

To change the alignment of a paragraph you typed earlier, click in that paragraph's middle then click the alignment button you wish.

When you start typing a new paragraph, the computer gives that paragraph the same alignment as the paragraph above, unless you say differently (by clicking one of the alignment buttons).

Here's how to type a centered title:

Press the Enter key twice (to leave a big blank space above the title).

Next, click the Center button (so the title will be centered) and the Bold button (so the title will be bold). Type the words you want to be in the title and press the Enter key afterwards.

Congratulations! You've created a centered title!

Next, make the paragraph underneath the title be normal: make that paragraph be uncentered (click the Align text left button or Justify button) and make it be unbolded (deactivate the Bold button, by clicking it).

Here are shortcuts:

Instead of clicking the Justify button, you can press Ctrl with J.

Instead of clicking the Align Text Left button, you can press Ctrl with L.

Instead of clicking the Align Text Right button, you can press Ctrl with R.

Instead of clicking the Center button, you can press Ctrl with E (which stands for "Equidistant").

**Line spacing** While typing a paragraph, you can click the **Line Spacing button** (which has an up-arrow and down-arrow on it), which makes this menu appear:

- 1.0
- ✓ 1.15
- 1.5
- 2.0
- ✓ Add 10pt space after paragraphs

Clicking "**2.0**" makes the paragraph be double-spaced (so there's a blank line under each line). Clicking "**1.0**" makes the paragraph be single-spaced (without extra space under the lines). Clicking "**1.15**" makes the paragraph have a little extra space between each pair of lines; that's what the computer assumes you want if you don't say otherwise.

The computer assumes you want a 10-point-high blank space under the paragraph, to separate that paragraph from the paragraph below. If you don't want that space, remove the checkmark that's left of "**Add 10pt space after paragraphs**" (by clicking it).

**Indentation** Before typing a paragraph, you can press the Tab key. That makes the computer indent the paragraph's first line, half an inch.

If you want to indent *all* lines in the paragraph, do this instead of pressing the Tab key: while typing the paragraph, click the **Increase indent button** (which shows a right-arrow pointing at lines). That makes the computer indent *all* lines in the paragraph. (The paragraphs you typed earlier remain unaffected.)

When you start typing a new paragraph, the computer indents that paragraph if the paragraph above it was indented.

If you indented a paragraph by clicking the Increase Indent button but then change your mind, here's how to *unindent* the paragraph: click in the paragraph, then click the **Decrease indent button** (which shows a left-arrow pointing from lines).

For example, suppose you start typing a new document. Here's how to make just paragraphs 3, 4, and 5 be indented.

Type paragraphs 1 and 2 normally (without pressing the Increase indent button).

When you start typing paragraph 3, press the Increase indent button. That makes the computer start indenting, so paragraphs 3, 4, and 5 will be automatically indented.

When you start typing paragraph 6, here's how to prevent the computer from indenting it: click the Decrease indent button at the beginning of paragraph 6.

To indent a paragraph you typed earlier, click in the middle of that paragraph and then click the Increase Indent button. To unindent a paragraph you typed earlier, click in its middle and then click the *Decrease Indent* button.

If you click the Increase indent button *twice* instead of just once, the computer will indent the paragraph farther. After typing that doubly indented paragraph, if you want the paragraph below to be unindented you must click the Decrease indent button twice.

Each time you click the Increase Indent button, the computer indents the paragraph a half inch farther. Each time you click the Decrease indent button, the computer indents the paragraph a half inch less.

**Start a list** Here's a different way to indent an entire paragraph: while typing the paragraph, activate the **Start a list button** (which is the third button in the Paragraph group) by clicking it. That makes the computer indent the paragraph and also put a **bullet** (the symbol ●) to the left of the paragraph's first line. That's called a **bulleted paragraph**. The bullet symbol is indented a quarter inch; the paragraph's words are indented a half inch.

After you've typed a bulleted paragraph, any new paragraphs you type underneath will be bulleted also — so you're creating a list of bulleted paragraphs — until you request an *unbulleted* paragraph (by deactivating the Start a list button).

Here's how to request different symbols instead of the bullet symbol: instead of clicking the Start a list button, click that button's down-arrow. Then you see 6 popular choices:

- bulleted list
- numbered list (1, 2, 3)
- lettered list (a, b, c)
- capital-lettered list (A, B, C)
- Roman-numeral list (i, ii, iii)
- capital-Roman-numeral list (I, II, III)

Click the choice you want. Your choice affects the current paragraph. It also affects the paragraphs underneath that are part of the same list. It also affects each list you start typing in the future (until you choose different symbols instead or start a new document).

## Editing group

In the Editing group, you see 3 choices: **Find**, **Replace**, and **Select all**.

**Find** Here's how to make the computer search through your document to find whether you've used the word "love":

Click where you want the search to begin. (For example, if you want the search to begin at the document's beginning, click in the middle of the document's first word.) Click **Find** (or press Ctrl with F). Type the word you want to find ("love"), and press Enter.

The computer will search for "love". If the computer finds a "love" in your document, it will highlight that "love" so it turns blue. (If the Find window covers the part of your document that says "love", drag that window out of the way, by dragging the window's title, "Find".)

If you want to find the next "love" in your document, press Enter; if you do *not* want to search for more "love", click the Find window's X (or press the Esc key).

Suppose you've written a history of America and want to find the part where you started talking about Lincoln. If you forget what page that was, no problem! Just put the cursor at the document's beginning, click **Find**, type "Lincoln", and press Enter.

**Replace** You can search for a word and replace it with a different word. For example, here's how to change each "love" in your document to "idolize":

Click **Replace**. Type the old word you want to replace ("love"), then press the Tab key, then type the new word you want instead ("idolize"), then click the Replace All button. That makes the computer change each "love" to "idolize". Then press the Esc key twice.

The computer preserves capitalization. For example, if the document said —

I love you. Love you! LOVE YOU! I want to kiss your glove!

the computer changes it to:

I idolize you. Idolize you! IDOLIZE YOU! I want to kiss your gidolize!

Notice that when told to change "love" to "idolize", the computer unfortunately also changes "glove" to "gidolize".

The Replace command helps you zip through many chores:

For example, if you write a letter that talks about Fred, then want to write a similar letter about Sue, tell the computer to replace each Fred with Sue.

If you write a book about "How to be a better salesman" and then a feminist tells you to change each "salesman" to "salesperson", tell the computer to replace each "salesman".

If you're writing a long ad that mentions "Calvin Klein's Hot New Flaming Pink Day-Glo Pajamas" repeatedly, and you're too lazy to type that long phrase so often, just type the abbreviation "Calnew". When you've finished typing the document, tell the computer to replace each "Calnew" with the long phrase it stands for.

**Select all** To select everything in the document (so the whole document is highlighted in blue), use one of these methods:

**Method 1** Click **Select all**.

**Method 2** While holding down the Ctrl key, tap the A key (which means "All").

## Insert group

Here's how to make the computer type the date & time.

In the Insert group, click "Date and time". The computer will show a list of formats, like this:

12/25/2016  
12/25/16  
16/12/25  
2016-12-25  
25-Dec-16  
Sunday, December 25, 2016  
December 25, 2016  
Sunday, 25 December, 2016  
25 December, 2016  
8:59:20 AM  
08:59:20 AM  
8:59:20  
08:59:20

Double-click the format you want. The computer will type the date or time in the format you requested.

# Paint

Your computer has some built-in graphics programs. The most famous is called **Paint**. To use Paint, do this:

Next to the Windows Start button is the **Windows Search box**. Make sure that box is white or light gray. (If it's black or dark gray, make it lighter by tapping it or the Windows Start button.)

**Type "pai"**. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) Your typing appears in the Windows Search box.

You see a list of things that contain "pai". Tap **"Paint: Desktop app"**.

You see the **Paint window** (a big picture of a pocket calculator). Maximize it (by tapping its maximize button if not maximized yet).

To draw, you can use 3 methods:

**Finger method** Put your finger on the screen's middle, then slide your finger on the screen (right, left, up, or down), as if you were finger-painting on the screen. For example, try drawing a smile, by doing the following.... Put your finger on the screen, where you want the smile to begin (at the smile's top-left corner), then move your finger on the screen while you draw the smile. When you finish drawing the smile, lift your finger off the screen. Then draw the rest of the face!

**Mouse method** Move the mouse pointer to the screen's middle. Then **drag** (move the mouse while holding down the mouse's left button). As you drag, you'll be drawing a squiggle. For example, try drawing a smile, by doing the following.... Put the mouse pointer where you want the smile to begin (at the smile's top-left corner), then depress the mouse's left button while you draw the smile. When you finish drawing the smile, lift the mouse's button. Then draw the rest of the face!

**Touchpad method** By sliding your finger lightly across the touchpad, move the mouse pointer to the screen's middle. Then **drag** (while pressing the touchpad's bottom-left corner with your left hand's index finger, slide the right hand's index finger across the touchpad). As you drag, you'll be drawing a squiggle. For example, try drawing a smile, by doing the following.... Put the mouse pointer where you want the smile to begin (at the smile's top-left corner), then press the touchpad's bottom-left corner while you draw the smile. When you finish drawing the smile, stop pressing the touchpad's bottom-left corner. Then draw the rest of the face!

Try all 3 methods!

The **finger method** is best for drawing big smooth curves.

The **mouse method** is best for drawing tiny objects.

The **touchpad method** is best for drawing tiny objects if you don't have a mouse.

## Colors

When you start drawing, the computer assumes you want to draw in black.

At the screen's top, above the word "Colors", you see the **20 main colors**, which have these names:

black gray-50% dark red red orange yellow green turquoise indigo purple  
white gray-25% brown rose gold light yellow lime light turquoise blue-gray lavender

To draw in one of those colors instead of in black, click the color you want. Whatever you draw next will be that color. The computer will keep using that color until you choose a different color instead (or you exit from the Paint program).

If you don't like any of the 20 main colors, try this:

Click "Edit colors".

Below "Basic colors", you see 48 little colored blocks. On the right, you also see a big block containing a rainbow of *many* colors.

Click your favorite color. The vertical strip on the right will show variations of that color (from pale to dark); click the variation you want.

When you've finished choosing your color, click "OK".

The color you chose will appear below the 20 main colors. Whatever you draw next will be that color.

Warning: don't click the **Color 2 button**, until I explain later how to use it properly.

## Eraser

If you drew a shape badly, erase it and try again! To erase, click the **Eraser button** (which is pink and above "Tools"). Then your mouse (or finger) acts as eraser instead of a brush. Erase your mistake by dragging across your picture's bad part.

When you finish erasing, click the Brushes icon (which is above the word "Brushes") and try drawing better.

## Undo

If you make a mistake, try clicking the **Undo button** (which is at the screen's top and shows a blue arrow bending back to the left). That undoes your last activity. For example, it can undo your last brushstroke or your last erasure. If you click the Undo

button *twice*, it will erase your last *two* activities.

If you clicked the Undo button but wish you hadn't, you can "undo the undo" by clicking the **Redo button**, which is to the right of the Undo button and shows a blue arrow bending forward to the right.

The Undo and Redo buttons work just if their arrows are blue. While an arrow is gray, the button doesn't work.

## All delete

Here's how to delete the entire picture, so you can start over:

While holding down the Ctrl key, press the A key. That means "all". All of the picture is surrounded by a blue dotted line.

Then press the Delete key. The entire picture disappears, so you can start over!

## Change the brush

To change how thick the brushstrokes are, click "**Size**" then click the thickness you want.

If you click the **down-arrow under "Brushes"**, you see 9 different types of brushes:

**Brush**, which is plain & normal

**Calligraphy brush 1**, which thickens any diagonal line that's "falling" (heading toward the screen's bottom-right corner)

**Calligraphy brush 2**, which thickens any diagonal line that's "rising" (heading toward the screen's top-right corner)

**Airbrush**, to look like paint splattered out of a spray can by a vandal

**Oil brush**, to look like an oil painting

**Crayon**, to look like Crayola used by a toddler

**Marker**, to look like a Sharpie marker pen or a highlighter pen

**Natural pencil**, to look like a sketch drawn by a fine artist using a soft pencil

**Watercolor brush**, to look like a watercolor painting

Click the type of brush you want, then click "Size" and choose a thickness for that brush. If you're a beginner, choose the thickest size, so you can see clearly how that type of brushstroke looks.

If you click the **Pencil button** (which is above the Eraser button and looks like a yellow pencil), you'll draw with a hard pencil (instead of a softer tool). After clicking the Pencil button, click "Size" to choose the pencil's thickness. To switch from the hard pencil back to softer tools (such as brushes), click the icon above "Brushes" (to return to the same type of brush you were using before) or click the down-arrow under "Brushes" (to choose a different brush type).

# Shapes

Above the word “Shapes”, you see these 21 shapes:



The first 6 shapes are the most important. Here’s how to use them.

**Line** To draw a line that’s exactly straight, click the **Line** shape (which is the first shape). Then put the mouse pointer where you want the line to begin, and drag to where you want the line to end.

While dragging, if you hold down the Shift key, you’ll force the line to be **perfectly simple** (perfectly vertical, perfectly horizontal, or at a perfect 45-degree angle).

**Rectangle** To draw a rectangle (box) whose sides are exactly straight, click the **Rectangle** shape (which is the 4<sup>th</sup> shape). Then put the mouse pointer where you want the rectangle’s top-left corner to be, and drag to where you want the rectangle’s opposite corner.

While dragging, if you hold down the Shift key, you’ll force the rectangle to be a perfect **square**.

**Rectangle variants** Instead of clicking the Rectangle shape, try clicking these variants:

If you click the **Rounded Rectangle** (which is the 5<sup>th</sup> shape) instead of the Rectangle, you’ll force the rectangle’s corners to be rounded (instead of sharp 90-degree angles). If you hold down the Shift key while dragging out the rounded rectangle, you’ll create a **rounded square**.

If you click the **Oval** (which is the 3<sup>rd</sup> shape) instead of the Rectangle, you’ll force the rectangle’s corners to be *very* rounded, so the rectangle looks like an oval (ellipse). If you hold down the Shift key while dragging out the oval, you’ll create a perfect **circle**.

**Polygon** To draw a polygon (a shape that has many straight sides and corners), click the **Polygon** shape (which is the sixth shape). Then put the mouse pointer where you want the polygon’s first corner to be, and drag to where you want the second corner. Click where you want the third corner, click where you want the fourth corner, click where you want the fifth corner, etc.

At the last corner, double-click instead of click. The double-clicking makes the computer complete the polygon: it makes the computer draw the final side back to the first corner.

**Curve** To draw a curve, click the **Curve** shape (which is the second shape). Then put the mouse pointer where you want the curve to begin, and drag to where you want the curve to end. Then take your finger off the mouse’s button.

You temporarily see a straight line. To turn that line into a curve, bend the line’s middle, by pointing at the line’s middle and dragging that midpoint in the direction you want to bend it. (While doing that dragging, try wiggling the mouse in all four directions, until the line bends close to the way you want.) Then take your finger off the mouse’s button.

To bend the line more, and even create a second bend (arc) in the line, drag again. (You get just two chances to bend the line.)

**Other shapes** If you click one of the other shapes (triangle, diamond, pentagon, octagon, arrow, star, or callout), here’s what to do next. Imagine the shape is enclosed (embedded) in a box (rectangle). In your picture, put the mouse pointer where you want the box’s top left corner to be, and drag to where you want the box’s bottom right corner.

When you finish dragging, you’ll see the shape is in your picture and temporarily enclosed in a blue box.

If the shape isn’t yet exactly where you want it, move it by doing this:

Put the mouse pointer in the shape’s middle, then drag where you want the shape to move.

You can also adjust the shape by doing this:

The temporary blue box’s corners and edges have 9 **handles** (tiny squares you can drag). Tug at the handles (by dragging them with the mouse), until the shape is stretched and repositioned where you want it.

Afterwards, when you click elsewhere, the shape stays in your picture, though the temporary blue box vanishes.

**Brushes for shapes** To draw each of those shapes, the computer uses a normal brush unless you say otherwise.

To say otherwise, do this:

Click the shape you want to draw. Click “**Outline**”.

You see this menu:

- No outline
- Solid color
- Crayon
- Marker
- Oil
- Natural pencil
- Watercolor

From that menu, choose the brush you want. (Choose “Crayon” or “Marker” or “Oil” or “Natural pencil” or “Watercolor”. Choosing “Solid color” gives you just a normal brush. Don’t choose “No outline”, which means “no brush”.)

Then choose a brush size, by clicking “Size” then the size you want. (If you’re a beginner, click the thickest size.)

Then put the shape onto your picture (by dragging across your picture).

To return to using a normal brush, click the shape again then “Outline” then “Solid color”.

**Finish** When you finish playing with shapes, click the icon above “Brushes”.

## Color picker

Look at what you’ve created. In that picture, if you see a color you’ve used and like, here’s how to use it again:

Click the **Color picker button** (which is above “Tools”). Click in your picture, where your favorite color is. Then draw more stuff; it’ll be in the color you picked.

## Save

To save the picture you’ve been creating (copy it onto the disk), click the **Save button**. (It’s at the screen’s top, near the left edge. It’s a purple-and-white square that’s supposed to look like a floppy disk, though it also looks like a TV set.)

If you haven’t saved the picture before, the computer will say “File name”. Invent a name for your picture. Type the name and press Enter. That tells the computer copy the picture onto the hard disk (or a tablet’s imitation of a hard disk).

For example, if you named the picture “mary”, the computer puts a picture called “mary.png” into the Pictures folder. (The “.png” is hidden from you but stands for “portable network graphics”.)

Afterwards, if you change your mind and want to do more editing, go ahead! When you finish that extra editing, save it by clicking the Save button again.

Save often! **Click the Save button about every 10 minutes.** Click it whenever you get to a good stopping place and think, “What I’ve drawn so far looks good!” Then if an accident happens, you’ll lose at most 10 minutes of work, and you can return to the last version you felt good about.

## File menu

Near the screen's top-left corner, you see the word "File". Click it. Then you see the **File menu**:

New  
Open  
Save  
Save as  
Print  
From scanner or camera  
Send in email  
Set as desktop background  
Properties  
About Paint  
Exit

From that menu, choose whatever you wish (by clicking it). Here are the most popular choices....

**Save** If you choose **Save** from the File menu (by clicking the word "Save" after clicking "File"), you get the same result as clicking the Save button that's on the Quick Access Toolbar.

**Save as** Suppose you've already saved a picture then edited it some more, but you're not sure you like the new editing. Try this experiment....

Choose "**Save as**" from the File menu (by clicking the phrase "Save as" after clicking the "File"); when you do that, make sure you click the phrase "Save as", not just the arrow next to it.

Then invent (and type) a new name for the picture. At the end of the new name, press Enter.

The computer will copy the picture's new, edited version onto the hard disk. That new, edited version will have the new name you invented.

The picture's old original version will be on the disk also and keep its old original name. The disk will contain *both* versions of the picture.

## How to finish

When you finish working on a picture, choose **Exit** or **New** or **a previous picture** from the File menu.

**Exit** Whenever you want to stop using Paint, choose **Exit** from the File menu (or click the Paint window's X button). You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

**New** If you choose **New** (instead of Exit) from the File menu, the computer will let you start creating a new, different picture.

**A previous picture** If you want to reuse a previous picture you had saved, click "File", so you see the File menu. To the right of the File menu, you see a list of the **9 pictures you used most recently**: that list starts with the most recent. Click whichever picture you want to use. If you want to use a different picture, which is not on that list of 9, do this:

Choose **Open** from the File menu (by clicking Open).

The computer starts showing you a list of *all* pictures in the Pictures library. To see the rest of the list, either "click in that list then rotate the mouse's wheel toward you" or "repeatedly click the down-arrow that's to the right of that list".

If you want to *use* one of those pictures, *double*-click the picture's name; the computer will put that picture onto the screen and let you edit it. If instead you want to *delete* one of those pictures, click the picture's name then press the Delete key then the Enter key; the computer will move that picture to the Recycle Bin.

**Didn't save?** If you didn't save your picture before doing those "how to finish" procedures, the computer asks, "Do you want to save?" If you click "Save", the computer copies your document's most recent version to the hard disk; if you click "Don't Save" instead, the computer ignores and forgets your most recent editing.

## Print

Here's how to print a picture onto paper.

Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer.

Choose **Print** from the File menu (by clicking the word "Print" after clicking "File"); when you do that, make sure you click the word "Print", not just the arrow next to it.

Press Enter. The computer will print the picture onto paper.

If your printer doesn't have colored ink, it will print shades of gray instead.

## Text

Here's how to type words in your picture.

Click the **Text button** (which is in the Tools group and looks like an **A**). In your picture, click where you want the first word's first letter to begin. Type the words.

The words will be surrounded temporarily by a blue box that's about 1.4 inches wide. If you type more words than the box can hold, the extra words will appear underneath, and the box will automatically grow taller, to hold the extra words.

On the box's edges, you see 8 **handles** (tiny squares you can drag). If you want to widen the box, drag any handle on the box's right edge: drag it toward the right.

While typing, you see the **Font group**, which resembles WordPad's: it lets you change the font and the font's size and create underlines, boldface, italics, and strikethrough.

**Finish** When you finish creating and editing the text box, click "**Home**" (which is near the screen's top-left corner) then the icon above "Brushes".

## Select

Here's how to alter part of your picture.

**First, say which part of your picture to alter**, by using one of these methods....

**Rectangle method** Click the down-arrow under "Select", then click "**Rectangular selection**". Draw a blue rectangle around that part of your picture: to do that, put the mouse pointer where you want the rectangle's top-left corner to be, and drag to where you want the rectangle's opposite corner.

**Free method** Click the down-arrow under "Select", then click "**Free-form selection**". Draw a loop around that part of your picture: to do that, put the mouse pointer where you want the loop to begin, and drag until you've drawn the loop. (The loop will temporarily turn into a rectangle, but don't let that bother you.)

**Ctrl-A method** Select the entire picture (by doing this: while holding down the Ctrl key, tap the letter A).

**Then say what to do to that part of your picture.** You have these choices:

To **delete** that part of your picture, press the Delete key.

To **move** that part of your picture, point at the rectangle's middle and drag that part of your drawing to wherever you want.

To **copy** that part of your picture (so that part appears *twice*), point at the rectangle's middle and, while holding down the Ctrl key, drag that part of your picture to wherever you want the second copy to be.

To **rotate** that part of your picture, click "**Rotate**", then click "**Flip vertical**" (to flip that part upside-down) or "**Flip horizontal**" (to see a mirror image of that part) or "**Rotate right 90°**" (to rotate that part clockwise) or "**Rotate left 90°**" (to rotate that part counterclockwise) or "**Rotate 180°**" (to stand that part on its end).

To **enlarge** that part of your picture, click "Resize", then double-click in the first "Horizontal" box. Type "200" (if you want that part to be twice as wide and twice as tall) or "300" (if you want that part to be 3 times as wide and 3 times as tall) or whatever other percentage you wish. Press Enter.

To **widen** that part of your picture, click “Resize” then remove the check mark from “Maintain aspect ratio” (by clicking there) then double-click in the first “Horizontal” box. Type 200 (to make that part of your drawing twice as wide) or 300 (to make that part 3 times as wide) or whatever other percentage you wish. Press Enter.

To **crop** that part of your picture, click “Crop”. The rest of the picture will disappear, so the part you selected will be all that’s left, and the picture will probably be smaller.

**Finish** When you finish playing with selections, click the icon above “Brushes”.

## Color 2

The computer can handle two colors simultaneously. The main color is called **Color 1**; the alternative color is called **Color 2**.

To draw, the computer normally uses color 1. To use color 2 instead, do this....

Click “**Color 2**”. Then click a color you want to become color 2; for example, try clicking yellow.

To draw using color 2, drag while holding down the mouse’s *rightmost* button instead of the left button.

When you erase (by using the Eraser button), the computer will make the erasure be Color 2 (instead of white).

**Fill** To make a shape’s middle be color 2 (instead of transparent), do this:

Click the shape you want to draw. Click “Fill” then “Solid color”.

Then put the shape onto your picture (by dragging across your picture). The shape’s middle will be filled with color 2. So will all future shapes, until you turn that feature off (by clicking “Fill” then “No fill”).

**Changing color 1 again** After you’ve clicked “Color 2”, any color you click will become color 2. To change color 1 instead, click “Color 1” before clicking a color.

## Zoom slider

At the screen’s bottom-right corner, you see a plus sign (+). Left of it, you see a minus sign (-). Between those signs, you see the **zoom slider**, which is a pentagon.

Try this experiment: **drag the zoom slider toward the right**. That makes the picture appear bigger, so you can see it even if you’re sitting far from the screen and have poor vision. It’s like looking at the picture through a magnifying glass: the picture looks enlarged, so you can see the details of each brushstroke more clearly; but not as much of the picture fits on the screen. (To see the rest of the picture, drag the **scroll bars**, which are at the screen’s right edge and bottom.)

When you finish playing with the zoom slider, drag it back to its normal position (the middle), so the number left of the minus sign is “100%”.

# Nifty features

Windows has nifty features.

## Taskbar

As I mentioned before, the **taskbar** is a *black bar* that runs all the way across the screen’s bottom. The taskbar includes the Windows Start button, the time & date, and everything else in that black bar.

While you’re running a task (app), the taskbar shows an underlined button for that task. For example, while you’re running the News app, you see an underlined News button on the taskbar. While you’re running the Weather app, you see an underlined Weather button on the taskbar.

Try this experiment:

Start running the News app (by tapping the Windows Start button then the News tile). Now the taskbar includes an underlined News button (which is red).

While you’re still running the News app, start running the Weather app (by tapping the Windows Start button then the Weather tile). Now the taskbar includes an underlined News button (which is red) and also an underlined Weather button (which is blue), because News and Weather are both running simultaneously: they’re both in the computer’s RAM memory chips. The Weather window is blocking your view of the News window, but News is still running also: the News window is hiding behind the Weather window.

To see the News window better, tap the News button on the toolbar. Then you’ll see the News window clearly, which will block your view of the Weather window.

Here’s the rule: tapping the News button lets you see the News better; clicking the Weather button lets you see Weather better. Both programs are in RAM simultaneously, until you close them (by clicking their X buttons).

Here’s a trick: while both programs are running, tap the **Task View button** (which is on the taskbar and looks like 3 white boxes with black interiors). Then you see miniature copies of the News and Weather windows, side-by-side: the News window is on the left; the Weather window is on the right. If you tap one of those windows, it enlarges to fill the whole screen.

## Backlit keyboard

The Acer & Toshiba laptops can light up the keyboard (by using a **backlight** that’s under the keys), so you can see the keyboard better when the room is dark. But lighting up the keyboard will drain your battery faster.

**Acer** When you turn on the laptop, the backlight turns on. To turn the backlight off, tap the F9 key while holding down the Fn key (which is left of the Space bar). To turn the backlight back on again, tap F9 with Fn again.

**Toshiba** When you turn on the laptop, the backlight turns on for 15 seconds, then turns off. To turn the backlight on again, tap the Z key while holding down the FN key (which is left of the Space bar). To turn the backlight off again, tap Z with FN again. If you tap Z with FN a third time, the backlight gets **timed**: it turns on but, each time your typing pauses for at least 15 seconds, it turns off until you type again.

## Clipboard

To copy data, you can use this 2-step process: first **copy** the data to the computer’s invisible **Clipboard**, then stick the clipboard’s data wherever you want it by using **Velcro**. Here are the details....

**Ctrl with C** You can copy data from one document to another, even if the documents were created by different programs, and even if one “document” is a drawing and the other “document” contains mostly words. (For example, you can copy data that’s a drawing, from Paint to WordPad.) Here’s how:

Get onto the screen the data you want to copy. Select that data, by dragging across it. (If that data’s in Paint, click Paint’s Select button before dragging.)

Say “**copy**” by pressing **Ctrl with C**. That secretly copies the data to the **Clipboard** (a file you can’t see).

Get onto the screen the document you want to copy the data to. In that document, click where you want the data to be inserted.

Say “**Velcro**” by pressing **Ctrl with V**. That sticks the Clipboard’s data into the document.

If you’re sticking the data into a WordPad document, the computer sticks it where you requested. If you’re sticking the data into a Paint document, the computer insists on sticking it at the painting’s top-left corner; afterwards, drag the data where you want it.

If you want to stick the Clipboard’s data somewhere else also, click there and press Ctrl with V again.

**Print Screen Key** For a fun experiment, say “Print Screen” by doing this:

- Acer laptop** Tap the **PrtSc** key (which is next to the F12 key).
- HP all-in-one** Tap the **Print Scrn** key (which is next to the F12 key).
- New HP laptop** Tap the **“prt sc”** key (which is next to the F12 key).
- Old HP laptop** While holding down the Fn key (which is left of the Space bar), tap the **“prt sc”** key (which also says “home”).
- Toshiba laptop** While holding down the FN key (which is left of the Space bar), tap the **PRTSC** key (which also says “END”).

That makes the computer secretly take a snapshot of *your whole screen* and put that photo onto the Clipboard.

If you want the computer to take a snapshot of *just one window*, click in that window then do this:

- Acer laptop** While holding down the *Alt* key, tap the **PrtSc** key.
- HP all-in-one** While holding down the *Alt* key, tap the **PrintScrn** key.
- HP laptop** While holding down the *Alt* key, tap the **“prt sc”** key.
- HP laptop** While holding down the *Alt* key and *Fn* key, tap the **“prt sc”** key.
- Toshiba laptop** While holding down the *Alt* key and *FN* key, tap the **PRTSC** key.

The computer will put a snapshot of just that window onto the Clipboard.

After something’s on the Clipboard, stick it into a WordPad document or Paint document or some other document (by clicking there and then pressing **Ctrl** with **V**). Then, if you wish, edit the snapshot and print it on paper.

**Snipping Tool** If you want to copy *part* of the screen to the clipboard, use the **Snipping Tool**, by doing this:

Next to the Windows Start button is the **Windows Search box**. Make sure that box is white or light gray. (If it’s black, make it lighter by tapping the Windows Start button once or twice.)

**Type “sn”**. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen’s bottom.) Your typing appears in the Windows Search box.

You see a list of things that contain “sn”. Tap **“Snipping Tool: Desktop app”**. You see the Snipping Tool window.

Click the down-arrow next to “New” then “Rectangular Snip”.

Draw a red box around the part of the screen you want to copy. To do that, put your finger where you want the box’s top-left corner to be, then slide to where you want the box’s opposite corner. (If you don’t have a touch screen, do this instead: click where you want the box’s top-left corner to be, then while holding down the mouse’s left button, drag to where you want the box’s opposite corner.)

A copy of what you boxed appears in the Snipping Tool window. (If you drew the box wrong, click “New” then try again to draw the box.)

If you wish, scribble on the copy (by tapping the pen or the highlighter, then using your finger to finger paint). To erase a squiggle, tap the eraser (which is red) then the squiggle.

The copy, including any squiggles, is automatically copied to the Clipboard. Close the Snipping Tool window (by clicking its **X** then “No”).

After you’ve done that, stick your clip into a WordPad document or Paint document or some other document (by tapping there and then pressing **Ctrl** with **V**).

## Play a music CD

If you’ve bought a **compact disk (CD)** containing music, you can shove that disk into a computer’s **optical drive** (which plays and creates CD and DVD disks).

Does *your* computer have an optical drive?

The answer is yes if your computer is an all-in-one (such as HP’s all-in-one) or a traditional laptop (such as Acer’s laptop and HP’s laptop) or a tower.

The answer is no if your computer is a tablet (such as Toshiba’s) or a 2-in-1 laptop (such as Toshiba’s) or a smartphone, because an optical drive is too big & heavy to fit in such a lightweight device.

## If your computer has an optical drive, here’s how to use it.

Turn on the computer, then do this:

**HP all-in-one** Stand to the right of the screen, so you see the computer’s right-hand edge clearly. On that edge, toward the back, you see a button marked **▲**. That’s the optical drive’s **eject button**. Press it.

**New HP laptop** Stand to the right of the keyboard, so you see clearly the keyboard’s right-hand edge, which is black. On that edge, you see a horizontal button. (That button is across from the numeric keypad’s minus sign.) That’s the optical drive’s **eject button**. Press it.

**Old HP laptop** Stand to the right of the keyboard, so you see clearly the keyboard’s right-hand edge, which is black. On that edge, you see a horizontal button. (That button is across from the numeric keypad’s Enter key.) That’s the optical drive’s **eject button**. Press it.

**Acer laptop** Stand to the right of the keyboard, so you see clearly the keyboard’s right-hand edge, which is black. On that edge, you see a horizontal button. (That button is across from the numeric keypad’s 9 key.) That’s the optical drive’s **eject button**. Press it.

The optical drive’s **drawer** pops out, part-way. Pull the drawer *all* the way out.

Grab the CD. Then do this:

**HP all-in-one** Hold that disk upright, so its label is on the *front* surface. Don’t touch its shiny backside. Put that disk’s shiny backside against the drawer’s front side, so the drawer’s **hub** (circular bump) pushes sexily through the CD’s hole.

**Laptops** Hold that disk horizontally, so its label is on *top*. Don’t touch its shiny underside. Push that disk down onto the drawer, so the drawer’s **hub** (circular bump) pushes sexily up through the CD’s hole.

Push the drawer shut, so the CD goes into the computer.

Here’s what happens next:

**HP all-in-one** If the screen’s bottom-right corner says “Select to choose what happens”, try to tap that (before it disappears) then tap “PowerDVD” If the computer says “End User License Agreement” (because you haven’t run the PowerDVD program before), tap “I have read” then “Accept”.

**New HP laptop** If the screen’s bottom-right corner says “Select to choose what happens”, try to tap that (before it disappears) then tap “Power Media Player 14”. If you don’t hear music yet and don’t see new messages on the screen yet, tap the File Explorer icon (the yellow manila folder on the taskbar at the screen’s bottom) then “This PC” then double-click “DVD RW Drive”. If the computer says “End User License Agreement” (because you haven’t run the Power Media Player 14 program before), tap “I have read” then “Accept” then “Next” then “Next” again.

**Acer & old HP laptops** If the screen’s bottom-right corner says “Select to choose what happens”, try to tap that (before it disappears) then tap “Windows Media Player”. If you don’t hear music yet and don’t see new messages on the screen yet, tap the File Explorer icon (the yellow manila folder on the taskbar at the screen’s bottom) then “This PC” then double-click “DVD RW Drive”. If the computer says “Welcome to Windows Media Player” (because you haven’t run Windows Media Player before), tap “Recommended settings” then “Finish”.

Then the computer plays the CD’s music.

**Volume** Here’s how to adjust the volume.

**HP all-in-one:**

At the keyboard’s top-right corner, 3 keys have loudspeaker symbols on them.

The first loudspeaker key shows a loudspeaker with a crossed-out circle. Press it to mute the sound. Press it again to resume the sound.

The second loudspeaker key shows a loudspeaker with just one sound wave coming out of it. Press it to make the sound softer. Press the rightmost key (which shows a loudspeaker with 3 sound waves coming out of it) to make the sound louder. Press those keys repeatedly (or hold them down awhile) to make the sound even softer or even louder.

**New HP laptop:**

**Keyboard method** To raise the volume, hold down the **f8** key awhile (or repeatedly tap it); to lower the volume, hold down the **f7** key awhile (or repeatedly tap it). To mute the sound, tap the **f6** key; to resume the sound, tap the **f6** key again.

**Screen method** You see the PowerMediaPlayer window. To mute the sound, tap the loudspeaker button (which is at the window's bottom); to unmute, tap the loudspeaker button again. To adjust the volume, move the mouse pointer to the loudspeaker button but without tapping; then you see a volume slider (a horizontal line with a circle on it); move that circle to the right (to raise the volume) or left (to lower the volume).

Old HP laptop:

While holding down the fn key (which is near the keyboard's bottom-left corner), do this: press the numeric keyboard's plus sign to raise the volume slightly, or press the numeric keyboard's minus sign to lower the volume slightly, or press the numeric keyboard's \* key to mute (or unmute).

Acer laptop:

While holding down the Fn key (which is near the keyboard's bottom-left corner), do this: press the Δ key (which is below the right Shift key) to raise the volume slightly, or press the ∇ key to lower the volume slightly, or press the F8 key to mute (or unmute).

**Pause** Here's how to pause in the middle of a song.  
HP all-in-one:

**Keyboard method** Press the Space bar. To resume, press it again.

**Screen method** Tap the || button (which is on the screen). To resume, tap that button again (which has changed to a big ▶).

New HP laptop:

**Keyboard method** Press the Space bar or f6 key. To resume, press it again.

**Screen method** Tap the || button (which is on the screen). To resume, tap that button again (which has changed to a big ▶).

Old HP laptop:

While holding down the fn key, press the f9 key. To resume, do it again.

Acer laptop:

While holding down the Fn key, press the Home key that's on the keyboard's top row. To resume, do it again.

**Stop** Here's how to stop back at the beginning of the current track (song).

HP all-in-one & new HP laptop:

On the screen, tap ■. To begin playing there, tap the big ▶.

Old HP laptop:

While holding down the fn key, press the F10 key. To begin playing there, click "Resume" (which is on the screen).

Acer laptop:

While holding down the Fn key, press the Pg Up key that's on the keyboard's top row. To begin playing there, tap "Resume" (which is on the screen).

**Tracks** Here's how to change to a different track.  
HP all-in-one:

To skip ahead to the next track (song), tap ▶ on the screen. To hop back to the previous track's beginning, tap ◀. To skip to a far-away track, tap those buttons repeatedly or double-tap the track's number (or name). To see more about what's on each track, make sure the PowerMediaPlayer window is maximized.

New HP laptop:

To skip ahead to the next track (song), press the f11 key or tap ▶ (which is on the screen). To hop back to the previous track's beginning, press the f9 key or tap ◀. To skip to a far-away track, tap those buttons repeatedly or double-tap the track's number (or name). To see more about what's on each track, make sure the PowerMediaPlayer window is maximized, then tap the "✓" near the screen's top-right corner then "List View".

Old HP laptop:

To skip ahead to the next track (song), do this: while holding down the fn key, press the f12 key. To hop back to the previous track's beginning, do this: while holding down the fn key, press the f11 key. To skip to a far-away track, tap those buttons repeatedly or do this: tap the middle of the Windows Media Player window (which is near the screen's top left corner) then tap the left-arrow that appears briefly below the window's X; you see a list of tracks; double-click the track you want.

Acer laptop:

To skip ahead to the next track (song), do this: while holding down the Fn key, press the End key that's at the keyboard's top-right corner. To hop back to the previous track's beginning, do this: while holding down the Fn key, press the Pg Dn key that's near the keyboard's top-right corner. To skip to a far-away track, tap those buttons repeatedly or do this: tap the middle of the Windows Media Player window (which is near the screen's top left corner) then tap the left-arrow that appears briefly below the window's X; you see a list of tracks; double-click the track you want.

**Advanced commands** To give advanced commands to the HP all-in-one, do this:

Maximize the program's window by clicking its maximize button (which is next to the X button). Then you can see the window's buttons and features better. Here's how to use them...

In the program's window, you see a **list of tracks** on the CD. For each track, you see its number or name. An arrow (▶) points to the track that's playing.

Click the || button to **pause** in the middle of a song. To resume, click that button again (which has changed to a big ▶).

Click ■ to **stop** back at the beginning of the current track (song). To begin playing there, click the big ▶.

Click ▶ to **skip** ahead to the next track (song), ◀ to hop back to the beginning of the previous track. To skip to a far-away track, click those buttons repeatedly or double-click the track's number (or name).

As a song plays, you see a blue horizontal line start at the screen's left edge and gradually stretch farther toward the right. To skip ahead, use your mouse to drag that blue line's right edge farther toward the right. To jump back (and repeat what you heard before), drag that edge back toward the left.

Click ▶▶ to make the music play slightly **faster**. Press it twice to go faster than that, 3 times to go even faster, 4 times to race humorously fast. If you press it a 5<sup>th</sup> time, the speed returns to normal.

To give advanced commands to the Acer laptop, do this:

In the program's window, you see a **list of tracks** on the CD. For each track, you see its number or name. (You see track names instead of numbers if the CD's in the recording industry's database and you played the CD previously while connected to the Internet.) A loudspeaker icon is left of the track that's playing.

Tap the || button to **pause** in the middle of a song. To resume, tap that button again (which has changed to ▶).

Click ■ to **stop** back at the beginning of the current track (song). To begin playing there, click the big ▶.

Tap ▶▶ to **skip** ahead to the next track (song), ◀◀ to hop back to the beginning of the previous track. To skip to a far-away track, tap those buttons repeatedly or double-tap the track's number (or name).

As a song plays, you see a white circle gradually move toward the right. To skip ahead, drag that circle farther toward the right. To jump back (and repeat what you heard before), drag that circle back toward the left.

**Background music** While the CD plays, you can perform other tasks by doing this:

Press the keyboard's Start Windows button. Tell the computer what other task you want to do. While you do that task, the CD will continue to play, as background music.

If you want to adjust the music, return to the music program's window by doing this: press the Start Windows button (so you see the Start screen) then the Desktop tile (so you see the Desktop screen, which still has the music program on it).

**Finish** When you finish listening to the CD, close any music window (by clicking its X) then press the optical drive's eject button again. The optical drive's drawer pops out, part-way. Pull the drawer *all* the way out. Remove the CD. If you want to play another CD, insert it. Close the drawer.

## Play a movie DVD

Videos used to come on videotape. Nowadays, a video comes on **Digital Versatile Disk (DVD)** instead.

If you've bought a DVD containing a movie, you can shove that disk into your computer's optical drive while the computer is on. Playing a movie DVD is similar to playing a music CD, so before playing a movie DVD, practice playing a music CD.

Here's how to play a movie DVD.

Using the same techniques as for a CD, open the optical-disk drawer and insert the disk.

The disk will start to play. (If the disk begins with a menu giving you a choice such as "play movie", tap "play movie".)

When you finish watching the movie, press the optical drive's eject button.

## Explore your computer

What's in your computer? How much hardware and software do you have, and what type? Let's find out!

### System about

To find out what kind of computer you have, tap Settings (which is at the Start menu's left edge and looks like a gear) then "System" then "About" (which is at the left edge's bottom and might require you to scroll down to see). You see a message about your computer.

**What you see** My **Toshiba 2-in-1 laptop** (Satellite P55W-C5200X) came with old Windows 10, but I upgraded it to Windows 10 AU, so its message says:

Toshiba Satellite P55W-C

PC name	ToshibaLaptop
Edition	Windows 10 Home
Version	1607
Product ID	00325-80004-79959-AAOEM
Processor	Intel Core i5-5200U CPU @ 2.20GHz
Installed RAM	8.00 GB
System type	64-bit operating system, x64-based processor
Pen and touch	Touch support with 10 touch points

My **new HP laptop** (Notebook 15-ay091ms) came with old Windows 10, but I upgraded it to Windows 10 AU, so its message says:

HP Notebook Signature Edition

PC name	HP-Notebook-Signature
Edition	Windows 10 Home
Version	1607
Product ID	00325-80511-08258-AAOEM
Processor	Intel Core i3-6100U CPU @ 2.30GHz
Installed RAM	8.00 GB (7.89 GB usable)
System type	64-bit operating system, x64-based processor
Pen and touch	Touch support with 10 touch points

My **Acer laptop** (Aspire V5-571P-6866) is an older model, upgraded from Windows 8 to Windows 8.1 to Windows 10 to Windows 10 AU, so it says:

Acer Aspire V5-571P

PC name	AcerLaptop
Edition	Windows 10 Home
Version	1607
Product ID	00326-10000-00000-AA922
Processor	Intel Core i3-3227U CPU @ 1.90GHz
Installed RAM	4.00 GB (3.80 GB usable)
System type	64-bit operating system, x64-based processor
Pen and touch	Touch support with 10 touch points

My **HP all-in-one computer** (Envy 20-d0123w) was upgraded from Windows 8 to Windows 8.1 to Windows 10 to Windows 10 AU and says:

hp 20-d013w

PC name	HP-Envy20
Edition	Windows 10 Home
Version	1607
Product ID	00326-10000-00000-AA418
Processor	Intel Core i3-3220 CPU @ 3.30GHz
Installed RAM	8.00 GB (7.70 GB usable)
System type	64-bit operating system, x64-based processor
Pen and touch	Touch support with 10 touch points

My **old HP laptop** (G71-340US) is an even older model, upgraded from Windows 7 to Windows 10 to Windows 10 AU, so it says:

HP G71 Notebook PC

PC name	HP-G71-Notebook
Edition	Windows 10 Home
Version	1607
Product ID	00326-10000-00000-AA990
Processor	Intel Core2 Duo CPU T6600 @ 2.20GHz
Installed RAM	4.00 GB
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

My **Toshiba tablet** (Encore WT8-A32) contains less. It was upgraded from Windows 8.1 to Windows 10, so it says:

Toshiba Encore

PC name	ToshibaTablet
Edition	Windows 10 Home
Version	1511
Product ID	00326-10000-00000-AA027
Processor	Intel Atom CPU Z3740 @ 1.33GHz
Installed RAM	2.00 GB (1.89 GB usable)
System type	32-bit operating system, x64-based processor
Pen and touch	Touch support with 5 touch points

**What it means** Here's what the message means.

**Top line** says the manufacturer's name and model's name.

**PC name** says what I decided to call the computer. When I bought the computer, its name was temporarily more forgettable, but I changed the name by doing this: tap "Rename PC" then type the name you want (such as "ToshibaLaptop") without any blank spaces or apostrophes, then press Enter twice.

**Edition** The computer is using Windows 10's normal edition, which is called Windows 10 Home.

**Version** The computer is using Windows 10's version 1607 (which was invented in 2016's month 07 and is also called "AU").

**Product ID** says the serial number of the Windows 10 copy on this computer.

**Processor** says what CPU chip is in the computer. It says the chip is manufactured by Intel. It says what model it is (Atom, Core2 Duo, Core i3, or Core i5), how updated it is (3220, 3227, 3740, 5200, 6100, or 6600), and how fast it is (1.33, 1.9, 2.2, 2.3, or 3.3 gigahertz).

**Installed RAM** says how many gigabytes of normal RAM chips are in the computer. The answer is 2, 4, or 8 gigabytes.

**System type** says the computer can handle 64 bits simultaneously (instead of just 32 bits). In most computers, the Windows version can also handle 64 bits simultaneously, but the tablet's Windows version unfortunately handles just 32 bits.

**Pen and touch** In most of those computers, the screen is a touch screen that's sensitive: even if 10 of your fingers touch the screen simultaneously, it can detect where each finger is. But the old HP laptop's screen is *not* a touchscreen: it can't detect whether your finger or pen touches it.

**Finish** When you finish admiring your computer's message, close the window (by clicking its X button).

## Disk-drive letters

Each disk drive has a letter.

**Drive A** is the main floppy-disk drive (if you have one).  
**Drive B** is the auxiliary floppy-disk drive (if you have one).  
**Drive C** is the main hard drive's main part.  
**Drives D, E, F, etc.** are any extra disk drives (or parts of disk drives).

A typical computer has these drive details:

Drive A is the 1.44M 3½-inch floppy drive (if any).  
Drive B is the 1.2M 5¼-inch floppy drive (if any).  
Drive C is the hard drive's main part.  
Drive D is the hard drive's recovery part (a copy of drive C's essentials).  
Drive E is the main DVD drive (or DVD RW drive or CD-ROM drive).  
Drive F is an extra DVD drive (or CD-RW drive).

A tablet computer doesn't have floppy drives or DVD drives. It also doesn't really have a hard drive: instead, it has an imitation, called a **solid-state drive (SSD)**, which holds less info than a hard drive but consumes less space & electricity and runs faster.

Drive C is the most important: it's the main part of the main hard drive. Drive C holds Windows itself and the most important programs & documents.

Here's how the drives are named:

**Drive A** is called "**A:**" (which is pronounced "A colon").  
**Drive B** is called "**B:**" (which is pronounced "B colon").  
**Drive C** is called "**C:**" (which is pronounced "C colon").  
**Drive D** is called "**D:**" (which is pronounced "D colon").

## File Explorer

To find out what drives are in *your* computer and how they're lettered, go to **File Explorer** by doing this:

Tap "File Explorer" (which is on the Start menu) or tap the File Explorer icon (which is yellow, looks like a manila folder, and is at the screen's bottom on the taskbar). You see the **File Explorer window**. Maximize it (by tapping its maximize button if not maximized yet).

Then tap "This PC" (which is at the window's left edge).

Under the heading "Devices and drives", you see an **icon** (little picture) labeled "C:" (for the main part of your main hard drive or imitation hard drive) and icons for any other disk drives also.

Toshiba's laptop includes just one drive (C:), whose icon is labeled like this:

TI10716700G (C:)

Toshiba's tablet includes just one drive (C:), whose icon is labeled like this:

TI10677900H (C:)

Acer's laptop includes 2 drives (C: and D:), whose icons are labeled like this:

Acer (C:) DVD RW Drive (D:)

HP's new laptop includes 2 drives (C: and D:), whose icons are labeled like this:

Local Disk (C:) DVD RW Drive (D:)

HP's old laptop includes 3 drives (C:, D:, and E:), whose icons are labeled like this:

Local Disk (C:) RECOVERY (D:) DVD RW Drive (E:)

HP's all-in-one computer includes 3 drives (C:, D:, and E:), whose icons are labeled like this:

OS (C:) Recovery Image (D:) DVD RW Drive (E:)

**Drive C's files** Below the "C:", you see a message about disk C, such as "662 GB free of 697 GB" (which means 662 GB are still unused & available, out of disk C's 697 GB total size). You also see a wide box, which represents the entire disk C: the blue part is what's used; the gray part is what's unused (free).

Above that list of drives, you see this list of 6 **popular folders**:

Desktop Documents Downloads Music Pictures Videos

Those popular folders are all part of drive C.

To find out *more* about drive C, **double-click (or double-tap) the "C:" icon**. You see the **C window**, which lists files that are on disk C.

For each file, you see the file's name and a tiny picture (**icon**) representing the file.

Your computer can handle 3 popular kinds of files:

If the file's a **document**, its icon typically looks like a page whose top-right corner is bent. But if the document's a picture, its icon looks like a miniature copy of the picture; if the document's a movie, its icon looks like a frame from the movie.

If the file's an **application program**, its icon typically looks cute.

If the file's a **folder** containing other files, its icon looks like a yellow manila folder that's open.

In the C window, the 3 main folders are called "**Program Files**" (which contains programs), "**Users**" (which contains info about users and what documents they stored), and "**Windows**" (which contains the parts of Windows). Most computers include 2 extra folders: "**Intel**" (which contains details about chips made by Intel) and "**Program Files (x86)**" (which contains details about older versions of programs).

If you double-click a folder, the File Explorer window shows you what files are in the folder. When you finish examining those files, you can go back to the previous view by clicking the **Back button**, which is the left-arrow near the screen's top-left corner.

If you double-click a file's icon, here's what happens:

If the file's a **folder**, you see what's in the folder.

If the file's an **application program**, the computer will try to run the program. Don't do that unless you've read instructions about how to run the program successfully!

If the file's a **document**, the computer will try to use that document: the computer will try to run the program that created the document, but sometimes the computer can't correctly deduce which program created the document.

To find the documents you wrote using WordPad, choose one of these methods:

**Exploratory method** The Users folder contains a personal folder (having your name on it), which in turn contains the Documents folder (containing the documents you wrote). So to find those documents you can click "This PC" then double-click the drive C icon then the Users icon then your name's icon then the Documents icon.

**Double-tap method** The Documents folder is one of the 6 popular folders, so just double-tap (or double-click) the big "Documents" icon in the list of popular folders.

**One-tap method** Tap (or click) the "Documents" at the Explorer window's left edge.

**Views** While you're viewing icons, here's how to change their appearance.

Click "View" then choose one of these 8 views:

For most situations, click **Details**. That view is what the computer assumes you want anyway (unless you've said otherwise or the computer thinks you're in a picture-oriented folder). For each file, besides the filename you see a small icon and many details about the file.

If you click **List** instead of Details, the computer omits the details (so more files can fit on the screen).

If you click **Tiles** instead of Details, the computer makes the icons easier to see (medium-size instead of small) but includes just a *few* details about each file. If you click **Content**, you see a compromise between "Details" and "Tiles".

If you click **Extra large icons**, the computer makes the icons huge but omits any details about the files. If you don't want the icons so huge, click **Large icons** or **Medium icons** or **Small icons** instead. If you're in a picture-oriented folder, the computer assumes you want Large icons (unless you've said otherwise).

# Manipulate a file

**Hidden files** The computer is afraid you'll wreck some important files, so it hides those files from your view. If you want to peek at them, click "View" then put a check mark in the box marked "**Hidden items**" (by clicking there). Then hidden items will appear, but with paler icons than regular items. For example, on a typical computer, when you look at the main folders, instead of seeing just "Program Files", "Users", "Windows", "Intel", and "Program Files (x86)", you'll also see a hidden main folder called "ProgramData" (with a pale icon) plus a folder with your manufacturer's name on it, and other folders too.

To make hidden items become invisible again, remove the check mark from the "Hidden items" box, by clicking there again.

**Close the window** When you finish examining the files that are on hard disk C, close the File Explorer window by clicking its X.

## Optical-drive files

An optical drive resembles drive C.

Grab an optical disk (CD-ROM disk or DVD disk) that contains computer info, and put it in the optical drive.

The computer analyzes that disk. If the disk is a **CD containing music**, the computer automatically starts playing the music. If the disk is a **DVD containing a movie**, the computer automatically starts playing the movie. If the disk is **otherwise**, the computer does this:

If the disk **contains a program called autorun.inf**, the computer automatically starts running that program, which typically makes the computer run another program, called setup.exe. If you don't want to continue running such programs, exit from them by clicking their X buttons or by clicking whatever "Exit" choices they offer you. Then if you want to find out what's on the disk, right-click disk's icon (which is in the Computer window) and click "Open".

If the disk **lacks an autorun.inf program**, the computer might do nothing, or it might show you a list of files on the disk, or it might briefly flash this message at the screen's top-right corner: "Tap to choose what happens with removable drives". If you see that message, tap it then tap "Open folder to view files".

When you finish examining any files that are on the disk, close the disk's window by clicking its X button.

## Find a file's icon

To manipulate a file, the first step is to get the file's icon onto the screen.

If the file's a document you created using WordPad, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run WordPad. Click "File" then "Open". Then you see a list of WordPad's documents and their icons.

If the file's a painting you created using Paint, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run Paint. Click "File" then "Open". Then you see a list of Paint's paintings and their icons.

Another way to get a file's icon onto the screen is to go to the Computer window and click icons for drives & files until you find the file you want.

Now I'll explain how to manipulate a file.

If you want to practice this stuff, use a file you don't mind wrecking. For example, create a WordPad document containing just once sentence (such as "I love you") and save it as a file called "Love".

To manipulate a file, find its icon (by using the tricks in the previous section) then do one of these activities....

## Send to USB flash drive

Here's how to copy the file to a USB flash drive.

Plug the USB flash drive into one of the computer's USB ports. (To do that, you must first uncover the flash drive, if the flash drive had a protective cover.)

If the flash drive has a light, that light will flash awhile.

Which file to you want to copy to the flash drive? Right-click that file's icon, then click "Send to" then the flash drive's letter.

If the flash drive has a light, that light will flash. When the light stops flashing, the file's been copied.

## Send to optical disk

Here's how to copy the file to an optical disk (CD or DVD), if your computer has an optical-disk drive. (The typical tablet does *not* have an optical-disk drive.)

What optical disk do you want to copy the file to? Put that disk (which is blank or partially blank) into the drive.

The computer might briefly flash one of these messages at the screen's bottom-right corner:

"Select to choose what happens with removable drives"  
"Select to choose what happens with blank CDs"  
"Select to choose what happens with blank DVDs"

If you see one of those messages, tap it then tap "Take no action".

Which file do you want to copy to the optical disk? Right-click the file's icon. Click "Send to" then "DVD RW Drive".

If that disk has never been used before (or was totally reformatted), do this:

Click "Like a USB flash drive". Invent a name for the disk. The name must be short (no more than 16 characters). Type the name (and press Enter).

If the disk is rewritable (RW), the computer will say, "The format might take a long time"; to reply, press Enter then wait 22½ minutes (even if the computer accidentally says "5 seconds").

The computer will copy the file. You can copy more files in the same way.

When you finish copying, press the optical drive's eject button.

The computer will briefly flash this message at the screen's bottom-right corner: "Preparing to eject". The computer will write, onto the disk, filenames and other notes. Then the computer will open the drive's tray. Take the disk out of the tray. Push the tray back in.

## Send to Documents folder

Here's how to copy the file to your hard disk's Documents folder (if the file isn't there already):

Right-click the file's icon. Click "Send To" then "Documents". Then the computer copies the file to the My Documents folder.

## Send to Desktop screen

To copy the file to your Desktop screen, do this:

Right-click the file's icon. Click "Send To" then "Desktop (create shortcut)".

To save disk space, that technique copies just the file's icon to the Desktop screen. The file itself stays just in its original location.

On the Desktop screen, the file's icon's bottom left corner has a bent arrow, which means the icon is just a **shortcut** (which points the computer to the original location).

That shortcut icon has the file's original name but with "- Shortcut" added afterwards. For example, if the file's original name was "Love", the shortcut icon's name is "Love - Shortcut".

If you double-click that shortcut icon, the computer will try to find the original file and run it. If the original file was on an optical disk or USB flash drive, that works just if the file's optical disk or USB flash drive is still in the computer.

## Send to a different location

To copy the file to a different location (such as a folder on your hard drive), do this:

Right-click the file's icon. Click "Copy". Right-click in any blank space (in any drive or any folder) where you want the copy to appear. Click "Paste".

## Rename

To change the file's name, do this:

Click the file's icon then the file's name. Type the new name (and press Enter).

## Delete

To delete the file, try this procedure:

Click the file's icon. Press the Delete key.

Does that procedure *really* delete the file? Here's the answer.

If the file's on a **USB flash drive**, the computer asks "Are you sure you want to permanently delete this file?" If you click "Yes" (or press Enter), the computer really deletes the file.

If the file's on a **hard disk** (such as drive C), the computer doesn't really delete the file; instead, the computer just moves the file to the **Recycle Bin** (which holds hard-disk files you said to delete).

If the file's on an optical drive, the computer asks "Are you sure you want to permanently delete this file?" If you click "Yes" (or press Enter), and the disk is rewritable (CD-RW or DVD RW), the computer **deletes** the file; if the disk is just **CD-R** (which can't delete), the computer **hides** the file so it's inaccessible (though still taking up space on the disk); if the disk is a **plain CD** (which can't be altered at all), the computer **complains**.

**Peek in the Recycle Bin** To discover what's in the hard disk's Recycle Bin (which holds hard-disk files you said to delete), double-click the **Recycle Bin icon** (which is at the Desktop screen's top-left corner). You'll see the **Recycle Bin window**, which shows a list of hard-disk files you said to delete. (If you don't see a file list, the Recycle Bin is empty.)

To see lots of info about the files in the Recycle Bin, make sure the Recycle Bin window is maximized (so it consumes the whole screen). Make sure you're seeing the Details view, by clicking "View" then "Details" then "Manage".

To see more details about a certain file, right-click the file's icon and then click "Properties". When you finish admiring the details, click "OK".

If you change your mind and do *not* want to delete a certain file, click the file's icon then "Restore the selected items". That makes the computer pull the file out of the Recycle Bin and put the file back to its original location on the hard disk.

If, on the other hand, you really *do* want to delete a certain file, click the file's icon then press the Delete key then press Enter. The file will disappear.

To delete *all* files from the Recycle Bin, click "Empty the Recycle Bin" (which is near the screen's top-left corner). Then press Enter.

When you finish admiring the Recycle Bin window, click its X (which is at the screen's top-right corner).

**Shift Delete** You've learned that to delete a file, the usual procedure is to click the file's icon then press the Delete key. If the file was on the hard disk, that procedure moves the file into the Recycle Bin. Notice that the procedure involves pressing the Delete key. If instead you tap the Delete key *while holding down the Shift key*, and then press the Enter key, the computer deletes the file immediately instead of moving it to the Recycle Bin.

## Multiple files

To "delete" or "send" several files at once, highlight the files you want to manipulate, by using one of these methods:

**Ctrl-click method** Click the first file you want to manipulate. *While holding down the Ctrl key*, click each of the other files you want to manipulate. That highlights all those files. (If you make a mistake and accidentally highlight an extra file, click it again while holding down the Ctrl key, to remove its highlighting.)

**Shift-click method** Click the first file you want to manipulate. *While holding down the Shift key*, click the last file you want to manipulate. That highlights the first file you want, the last file you want, and also all files in between.

**Ctrl-A method** Click the first file you want to manipulate. *While holding down the Ctrl key*, tap the A key (which stands for "all"). That highlights *all* files in the folder.

Those methods work best while you're *not* running a program. They do *not* work while you're running a primitive program (such as WordPad). Those methods sometimes work while you're running a fancy program (such as Microsoft Word).

After highlighting the files, do this:

If you want to "delete" the files, press the Delete key.

If you want to "send" the files, right-click the first file and follow the rest of my instructions about how to send where you wish.

You'll discover that the other files magically "tag along" with the first file, because they're highlighted also.

## Erase entire RW optical disk

Here's how to erase an entire CD-RW disk (or similar DVD disk):

Put the disk into the drive. You see that disk's window. At the window's left edge, you see "DVD RW Drive"; right-click it. Click "Erase this disc". Press Enter. The computer will spend about a minute erasing all files from the CD-RW disk. Then the computer will say "You have erased the files on this disc." Press Enter.

## Tricks

These tricks will make you a pro and amaze your friends.

### Bypass the Login screen

When you turn on the computer, you normally see the Lock screen. To get past it, you must press the Enter key (or swipe up). Then you see the Login screen; to get past it, you must type your password (or PIN) then press the Enter key again.

That password (or PIN) tells the computer which person you are, in case several people share your computer. It also protects you from any enemy who turns on your computer and tries to use it.

But if you're the only person who has an account on this computer and you're also sure no enemy will grab your computer and cause mischief, you might prefer to shorten that startup procedure, so when you turn on the computer it *immediately* shows the Start screen or other useful screen, without forcing you to watch the Lock and Login screens and type your password.

Here's how to tell the computer "don't show the Lock screen and don't demand a Login-screen password":

Next to the Windows Start button is the **Windows Search box**. Make sure that box is white or light gray. (If it's black or dark gray, make it lighter by tapping the Windows Start button once or twice.)

**Type "netPLwiz"**. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) Your typing appears in the Windows Search box.

**Tap "netPLwiz: Run command"**.

You see a check mark. (It's labeled "Users must enter a user name and password to use this computer.") Remove that check mark (by tapping it). Tap "OK".

For the Toshiba tablet, make the on-screen keyboard appear (by tapping the keyboard icon at the screen's bottom).

Type your password. At the end of your typing, tap the Confirm Password box. Type your password again. At the end of your typing, press the Enter key.

If you change your mind, you can reverse that procedure by doing this:

In the Windows Search box, type "netPLwiz". Tap "netPLwiz: Run command". Tap the box next to "Users must enter a user name and password to use this computer", so a check mark appears there. Tap "OK".

## Pin

Try this experiment.

Tap the Windows Start button. (For old Windows 10, then tap "All apps".)

You see a list of apps. Right-click one of those apps (such as "Calculator"). Then you typically see this menu:

### Old Windows 10

Pin to Start  
Pin to taskbar

### Windows 10 AU

Pin to Start  
More

If you tap "Pin to Start", here's what happens:

The computer creates a tile for the app. Then you can run the program more easily, by tapping the tile.

The tile's size is medium, until you change the size (by right-clicking the tile then tapping "Resize" then your favorite size: Small, Medium, Wide, or Large).

The tile's position is below or above all the previous tiles, until you drag it elsewhere. If you drag it to where another tile already is, that other tile moves out of the way.

The tile stays on the Start menu forever, or until you change your mind and destroy that tile (by right-clicking it and then clicking "Unpin from Start").

If instead you tap "Pin to taskbar" (in old Windows 10) or tap "More" then "Pin to taskbar" (in Windows 10 AU), here's what happens:

The computer copies the app's icon to the taskbar. Then you can run the program more easily, by tapping the icon on the taskbar.

Microsoft has pinned 3 programs to the taskbar already: Microsoft Edge, File Explorer, and Store.

Some manufacturers have pinned other programs also. For example, Toshiba's laptop has pinned WildTangent Games and TOSHIBA Start; Acer's laptop has pinned Control Panel; HP's laptop has pinned Windows Media Player.

An icon stays on the taskbar forever, or until you change your mind and destroy that icon (by right-clicking it and then clicking "Unpin this program from taskbar").

## Uninstall

If you totally hate an app and want to completely destroy it from everywhere in your computer, make sure no friends sharing your computer want that app! Then destroy the app by doing this:

Tap the Windows Start button. (For old Windows 10, then tap "All apps".) You see a list of apps. Right-click the app you want to destroy. Tap "Uninstall". Tap "Uninstall" again.

## Settings

Tap the Windows Start button, then do this:

**Old Windows 10** Tap "Settings".

**Windows 10 AU** Tap the "Settings" icon (which is a gear, which looks like a bumpy circle).

Then you see the **Settings window**, which shows these choices:

system, devices, network&Internet, personalization, accounts, time&language, ease of access, privacy, update&security

**System** If you choose "System" (from the Settings window), you see these choices:

**Windows 10 AU** display, apps&features, default apps, notifications&actions, power&sleep, battery, storage, offline maps, tablet mode, multitasking, projecting to this PC, apps for websites, about

**Old Windows 10** display, notifications&actions, apps&features, multitasking, tablet mode, battery saver, power&sleep, storage, offline maps, default apps, about

("Battery" or "battery saver" is mentioned just if your computer's a laptop or tablet, not a desktop.)

If you choose "About", you see info about your computer. If you choose "Power & sleep", you can change how long the computer waits until it makes the screen go black (because you haven't communicated with the computer and apparently walked away) and how long the computer waits until it makes the CPU go to sleep (so it consumes less electricity).

When you finish using System, click the left-arrow (at the screen's top-left corner), which returns you to the Settings window.

**Personalization** If you choose "Personalization" (from the Settings window), you see the word "Preview". Below "Preview", you see the word "Background". Below that "Background", you see a box. Tap that box. You see this menu:

Picture  
Solid color  
Slideshow

What color do you want for the Desktop screen's background? If you want a solid color, tap "Solid color" then the color you want (from samples of 24 colors); I recommend the 3<sup>rd</sup> color, which is plain blue and relaxing. If instead you want a photo, tap "Picture" then the photo you want; but though the photo can cheer you up, it might distract you from your work, so you take longer to find icons to click.

When you finish using Personalization, click the left-arrow (at the screen's top-left corner), which returns you to the Settings window.

**Update & security** If you choose "Update & security" (from the Settings window), the computer checks whether any updates are available now, to improve Windows 10, free! Follow the instructions on the screen.

## Start-right menu

If you *right*-click the screen's Windows Start button (or **press & hold** it for more than half a second), you see the **Start-right menu**, which gives you these choices:

Programs and Features  
Power Options  
Event Viewer  
System  
Device Manager  
Network Connections  
Disk Management  
Computer Management  
Command Prompt  
Command Prompt (Admin)  
  
Task Manager  
Control Panel  
File Explorer  
Search  
Run  
  
Shut down or sign out  
Desktop

**Control Panel** To control your computer completely, go to the **Control Panel** by doing this:

Right-click the Windows Start button (so you see the Start-right menu), then click "Control Panel".

You can see **2 views**.

The **category view** shows you these 8 categories:

System and Security	User Accounts
Network and Internet	Appearance and Personalization
Hardware and Sound	Clock, Language, and Region
Programs	Ease of Access

It also shows some subcategories.

The **icon view** shows you many icons instead, in alphabetical order.

Acer's laptop shows 48 icons.

Toshiba's laptop shows 47 icons in old Windows 10, 49 in Windows 10 AC.

HP's old laptop shows 45 icons in old Windows 10, 46 in Windows 10 AC.

HP's new laptop shows 49 icons in old Windows 10, 50 in Windows 10 AC.

Here they are:

administrative tools, AutoPlay, backup&restore Windows 7, color management, credential manager, date&time, default programs, device manager, devices&printers, display, Dolby advanced audio (just Acer), DTS studio sound (just new HP), ease of access center, Energy Star (just new HP), File Explorer options, file history, Flash player 32-bit, fonts, HomeGroup, HP wireless assistant (just old HP), IDT audio control panel (just old HP), indexing options, infrared (just Windows10AC), Intel HD graphics (not old HP), Intel PROSet/Wireless tools (just Toshiba), Internet options, keyboard, language, mail 32-bit (just HP and Toshiba Windows10AC), mouse, network&sharing center, pen&touch (not old HP), personalization, phone&modem, power options, programs&features, Realtek HD audio manager (not HP), recovery, region, RemoteApp&DesktopConnections, security&maintenance, sound, speech recognition, storage spaces, Synaptics ClickPad (just AcerOldWindows10), Synaptics TouchPad (just new HP), sync center, system, tablet PC settings (not HP), taskbar&navigation, troubleshooting, user accounts, Windows Defender, Windows firewall, Windows mobility center, work folders

Here's how to switch between those 2 views:

Near the screen's top-right corner, you see "View by". Click the down-arrow that's to the right of "View by". Then click "Category" or "Large icons".

You can experiment by clicking (or double-clicking) any of the icons in the Control Panel window, but be careful! If you tell the computer to use hardware you don't own, Windows will stop working! Before changing a setting, make a note to yourself of what the setting was, so you can get back to it. Be especially cautious about playing with the Display icon, since if you make a wrong choice your screen will be unreadable.

When you finish playing with the Control Panel window, close it by clicking its X.

## Notepad

**Notepad** is a stripped-down version of WordPad. Notepad is easier but does less.

Like WordPad, Notepad comes free as part of Windows.

Since WordPad does more than Notepad, most people prefer WordPad rather than Notepad. But sometimes WordPad is *too* fancy and *too* complex, and Notepad's primitive simplicity is appealing. Notepad is popular for writing "short notes", "computer programs", and "pages to put on the Internet". Notepad will confuse you less often than WordPad, since Notepad does less. It's retro; it's cool! Try it! Here's how...

To start using Notepad, do this:

Next to the Windows Start button is the **Windows Search box**. Make sure that box is white or light gray. (If it's black or dark gray, make it lighter by tapping it or the Windows Start button.)

**Type "notep"**. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) Your typing appears in the Windows Search box.

You see a list of things that contain "notep". **Tap "Notepad: Desktop app"**.

You see the **Notepad window** (a big picture of a pocket calculator). Maximize it (by tapping its maximize button if not maximized yet).

Start typing whatever you wish, as if you were using WordPad. Here are the differences...

**No formatting saved** When you save the document (copy it to the hard disk), Notepad saves info about which characters you typed (which letters of the alphabet, digits, and symbols, and where you hit the Space bar, the Enter key, and Tab key); but it saves no info about the document's appearance. Notepad doesn't save any info about fonts, boldfacing, italics, underlining, font size, color, centering, justification, margins, or bullets; all those features are missing.

The document that's saved is called a **plain-text document**, since it contains just text, no formatting.

A stripped-down word-processing program (such as Notepad) that produces just pure text documents (and saves no formatting) is called a **plain-text editor**.

While you stare at your document (in the Notepad window), which font are you seeing? Here's the answer:

The font is 11-point Consolas, unless you switch to a different font (by clicking "Format" then "Font" then choosing a different font then clicking "OK"). The font you choose affects Notepad forever (it affects how Notepad displays *all* documents), unless you switch fonts again.

But when you save your document, no font info is saved as part of the document.

**Optional word wrap** If you type near the screen's right edge, and you type a word that's too long to fit on the screen, WordPad automatically moves the word to the line below. Notepad does so just if you request **word wrap**.

Here's how to request word wrap:

Click "Format". You see "Word Wrap". If there's no check mark before "Word Wrap", put a check mark there by clicking "Word Wrap".

**No buttons** Notepad has no buttons.

Instead of clicking a Save button, click File then Save.

Instead of clicking an Undo button, click Edit then Undo.

**No drag & drop** To move a phrase, WordPad lets you use drag & drop, but Notepad doesn't understand that; Notepad requires you to use cut & paste instead. So here's how to move a phrase in Notepad: select the phrase (by dragging across it), then say "cut" (by pressing Ctrl with X), then click where you want the phrase to be, then say "paste Velcro" (by pressing Ctrl with V).

# Windows 8 & 8.1

The previous chapter explained how to use **Windows 10** (invented in 2015, improved afterwards).

This chapter explains how to use 2 older versions of Windows:

**Windows 8** (invented in 2012)

**Windows 8.1** (invented in 2013)

They're very similar to each other, so I'll call them **Windows 8/8.1**. This chapter explains them. (The next chapter explains Windows 7.)

You can upgrade from Windows 8/8.1 to Windows 10, free! Upgrading is easy, and Windows 10 is easier to understand than Windows 8/8.1. But some people and some companies still use Windows 8/8.1. This chapter explains how to handle Windows 8/8.1.

Windows 8/8.1 comes in 4 editions:

The normal edition, called just **Windows 8/8.1**, is for use in homes and small businesses.

A fancier edition, **Windows 8/8.1 Pro**, is for big businesses that insist on more security.

An even fancier edition, **Windows 8/8.1 Enterprise**, is for even bigger businesses that require even more security.

A stripped-down edition, **Windows Real Time 8/8.1 (Windows RT 8/8.1)**, is for people who buy stripped-down computers (such as a tablet having a small battery, a cheap CPU chip that's not Intel-compatible, and no hard drive).

This chapter explains the normal edition.

Windows 8/8.1 requires 2G of RAM to run at all, 4G to run well. Most computers running Windows 8/8.1 have 4G, 6G, or 8G.

Windows 8/8.1 works best if you have 3 tools:

a nice keyboard (including even a **Menu key**, which shows the symbol "≡")  
a screen that can detect where you touched it (a **touchscreen**)  
a **mouse**

If you don't have a mouse, you must use a **touchpad** instead and make it imitate a mouse.

Here are other substitutions you must make, if you don't have the 3 tools to do things the easy way:

<b>Easy way</b>	On a touchscreen, tap an object.
<b>No touchscreen</b>	Using a mouse, click an object.
<b>Easy way</b>	On a touchscreen, swipe toward the left.
<b>No touchscreen</b>	Rotate a mouse's wheel toward you.
<b>Easy way</b>	On a touchscreen, swipe toward the right.
<b>No touchscreen</b>	Rotate a mouse's wheel toward the screen.
<b>Easy way</b>	On a touchscreen, pinch 2 fingers together.
<b>No touchscreen</b>	While pressing Ctrl key, rotate mouse's wheel toward you.
<b>Easy way</b>	On a touchscreen, spread 2 fingers apart.
<b>No touchscreen</b>	While pressing Ctrl key, rotate mouse's wheel toward screen.
<b>Easy way</b>	On a touchscreen, swipe from the right black border.
<b>No touchscreen</b>	While pressing the Windows Start key, tap the C key.
<b>&amp; no keyboard</b>	Slide a mouse until its pointer is at screen's top-right corner.
<b>Easy way</b>	On a touchscreen, swipe from the left black border.
<b>No touchscreen</b>	While pressing the Windows Start key, tap the Tab key.
<b>&amp; no keyboard</b>	Using a mouse, click the screen's top-left corner.
<b>Easy way</b>	On a touchscreen, swipe from top black border to bottom.
<b>No touchscreen</b>	While pressing the Alt key, tap the F4 key.
<b>&amp; no keyboard</b>	Using a mouse, swipe from the screen's top edge to bottom.
<b>Easy way</b>	On a keyboard, press the Windows Start key.
<b>No keyboard</b>	Press Windows Start button (in screen's bottom black border).
<b>&amp; no such button</b>	Click the screen's bottom-left corner.
<b>&amp; no mouse</b>	On a touchscreen, choose Start from the Charms menu.

<b>Easy way</b>	On a keyboard, press the Menu key.
<b>No Menu key</b>	On a touchscreen, swipe from the bottom black border up.
<b>&amp; no touchscreen</b>	Using a mouse, right-click a blank space on the screen.

This chapter explains how to run Windows 8/8.1 on 3 computers:

<b>Computer</b>	<b>What I paid</b>
tablet computer (Toshiba's <b>Encore WT8-A32</b> )	\$250 at Staples
laptop computer (Acer's <b>Aspire V5-571P-6866</b> )	\$550 at Best Buy
all-in-one computer (Hewlett-Packard's <b>Envy 20-d013w</b> )	\$898 at Walmart

How good are they?

Acer's laptop and Hewlett-Packard's all-in-one are excellent.  
Toshiba's tablet is acceptable but occasionally gets confused and needs to restart.

Other Windows 8/8.1 computers are similar; some cost less.  
For free help using *your* computer, **phone me anytime at 603-666-6644**.

## Fundamentals

Here's how to start using the computer and have fun.

### Unpack & turn on

When you buy a computer, it comes in a cardboard box. Unpack it.

For example, here's how to unpack the three Windows 8/8.1 computers I bought.

**Acer laptop** The Acer Aspire V5-571P-6866 comes in a white cardboard box.

That box is protected by a gray seal, which says "CHECK CONTENTS IF SEAL IS BROKEN". Using a knife, break that seal. Open the box. Put the contents on your desk (or table).

The box contains 5 electronic devices:

the **computer itself** (15 inches wide, 10 inches front-to-back, 7/8-inch thick)  
an **outlet connector** (to plug into an electrical outlet)  
a **battery** (black cylinder, 10 3/4 inches long, 3/4-inch diameter)  
a **power adapter** (black box, 3 3/4"x2"x1", to convert AC power to DC)  
a **port adapter** (a split cable, to attach an Ethernet cable and a VGA cable)

Each device is protected in its own plastic sheath. Remove those sheaths and throw them away.

The box also contains 4 **instruction manuals** (brief pamphlets).

Plug the battery into the computer.

Using just your fingers, pry open the **computer itself**, so you see its keyboard and screen.

Remove the black cloth (which protected the keyboard) and the green sticker (which was stuck on the screen, to brag). Throw them away or, if you prefer, save them for future use someday.

Position the computer on your desk (or table), so the computer's screen stands up, faces you, and is tilted slightly back (so it's perpendicular to your line of sight).

Plug the power adapter into the keyboard's left side, near the screen.

Plug the outlet connector into the power adapter (unless you or your friends did that already). Plug the outlet connector's free end into an electrical outlet (in your room's wall or power strip or surge protector). Make sure the electrical outlet is on.

On the keyboard's front edge, an orange light will glow.

If you wish, plug the port adapter into the keyboard's left edge (but you'll probably never use that adapter).

Find the computer's **power button**. (It's at the keyboard's top-left corner, above the Esc key, next to a circle that has a line sticking up.) Press that button.

The screen will light up and say "acer".

**Hewlett-Packard (HP) all-in-one** Same as Windows 10, so read "**All-in-one**" on page 66.

**Toshiba tablet** Same as Windows 10, so read **"Tablet"** on page 66.

## Examine the keyboard

Same as Windows 10, so read **"Examine the keyboard"** on pages 66-67.

## Try moving the mouse pointer

Same as Windows 10, so read **"Try moving the mouse pointer"** on page 67.

## Get to the Start screen

If this is the first time the computer is being used, it does this **setup procedure**:

The computer says "Region and language". Tap "Next" (which you see on the screen, near the bottom-right corner).

The computer says "License". If your computer came with Windows 8.1, tap "I accept" (which is near the screen's bottom-right corner); if your computer came with Windows 8, tap "I accept" (which is near the screen's bottom-left corner) then "Accept" (at the screen's bottom-right corner).

The Toshiba tablet says "Register My Product"; the Acer laptop says "Welcome"; the HP computer says "Register and Protect". For now, to save time, tap "Skip".

The computer says "PC name". Invent a computer name (such as "ToshibaTablet: or "AcerLaptop" or "HP-Envy20" or "RussComputer" or "BedroomComputer"). To avoid difficulties, the name must be short (at most 15 characters), contain at least one letter, and contain just letters, digits, and hyphens, without spaces. Type the name (using the tablet's on-screen keyboard or laptop's built-in keyboard or all-in-one's wireless keyboard) then tap "Next" (near the screen's bottom-right corner).

Windows 8.1 says "Wi-Fi"; Windows 8 says "Wireless". Make sure you've properly set up your room's wireless router (which lets a computer communicate with the Internet). Tap the router's name. (On HP's computer, then tap "Connect automatically". On HP's and Acer's computers, then tap the "Connect" at the screen's bottom-right corner.)

The computer says "Settings". Tap "Use express settings".

Answer any questions about your Microsoft account or the e-mail address your Internet service provider agreed to assign you. (If your computer doesn't have a keyboard to type on, make the keyboard appear on your screen by tapping the box you want to type in. If the screen says "✓", tap that to see a menu of choices you can tap. To type the symbol "@" by using an on-screen keyboard, tap the screen's bottom-left corner then "@" then the bottom-left corner again.)

To keep things simple (and avoid future charges from Microsoft), click "Turn off these SkyDrive settings" if you see that choice.

There will be a delay. Be patient.

If the computer was set up previously, it does this procedure instead:

You see the **Lock screen**, which tries to show the time and date. (If you're not in the Pacific time zone, the time might be temporarily wrong.)

Press the keyboard's Enter key or Space bar. (If you don't have a keyboard, do this instead: put your finger in the screen's middle then swipe up, toward the screen's top edge.)

If the computer says "Password," type the password you created for Microsoft. At the end of your typing, press the Enter key (which has the symbol ↵ on it).

## See the Start screen

Eventually, the screen's top-left corner should say "Start".

If you don't see "Start" yet, make it appear by pressing the **Windows Start key**, which is on the keyboard's bottom row, left of the Alt key, and shows the Windows logo. Pressing that key is necessary just if your computer has a keyboard and a *revised* Windows 8.1 (which came out in 2014 and is called **"Windows 8.1 Update"**).

When the screen's top-left corner says "Start", you're seeing the **Start screen**.

Your name appears in the screen's top-right corner.

You see many **tiles** (big boxes).

**HP & Acer** Windows 8 normally shows 20 standard tiles. Here's how HP arranges them:

Mail	Internet Explorer	Store	Bing	
Calendar	Maps	SkyDrive	Travel	Finance
People	Photos	Sports		
Messaging	Weather	Games	Camera	
Desktop	News	Music	Video	

Here's how Acer arranges them:

Mail	Calendar	Internet Explorer	Store	Bing	
People	Photos	Maps	SkyDrive	Travel	
Messaging	Finance	Sports		Games	Camera
Desktop	Weather	News	Music	Video	

Updating to Windows 8.1 makes these changes:

"Messaging" becomes "Skype". "Bing" disappears, and all tiles under "Bing" rise to fill the space taken by "Bing".

**Toshiba** Toshiba's tablet, which has Windows 8.1, tries to show these 21 tiles:

Mail	Skype	Video	Music	Help+Tips	Maps
Calendar	Food & Drink	Games	Camera	Finance	
People	News	Health & Fitness			
SkyDrive	Photos				
Reading List	Internet Explorer	Weather			
Store	Sports				

But the tablet's screen isn't wide enough to show them all, so it shows just the ones on the left. To see the ones on the right, put your finger on a screen's blank place (not a tile) and **swipe** your

finger toward the left.

Try this **rotation experiment**:

While using the Start screen, lift the tablet's top edge off the desk, until the tablet is vertical instead of horizontal. Then **rotate** the tablet counterclockwise, 90 degrees, so the tablet looks wider and not as tall, and you see "TOSHIBA" at the bottom-right corner instead of the bottom-left. When you do that, all writing on the screen rotates 90 degrees clockwise to compensate, so you can still read what's on the screen without turning your head.

When the device is wider than it is tall, you're in **landscape mode**; the **orientation** is landscape (and good for viewing a landscape painting or a typical video or imitating a laptop screen or all-in-one screen). **In landscape mode, any on-screen keyboard will be wider**, so you can type on it more easily (but less space remains on the screen to show what you've typed).

To return to normal (which is called **portrait mode**), lift the device's top edge off the desk again then rotate the device clockwise, 90 degrees. Then the device is taller than it is wide; you're in **portrait mode**; the **orientation** is portrait (and good for viewing a portrait of a person and using the tablet normally).

**Extra tiles** The tiles I've mentioned are the standard ones supplied by Microsoft. To the right of those tiles, you can see extra tiles, supplied by the computer's manufacturer (HP or Acer or Toshiba).

Even *more* tiles are hiding to the right. To see them, put your finger on a screen's blank place (not a tile) and **swipe** your finger toward the left. That makes all tiles slide left, so you can see whatever tiles were hiding to the right.

The HP comes with 39 tiles altogether: the 20 standard Microsoft tiles plus these 19....

finish registration, Microsoft solitaire collection, Microsoft mahjong, getting started with Windows 8, HP connected photo, Wordament, HP+, Skype, Kindle, iHeart Radio, Fresh Paint, security, Netflix, Taptiles, eBay, Microsoft Office, connected music, connected backup, HP support assistant

The Acer comes with 43 tiles altogether: the 20 standard Microsoft tiles plus these 23....

Acer Explorer, 7digital, Evernote, Kindle, eBay, Encyclopedia Britannica, Netflix, iCookbook, Amazon, ChaCha, Tune In, Hulu Plus, Zinio, Merriam-Webster, Xbox, Skype, Social Jogger, Acer Crystal Eye, NewsXpresso, Games, Spotify, McAfee Internet Security Suite, AcerCloud

Upgrading the HP or Acer to Windows 8.1 adds 4 tiles:

food & drink, health & fitness, help+tips, reading list

The Toshiba comes with Windows 8.1 and 37 tiles altogether: 21 standard Microsoft tiles plus these 16....

Desktop, Xbox SmartGlass, Amazon, Toshiba central, eBay, Zinio, iHeart Radio, Microsoft solitaire collection, Kindle, Norton Studio, Netflix, Book Place, Toshiba TruCapture, Norton Internet Security, Microsoft Office, create recovery media

To return the screen to normal, put your finger on a screen's blank place and swipe your finger back toward the right.

I've explained what tiles are on the Start screen *normally*, but the Start screen and its tiles can be modified by you and your friends. I'll explain how later.

## Peek at the Desktop screen

Find the **Desktop tile**.

**All-in-one & laptop** The Desktop tile is at the screen's bottom-left corner.

**Tablet** On Toshiba's Encore tablet, whose screen is small, the Desktop tile hides to the right of the main tiles. To see the Desktop tile, put your finger on a screen's blank space (not a tile) and swipe your finger toward the left. The Desktop tile is in the top row of tiles. It's to the right of the Maps tile. It says "Desktop" and "encore".

Tap the Desktop tile. Then you see the **Desktop screen**, which imitates older versions of Windows.

On the Desktop screen, the bottom-right corner tries to show the time and date.

**Windows 8** The bottom-left corner says "e" (which means Internet Explorer).

**Windows 8.1** The bottom-left corner shows the **Windows logo** (a white window containing 4 white windowpanes, which are boxes, tiles). That white window means "return to the Windows Start screen". Next to the white window, you see "e" (which means Internet Explorer).

If you see a red box containing a white "x", tap that "x". That erases the x, the red box, and their window. Do that repeatedly, until there are no more red boxes. Then you see the normal Desktop screen.

The **Windows logo** is a white window containing 4 white windowpanes, which are boxes, tiles. When you finish admiring the Desktop screen, **return to the Start screen** by using one of these methods:

**Keyboard method (available if you have a keyboard)** Press the **Windows Start key**. That key is on the keyboard's bottom row, left of the Alt key, and shows the Windows logo. If you're too lazy to call it the "Windows Start key", call it just the "**Windows key**" or the "**Start key**".

**Screen method (available on Windows 8.1's Desktop screen)** Tap the Windows logo at the screen's bottom-left corner.

**Border method (available if you have a tablet)** Press the Windows Start button, which shows the Windows logo. Toshiba puts that button on the screen's bottom black border (bezel) next to the word "TOSHIBA".

**Practice clicking** If your computer includes a mouse or touchpad, try to **click** by using those devices.

To practice clicking, try to **click the Desktop tile**. Here how:

**Mouse method** While you're looking at the Start screen, slide the mouse across your desk or table, until the tip of the arrowhead (mouse pointer) is on the Desktop tile. Then, while holding the mouse perfectly still, tap the mouse's left button.

**Touchpad method** While you're looking at the Start screen, rest your finger gently on the touchpad's middle (but don't press). Slide your finger across the touchpad, until the tip of the arrowhead (mouse pointer) is on the Desktop tile. Lift your finger off the touchpad. Then press the touchpad's bottom-left corner or, if you prefer, do this: tap the touchpad once, firmly but briefly, anywhere on the touchpad (except the touchpad's bottom-right corner, which is special).

That's called **clicking** the Desktop tile. It has the same effect as tapping the Desktop tile with your finger. It makes the Desktop screen appear.

Then return to the Start screen (by pressing the Windows Start key).

## Peek at the charms

Windows can be charming: you can see magical **charms**!

To see the charms, you can use 3 methods:

**Border-swipe method (easiest if you have a good touchscreen)** The screen is surrounded by a black border. If you have a good touchscreen (such as on the HP Envy 20-d013w and the Acer Aspire V5-571P-6866), the computer can detect when your finger is on the black border. Try this experiment: put your finger on the computer's right-hand edge, on the black border, and **swipe** your finger from there to the left, onto the screen.

**Keyboard method (also easy)** While holding down the Windows Start key (which has the Windows logo on it), tap the C key.

**Corner method (hardest and worst)** Slide the mouse (or move your finger across the trackpad) until the tip of the arrowhead (mouse pointer) is at the screen's top-right corner, where the screen's colors meet the black border (but don't click or tap).

Then you see 5 **charms** at the screen's right edge:

Search  
Share  
Start  
Devices  
Settings

How do the charms look?

If you used the **border-swipe method** or **keyboard method**, the charms look nice (on a black background, with labels), and the screen's bottom-left corner shows the computer's opinion of the time & date, big.

If you used the **corner method**, the charms appear just temporarily (with no black background, no labels, and no big time/date).

**Return to the Start screen** When you finish admiring the charms, here's how to return to the normal Start screen: press the **Windows Start key** or tap the **Start charm**.

## Turn off the computer

When you finish using the computer, here's how to turn it off:

**Charms method** Tap the **Settings charm** then "Power" (at the screen's bottom) then "Shut down".

**Fast power-icon method (not on tablets, just on Windows 8.1 Update)** Go to the Start screen. Tap the **Power icon** (which is near the screen's top-right corner and shows a circle that has a line sticking up). Tap "Shut down".

**Ctrl-key method** While holding down the Ctrl and Alt keys, tap the Delete key. Tap the **Power icon** (which appears on the screen, at the screen's bottom-right corner, and shows a circle that has a line sticking up). Tap "Shut down".

**Power-button method (just on tablets, such as Toshiba's, having InstantGo)** Press the Power button awhile (about 4 seconds), until the screen says "Slide to shut down your PC". Put your finger on that sentence and slide (drag) it down to the screen's bottom.

**Windows-key method (just in Windows 8.1)** While holding down the Windows Start key, tap the X key. Take your fingers off those keys. Tap the U key twice.

All open tiles will close. The screen will go black.

**Tablet** You've turned the computer completely off.

**All-in-one and laptop** When the power button's light stops glowing, turn off the computer's electricity. (To do that, unplug from the wall or turn off the power strip or surge suppressor.) If you have a mouse, turn it off (by turning it upside-down and sliding its power button to "Off").

**Sleep** To turn the computer *partly* off, so it uses very little power, press the power button.

**HP all-in-one** The power button is at the computer's top edge, near the right-hand corner, and shows a circle that has a line sticking up.

**Acer laptop** The power button is at the keyboard's top-left corner, above the Esc key, next to a circle that has a line sticking up.

**Toshiba tablet** The power button is the small black button on the tablet's right edge. It's near the top edge and next to a circle that has a line sticking up.

That makes the screen go black; the computer **sleeps** (uses very little power).

**HP all-in-one** While the computer sleeps; the power button's light flashes repeatedly. If you press the power button again later, the screen comes back on and shows where you left off, and the same tiles are still open.

**Acer laptop** While the computer sleeps, the power button's light stays on for the first 12 seconds, then turns off. If you press the power button again later, here's what happens.... The screen comes back on. You see the Lock screen (with the time and date). Do the Lock screen procedure, which is: press the Enter key, type your password, and press Enter again. You see where you left off; the same tiles are still open.

**Toshiba tablet** If you tap the power button again later, here's what happens.... The screen comes back on. You see the Lock screen (with the time and date). Do the Lock screen procedure, which is: put your finger in the screen's middle then swipe up toward the screen's top edge. If the tablet says "Password" (because the tablet's been sleeping a long time), type your password then press the Enter key. You see where you left off; the same tiles are still open.

**3 states** The computer can be in 3 states:

**off** (consumes no power, so the screen is black)

**on** (so you can use the computer)

**sleeps** (consumes very little power; the screen is black, but the computer keeps remembering what you'd been doing and waits for you to press the power button again, to turn the computer back on fully)

## Apps screen

In addition to the tiles, your computer contains many other apps. To see them all, do this:

**Windows 8** Tap the first charm (the **Search charm**).

**Windows 8.1** While looking at the Start screen, put your finger on a blank space near the screen's middle and swipe up.

Then you start seeing the **Apps screen**, which is a list of all the **application programs (apps)** on the computer.

**HP & Acer** On HP's all-in-one computer (Envy 20-d013w), the Apps screen includes 110 apps:

**40 main apps:** Bing, Calendar, Camera, Connected Music, Desktop, eBay, Finance, Fresh Paint, Games, Getting Started, HP Connected Photo, HP+, iHeartRadio, Internet Explorer, Kindle, Mail, Maps, Messaging, Microsoft Mahjong, Microsoft Office, Microsoft Solitaire Collection, Music, Netflix, News, Norton Studio, People, Photos, Reader, Register with HP, SkyDrive, Skype, Sports, Store, Taptiles, Travel, Video, Weather, Windows Live Movie Maker, Windows Live Photo Gallery, Wordament

**2 other apps for communication & chat:** CyberLink YouCam, Try HP MyRoom Free

**12 other apps that are games:** All Casual Games, All Enthusiast Games, All Family Games, All Kids Games, All MMO Games, Bejeweled 3, FATE The Cursed King, John Deere Drive Green, Mahjong Dark Dimensions, More Games from WildTangent, Penguins, Zuma's Revenge

**1 other app by HP:** Connected Backup

**7 other apps for HP help & support:** HP Support Assistant, HP Support Information, Operating Specifications, Regulatory & Safety & Environmental Notices, Safety & Comfort Guide, Troubleshooting & Maintenance Guide, Warranty

**6 other apps for music & photos & videos:** CyberLink Media Suite, CyberLink PhotoDirector, CyberLink PowerDirector, CyberLink PowerDVD, HP Beats Audio, HP Connected Remote

**1 other app about Norton Internet Security:** Norton Internet Security

**6 other apps about productivity & tools:** CyberLink LabelPrint, CyberLink Power2Go, Desktop Burning Gadget, HP My Display TouchSmart Edition, ISO Viewer, Virtual Drive

**2 other apps for security & protection:** Recovery Manager, Recovery Media Creation

**1 other app about shopping & services:** eBay

**15 apps that are Windows accessories:** Calculator, Character Map, Math Input Panel, Notepad, Paint, Remote Desktop Connection, Snipping Tool, Sound Recorder, Steps Recorder, Sticky Notes, Windows Fax & Scan, Windows Journal, Windows Media Player, WordPad, XPS Viewer

**4 apps for Windows ease of access:** Magnifier, Narrator, On-Screen Keyboard, Windows Speech Recognition

**1 app from Windows Live:** Windows Live Writer

**12 apps to manipulate the Windows system:** Command Prompt, Computer, Control Panel, Default Programs, File Explorer, Help & Support, Run, Task Manager, Windows Defender, Windows Easy Transfer, Windows Easy Transfer Reports, Windows PowerShell

On Acer's laptop (Aspire V5-571P-6866), the Apps screen includes 113 apps:

**45 main apps:** -Games-, -Games App-, 7digital Music Store, Acer Crystal Eye, Acer Explorer, Amazon, Bing, Calendar, Camera, ChaCha, Desktop, Dictionary, eBay, Encyclopedia Britannica, Evernote, Finance, Games, Hulu Plus, iCookbook SE, Internet Explorer, Kindle, Mail, Maps, Messaging, Microsoft Office, Music, Netflix, News, newsXpresso, Norton Online Backup, People, Photos, Reader, Shark Dash, SkyDrive, Skype, Social Jogger, Sports, Spotify, Store, Travel, TuneIn Radio, Video, Weather, Zinio Reader

**12 other apps by Acer:** Acer Backup Manager, Acer Instant Update Utility, Acer Power Management, Acer Quick Guide, Acer Recovery Management, Acer User's Manual, AcerCloud, AcerCloud Docs, clear.fi Media, clear.fi Photo, Identity Card, Live Updater

**2 apps by CyberLink:** CyberLink MediaEspresso 6.5, MediaEspresso Gadget

**2 apps by Dolby:** Dolby Demo, Dolby Profile

**2 apps by EgisTec:** MyWinLocker, Shredder

**16 other apps that are games:** Agatha Christie, Aloha TriPeaks, Bejeweled 3, Cradle of Egypt, Delicious, Dora's World Adventure, Jewel Batch 3, More Games from WildTangent, Mystery P.I., Peggle Nights, Penguins, Plants vs. Zombies, Polar Bowler, Polar Golfer, Tales of Lagoona, Zuma's Revenge

**1 app by Intel:** Intel Graphics & Media Control Panel

**1 app by McAfee:** McAfee Internet Security Suite

**1 app by NTI:** NTI Media Maker 9

**15 apps that are Windows accessories:** Calculator, Character Map, Math Input Panel, Notepad, Paint, Remote Desktop Connection, Snipping Tool, Sound Recorder, Steps Recorder, Sticky Notes, Windows Fax & Scan, Windows Journal, Windows Media Player, WordPad, XPS Viewer

**4 apps for Windows ease of access:** Magnifier, Narrator, On-Screen Keyboard, Windows Speech Recognition

**12 apps to manipulate the Windows system:** Command Prompt, Computer, Control Panel, Default Programs, File Explorer, Help & Support, Run, Task Manager, Windows Defender, Windows Easy Transfer, Windows Easy Transfer Reports, Windows PowerShell

Upgrading those HP & Acer computers to Windows 8.1 (and doing other upgrades along the way) makes these changes....

10 main apps are added: Alarms, Calculator, Food & Drink, Health & Fitness, Help+Tips, PC Settings, Reading List, Scan, Sound Recorder, Yahoo.

These apps are deleted: Bing, Messaging, Computer, Windows Easy Transfer Reports.

An app called "This PC" is added to the list of apps to manipulate the Windows system.

"Windows Media Player" is moved to the main-apps category.

Just on Acer's computer: "Evernote" becomes "Evernote Touch"; "-Games-" becomes "WildTangent Games".

**Toshiba** On Toshiba's tablet (Encore WT8-A32, which includes Windows 8.1), the Apps screen includes 78 apps:

**43 main apps:** Alarms, Amazon, Book Place, Calculator, Calendar, Camera, Desktop, eBay, Finance, Food & Drink, Games, Health & Fitness, Help+Tips, iHeartRadio, Internet Explorer, Kindle, Mail, Maps, Microsoft Office, Microsoft Solitaire Collection, Music, Netflix, News, Norton Studio, PC Settings, People, Photos, Reader, Reading List, Scan, SkyDrive, Skype, Sound Recorder, Sports, Store, Store, Toshiba Central, Toshiba Registration, Travel, TruCapture, Video, Weather, Xbox SmartGlass, Zinio Reader

**1 app by Norton:** Norton Internet Security

**4 other apps by Toshiba:** Create Recovery Media, Service Station, Toshiba Application Installer, User's Guide

**15 apps that are Windows accessories:** Calculator, Character Map, Math Input Panel, Notepad, Paint, Remote Desktop Connection, Snipping Tool, Sound Recorder, Steps Recorder, Sticky Notes, Windows Fax & Scan, Windows Journal, Windows Media Player, WordPad, XPS Viewer

**4 apps for Windows ease of access:** Magnifier, Narrator, On-Screen Keyboard, Windows Speech Recognition

**11 apps to manipulate the Windows system:** Command Prompt, Control Panel, Default Programs, File Explorer, Help & Support, Run, Task Manager, This PC, Windows Defender, Windows Easy Transfer, Windows PowerShell

**See all apps** You see the first screenful of apps. To see *all* the apps, put your finger on a screen's blank place and **swipe** your finger toward the left. To return the screen to normal, swipe toward the right.

**Restricted apps** To see just the apps containing a word beginning with the letters "ca", go to the Apps screen then do this:

If you have a real keyboard (which is called a **physical keyboard**), type the letters "ca". Your typing appears in the screen's top-right corner.

If you don't have a real keyboard, tap the purple box in the screen's top-right corner. That makes the screen show an imitation keyboard (called an **on-screen keyboard** or **virtual keyboard**). On that keyboard, type "ca".

That makes the computer show this list of "ca" apps:

HP	Acer	Toshiba
Camera	Camera	Calendar
Calendar	Calendar	Camera
Calculator	Calculator	Calculator
All Casual Games	Identity Card	Calculator
CyberLink YouCam	Mystery P.I. — Curious Case	

"Calculator" appears in Toshiba's list *twice*, because Windows 8.1 includes 2 versions of the Calculator app. "Calculator" will appear in the other lists twice when you upgrade those computers to Windows 8.1. (Upgrading also changes the order in which apps are mentioned.)

If you type the letters "ca" while you're looking at the Start screen instead of the Apps screen, here's what happens:

**Windows 8** Typing "ca" at the Start screen has the same effect as typing "ca" at the Apps screen: you see a list of the "ca" apps on your computer.

**Windows 8.1** Typing "ca" at the Start screen makes the computer show you everything it can research about "ca": you see the beginning of a list of "ca" apps, data files, and Internet Websites.

If you don't have a physical keyboard, here's how to type the letters "ca" at the Start screen:

Tap the Search charm. An on-screen keyboard appears. Type "ca".

## See open tiles

If you've tapped a tile (to use it), what should you do when you finish using it?

The simplest thing to do is press the Windows Start key (or button), which returns you to the Start screen — but even though the whole screen becomes devoted to the Start screen, the tile you

were using still secretly runs in the background; the tile is still secretly open.

To return to using a secretly open tile, choose one of these methods:

**Swipe method** Put your finger on the computer's left edge, on the black border, and swipe your finger from there to the right, onto the screen.

**Mouse method** Using the mouse (or touchpad), click the screen's top-left corner (where the screen's colors meet the black border).

That makes you return to using that tile: the whole screen becomes devoted to that tile's app.

If several tiles are still open, use one of those methods several times to switch among those tiles.

To see a list of all tiles that are still open, choose one of these methods:

**Swipe method (easy)** Put your finger on the computer's left edge, on the black border. Slide your finger toward the right, onto the screen, but then (with your finger still on the screen) slide back to the left, onto the black border.

**Mouse method (harder)** Using the mouse, move the mouse pointer to the screen's top-left corner (where the screen's colors meet the black border). While pressing the mouse's left button, slide the mouse pointer slightly to the right (along the black border's edge), but then (without lifting the mouse's button) slide back to the screen's top-left corner.

**Touchpad method (hardest)** Using the touchpad, move the mouse pointer to the screen's top-left corner (where the screen's colors meet the black border). While your other hand presses the touchpad's bottom-left corner, slide the mouse pointer slightly to the right (along the black border's edge), but then (without lifting your other hand) slide back to the screen's top-left corner.

You see the list of open tiles. Tap the tile you want to open.

**Close a tile** To close a tile (remove it from the list of tiles that are open), choose one of these methods while running the tile:

**Swipe method** Swipe from the computer's top edge (the top black border) to the computer's bottom edge (the bottom black border).

**Keyboard method** While holding down the **Alt key** (which is next to the Space bar), tap the **F4 key** (which is on the keyboard's top row).

If you're not going to use that tile soon, close it: then it stops consuming the computer's attention & memory, so the computer can devote its full attention to the other tiles and let them run faster.

## Improve the computer

Here's how to improve the computer. (If you share the computer with friends, get their permission before making these modifications.)

**Fix the time** HP, Acer, and Toshiba assume their customers are in the Pacific time zone. If you're not in the Pacific time zone, fix the time by doing this:

While the computer is on, tap the Settings charm then "Change PC settings" (at the screen's bottom).

For Windows 8, tap "General" then the time box's "v". For Windows 8.1, make any left-arrow at the screen's top-left corner disappear (by tapping it repeatedly) then tap "Time and language" then "Date and time" then the time-zone box's "v".

You start seeing a list of time zones. To see the rest of the list, put your finger in the list and swipe up or down.

Find your time zone. If you're in the U.S., your time zone is one of these:

(UTC-10:00) Hawaii  
(UTC-09:00) Alaska  
(UTC-08:00) Pacific Time (US & Canada)  
(UTC-07:00) Arizona  
(UTC-07:00) Mountain Time (US & Canada)  
(UTC-06:00) Central Time (US & Canada)  
(UTC-05:00) Eastern Time (US & Canada)  
(UTC-05:00) Indiana (East)

When you've found your time zone, tap it.

**Update Windows** About every 2 weeks, Microsoft makes little improvements to Windows. **Update your computer to include Windows' newest improvements.** Here's how.

Tap the Settings charm then "Change PC settings" (at the

screen's bottom).

If you're using Windows 8, here's what happens next:

At the screen's bottom-left corner, you should see "Windows Update". (If you don't see "Windows Update" yet, because your screen isn't tall enough, make "Windows Update" appear by doing this: put your finger at the screen's bottom-left corner and swipe up.) Tap "Windows Update".

If you're using Windows 8.1, here's what happens instead:

Make any left-arrow at the screen's top-left corner disappear (by tapping it repeatedly). Tap "Update and recovery" (which is at the screen's bottom-left corner) then "Windows Update".

If you see "Restart now", do this:

Tap the "Restart now" button. The computer will restart and show you the Lock screen (with the time and date). Do the Lock screen procedure, which is: press the Enter key, type your password, and press Enter again.

If instead you see "We'll install updates automatically", don't wait for the automatic update; instead, update *now* by doing this:

Tap "We'll install updates automatically" then the "Install" button (at the screen's bottom).

If instead you see "No important updates are scheduled to be installed", do this:

Tap "Check for updates now".

If instead you see "View details", do this:

Tap "View details". Put check marks in all the boxes (by tapping them). Tap "Install".

Microsoft also improves the apps. Update your apps by doing this:

On the Start screen, find the Store tile (which is green and shows a shopping bag). At that tile's bottom-right corner, if you see a number, continue as follows....

Tap the Store tile. Tap "Updates" (at the screen's top-right corner) then "Install" (at the screen's bottom).

The computer says "Installing apps". You see a list of apps that are being installed. That list of apps to install gradually gets shorter, and then the screen blinks a few times, until the computer finally says "Your apps were installed."

Then return to the Start screen (by pressing the Windows Start key).

If you have Windows 8, you can update to Windows 8.1 by doing this procedure (which is easy and free but includes about 2 hours of waiting):

Tap the Store tile (which is green) then "Update Windows" then "Download". The computer will say "Downloading".

The computer will pause for many minutes, while it copies Windows 8.1 from the Internet. (If the screen grows dim or black, slide the mouse slightly: that gets the computer's attention, so the screen becomes bright again.)

Eventually the computer will say "Getting the update ready" then "Checking compatibility" then "Applying changes" then "Gathering info" then "Preparing to restart" then "Your PC needs to restart". Tap "Restart now".

Eventually the computer will say "License terms". Tap "I accept" then "Use express settings".

Type the password you created for Microsoft. At the end of your typing, tap "Next".

Assuming you have a cell phone, do the following. Tap "Next" again. Microsoft will send a text message to your cell phone. That message contains your security code. Type that security code on your computer's keyboard. Tap "Next" then "Next" again.

**Register** If you haven't registered the computer yet, do this for the HP all-in-one:

The Start screen includes a tile called "Finish Registration". Tap it. Finish registering your computer (so HP can send you more info), by answering questions.

When you've finished, the computer will say "Thank you for registering with HP!"

Press the Windows Start key. **Remove the tile** (which might now say "Thank you") from the Start screen, as follows.... Using the mouse, move the mouse pointer (which is on the screen) to that tile. Press the mouse's right-hand button (not the left). Tap "Unpin from Start" (at the screen's bottom-left corner).

That tile will disappear. The other tiles will rearrange themselves, to fill the hole left by the departed tile.

Do this for the Toshiba tablet:

The Start screen includes a tile called “Toshiba Central”. Tap it. Tap “Register Any Toshiba Product.”

Type the **serial number**, which is the “S/N” number on the tablet’s box). (The serial number includes letters and digits. Don’t bother capitalizing. To type digits, tap the screen’s bottom-left corner then the digits then the screen’s bottom-left corner again.) At the end of your typing, tap “GO”.

Type the last 4 digits of the model-part number, which is the “P/N” number on the tablet’s box.

Put your finger in the screen’s middle and swipe up, so you can see the rest of the product-registration form.

Tap the Purchase Date box. You see the calendar of a month. Tap the date you bought the tablet; to switch months, tap the “▶” for the next month or the “◀” for the previous month.

Tap the Email Address box. Type your e-mail address. (To type digits or the symbol “@”, tap the screen’s bottom-left corner then what you want.)

Tap “CONTINUE”.

Optional: to get extra benefits, tap “CREATE MY ID” then try to answer more questions then tap “Submit”.

Do the following procedure for the Acer laptop eventually, but Acer’s procedure works just after you’ve learned how to receive emails:

The Start screen includes a tile called “Acer Explorer”. Tap it.

Finish registering your computer (so Acer can send you more info), by tapping the “Create an Acer ID” button (if you don’t have an Acer ID already) and answering questions.

## Tiles we love

These tiles (on the Start screen) are nice & easy to use.

### Camera

**Here’s how the Camera tile works in Windows 8.1.** (If you’re still using Windows 8 instead of 8.1, skip to the next section.)

On the Start screen, tap the **Camera tile**.

**HP all-in-one** The Camera tile is reddish purple. It’s normally the 3<sup>rd</sup> row’s 4<sup>th</sup> tile.

**Acer laptop** The Camera tile is purple. It’s normally the 2<sup>nd</sup> row’s 6<sup>th</sup> tile.

**Toshiba tablet** The Camera tile is purple. It shows a camera and is normally near the screen’s top-right corner.

If the computer asks “Can Camera use your location?” tap “Allow”.

**Enjoy the mirror** The screen can act as a mirror, so you see yourself staring at the screen! Here’s why:

**HP all-in-one** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the white light). The camera is aimed down at you. The camera is medium-quality (1280×800 resolution, 1 megapixel).

**Acer laptop** Above the screen, the computer’s black border includes a tiny pinhole camera (next to the green light). The camera is aimed toward you. The camera is medium-quality (1280×1024 resolution, 1.3 megapixels).

**Toshiba tablet** The screen is surrounded by a black border. That border’s top-right corner includes a tiny pinhole camera aimed toward you. That’s called the **front camera** (or **front-facing camera**). Behind that camera, on the computer’s backside, is another pinhole camera, aimed in the opposite direction (such as toward your desktop), in the same direction as your eye sees; that’s called the **back camera** (or **rear-facing camera**). To make the rear-facing camera show something useful, lift the tablet off the desk. To switch from one camera to the other, tap “Change camera” (which you’ll see when you swipe up from the bottom black border). The front camera is 2-megapixel; the back camera is higher quality (8-megapixel).

To have fun, grab your friends and favorite objects and put them next to you, so the screen shows them all! The quality will be better if the room is brightly lit, flooded with bright daylight, not at night. You can tilt the screen, to let the camera get a

different view.

Anything near the camera will look bigger. For example, if you put your hand near the camera, your hand will look bigger than your head.

**Snap a photo** To snap a photo, use one of these methods:

**Keyboard method** Press the keyboard’s Space bar.

**Touchscreen method** Tap the screen’s middle.

To see the photo you snapped, use one of these methods:

**Keyboard method** Press the **left-arrow key** (which is next to the rightmost Ctrl key). To see any earlier photos, press the left-arrow key again.

**Touchscreen method** Put your finger on the screen’s middle and swipe to the right. To see any earlier photos, swipe right again.

To snap another photo, use one of these methods:

**Flip-through method** Hold down the **right-arrow key** (or swipe left repeatedly), until you see your mirror image instead of a photo.

**2-tap method** While looking at a photo you snapped, tap its middle then the Camera icon (which is at the screen’s bottom-left corner).

Then snap (by press the keyboard’s Space bar again or tapping the screen’s middle again).

If you put a book in front of the screen, the book’s writing will look backwards (a mirror image) on the screen before you take the photo, but the final photo will show the book’s writing correctly.

**Edit a photo** While you’re looking at a photo you took, you can edit it.

To **delete** the photo, use one of these methods:

**Keyboard method** Press the Delete key then the Enter key.

**Touchscreen method** Tap the photo’s middle then the white Delete icon (the trash can near the screen’s bottom-left corner) then the purple “Delete” button.

To **crop** the photo (keep just the photo’s middle part), do this:

Tap the photo’s middle then tap “Crop” (which is near the screen’s bottom-right corner). The computer highlights the photo’s middle part and puts 4 white dots around it. Using your finger, drag the 4 white dots until they correctly surround the part of the photo you want to keep. Tap “Apply”. Then tap “Update original” (to erase the photo’s big version and keep just the cropped version) or “Save a copy” (to keep *both* versions).

**Record a movie** To record a movie (instead of snapping a photo), tap the movie-camera icon (the top icon at the screen’s right edge). Recording begins immediately. The screen’s bottom-left corner shows how many seconds have elapsed.

To stop recording, do this:

**Keyboard method** Press the Space bar. (Then if you want to record another scene, press the Space bar to resume recording; press the Space bar again to stop again.)

**Touchscreen method** Tap the white square. (It’s in a circle at the screen’s right edge.)

To see the movie scene you recorded, press the left-arrow key (or swipe to the right).

To record another movie or photo, use one of these methods:

**Flip-through method** Hold down the **right-arrow key** (or swipe left repeatedly), until you see your mirror image instead of a photo.

**Menu-key method** While watching a movie you recorded, press the **Menu key** (which is on a good keyboard, shows the symbol “≡”, and is to the right of the Space bar, between the Space bar and the rightmost Ctrl key) or **right-click** the screen’s middle (by pressing the mouse’s rightmost button) or **swipe from the bottom** (by putting your finger on the black border that’s below the screen then swiping up into the screen middle). Then tap the Camera icon (which is at the screen’s bottom-left corner).

Then snap a photo (by pressing the Space bar or tapping the screen’s middle) or start recording another movie (by tapping the movie-camera icon).

**Edit a movie** While you're looking at a movie you made, you can edit it:

To **delete** the movie, press the Delete key then the Enter key.

To **trim** the movie (keep just the movie's middle moments), press the Menu key (or right-click the screen's middle, using the mouse's rightmost button, or swipe from the bottom) then tap "Trim" (which at the screen's bottom-right corner). You see 2 white dots. Using your finger, drag the 2 white dots until they correctly surround the moments of the movie you want to keep. (To see the result, tap the "▶". If you don't like the result, adjust the 2 white dots by dragging them again.) Then tap "Save a copy".

**Timer** The usual way to snap a photo is to press the Space bar (or tap the screen's middle). Immediately before doing that, try this experiment:

Press the Menu key (or right-click the screen's middle, using the mouse's rightmost button, or swipe up from the bottom black border). Then tap "Timer" once (or several times if necessary) so "3 seconds" (or "10 seconds") appears on the screen briefly. That sets the timer to 3 seconds (or 10 seconds).

Then tap the screen's middle (to hide the timer).

Finally, when you press the Space bar or tap the screen's middle (to snap the picture), the computer will delay 3 seconds (or 10 seconds) after you press the Space bar, so you have extra seconds to practice your smile before the photo is snapped.

All future photos (and movies) will be affected by the timer, until you turn off the timer by doing this: press the Menu key (or right-click the screen's middle or swipe up from the bottom black border) then repeatedly tap "Timer" until you see "Off".

**Photos tile** On the Start screen, the **Photos tile** might show one of the photos you made. To see all the photos you took, do this:

Tap the Photos tile. If you see "Camera Roll", tap it. If you see a big photo that consumes most of the screen, press the **Escape key** (which says "Esc" on it and is at the keyboard's top-left corner) or put 2 fingers on the screen and pinch them together.

Then you see small copies of many photos you took. To enlarge a photo, tap it; then see another photo (or movie) by swiping to the left. To make a photo small again, press the **Escape key** (which says "Esc" on it and is at the keyboard's top-left corner) or put 2 fingers on the screen and pinch them together.

If you have an all-in-one or laptop computer, you can **print** the photo onto paper by doing this:

While using the Photos tile, tap the photo. Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer.

Tap the **Devices charm** then "Print" then your printer's name.

Tap the Orientation box. Tap "Portrait" if the photo is taller than its width; tap "Landscape" if the photo is wider than its height.

Tap the Print button (which is at the screen's right edge).

## Camera (old version)

Here's how the Camera tile works if you're still using Windows 8 and haven't upgraded to Windows 8.1 yet.

On the Start screen, tap the **Camera tile**, which is purple.

**HP all-in-one** The Camera tile is normally the 4<sup>th</sup> row's 4<sup>th</sup> tile.

**Acer laptop** The Camera tile is normally the 3<sup>rd</sup> row's 5<sup>th</sup> tile.

(If you haven't used the Camera tile before, the computer asks "Can Camera use your webcam and microphone?" To reply, tap "Allow".)

Make sure the Camera tile acts normally, by doing this:

Hold down the keyboard's **right-arrow key** (which is on the keyboard's bottom row), until the screen acts as a mirror.

At the screen's bottom-right corner, you see circles labeled "Timer" and "Video mode". Make sure the insides of those circles are transparent (instead of solid white). If they're solid white, make them transparent by tapping them.

**Enjoy the mirror** The screen acts as a mirror: you see yourself staring at the screen! That's because, above the screen, the computer's black border includes a tiny pinhole camera (next to HP's white light or Acer's green light), aimed toward you.

To have fun, grab your friends and favorite objects and put them next to you, so the screen shows them all! The quality will be better if the room is brightly lit, flooded with bright daylight, not at night. You can tilt the screen, to let the camera get a different view.

Anything near the camera will look bigger. For example, if you put your hand near the camera, your hand will look bigger than your head.

**Snap a photo** To snap a photo, press the keyboard's Space bar (or tap the screen's middle).

To see the photo you snapped, press the keyboard's **left-arrow key** (which is next to the rightmost Ctrl key) or do this: put your finger on the screen's middle and swipe to the right. (To see any earlier photos, again press the left-arrow key or swipe right.)

To snap another photo, do this:

Hold down the **right-arrow key** (or swipe left repeatedly), until you see your mirror image instead of a photo. Then press the keyboard's Space bar again.

If you put a book in front of the screen, the book's writing will look backwards (a mirror image) on the screen before you take the photo, but the final photo will show the book's writing correctly.

**Edit a photo** While you're looking at a photo you took, you can edit it.

To **delete** the photo, tap its middle then tap "Delete" (which is at the screen's bottom-right corner).

To **crop** the photo (keep just the photo's middle part), tap its middle then tap "Crop" (which is near the screen's bottom-right corner). The computer highlights the photo's middle part and puts 4 white dots around it. Using your finger, drag the 4 white dots until they correctly surround the part of the photo you want to keep. Then tap "OK".

**Record a movie** To record a movie (instead of snapping a photo), tap "Video mode" (at the screen's bottom-right corner), so the video-recorder icon becomes black on a white background. Press the Space bar to begin recording; press the Space bar again to end the recording.

To see the movie you made, press the left-arrow key (or swipe to the right) then tap the screen.

To record another movie, do this:

Hold down the right-arrow key (or swipe left repeatedly), until you see your mirror image instead of a still shot. Then press the keyboard's Space bar again, to start recording.

**Edit a movie** While you're looking at a movie you made, you can edit it.

Here's how to **delete** the movie: tap its middle, then watch the movie play, then tap "Delete" (which is at the screen's bottom-right corner after the movie's played).

Here's how to **trim** the movie (keep just the movie's middle moments): tap the screen's middle, then watch the movie play, then tap "Trim" (which is near the screen's bottom-right corner, after the movie's played). You see 2 white dots. Using your finger, drag the 2 white dots until they correctly surround the moments of the movie you want to keep. Then tap "OK".

**Switch from movies to photos** If you've been recording movies and now want to snap photos instead, do this:

Look at your mirror image. Tap "Video mode" (at the screen's bottom-right corner) until the video-recorder icon becomes white (instead of black-on-a-white-background). Then you can snap photos again.

**Timer** To snap a photo or start recording a movie, you press the Space bar. But if you turn on the timer (by tapping the "Timer" circle until its inside is white), the computer will delay recording until **3 seconds after** you press the Space bar.

**Photos tile** On the Start screen, the **Photos tile** shows one of the photos you made. To see other photos you took, tap the Photos tile, then repeatedly press the keyboard's right-arrow key or left-arrow key — or hold down one of those keys awhile.

If a photo looks small, tap it, so it fills the whole screen. To make the photo small again, press the **Escape key** (which says "Esc" on it and is at the keyboard's top-left corner).

To **print** the photo onto paper, do this:

While using the Photos tile, tap the photo. Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer.

Tap the **Devices charm** then your printer's name.

Tap the Orientation box. Tap "Portrait" if the photo is taller than its width; tap "Landscape" if the photo is wider than its height.

Tap the Print button (which is at the screen's right edge).

To have fun, make a **stop-motion movie** by doing this:

Using the Camera tile, take several photos of yourself (or a friend or doll or spooky object) in slightly different positions. Then tap the Photos tile. Flip through those photos quickly, by holding down the right-arrow or left-arrow key awhile.

## Calendar

**Here's how the Calendar tile works in Windows 8.1.** (If you're still using Windows 8 instead of 8.1, skip to the next section.)

On the Start screen, find the **Calendar tile**, which shows the date.

**HP all-in-one** The Calendar tile is purple. It's normally at the beginning of the 2<sup>nd</sup> row.

**Acer laptop** The Calendar tile is dark blue. It's normally the top row's 2<sup>nd</sup> tile.

**Toshiba tablet** The Calendar tile is dark purple. It's normally at the beginning of the 2<sup>nd</sup> row.

Tap it. Then you see a calendar.

If the computer says "Verify your Microsoft account info", type your password (then press Enter).

If you're using a tablet, put it in landscape mode. (To do that, rotate the tablet 90 degrees counterclockwise, so the tablet looks wide, then lift the tablet's top edge.)

**See this month** Normally, the calendar shows the whole month; but it might show just a day or week instead.

Press the **Menu key** (which is on a good keyboard, shows the symbol "≡", and is to the right of the Space bar, between the Space bar and the rightmost Ctrl key) or **right-click** the screen's middle (by pressing the mouse's rightmost button) or **swipe from the bottom** (by putting your finger on the black border that's below the screen then swiping up into the screen middle). That makes the screen's top show this menu:

What's next Day Work week Week Month

Tap "Month". That makes sure you see the whole month.

If the screen's bottom-right corner says "New", make that disappear (by tapping the screen's middle, just once).

On the month calendar, today's date is highlighted in dark gray.

Each holiday is written in HP's purple or Toshiba's purple or Acer's blue. (August has no holidays.)

**Switch months** Here's how to see different months:

To see the next month, put your finger in the screen's middle and swipe to the left, so you see the month that's to the right.

To see the previous month, put your finger in the screen's middle and swipe to the right, so you see the month that's to the left.

If you accidentally tap instead of swipe, escape from your mistake by pressing the Escape key (which is at the keyboard's top-left corner and says "Esc") or tap a different day.

To return to the current month, swipe several times or use this shortcut:

Press the Menu key (or right-click the screen's middle or swipe from the bottom). Tap "Month".

**Add an event** Here's how to write an event on the calendar.

On the month calendar, find the event's day. Tap a gray space in that day. Type the event's name.

If you want to include details about the event, do this:

Tap the event's "✓" then "Add details".

If you want to include a comment about the event, tap "Add a message" then type your comment.

The computer assumes the event will last all day, so the screen tentatively says the event starts at "12 00 AM" and lasts "All day". If the event will start at a different time, do the following... Get rid of "All day" (by tapping it) then choose from this menu of time lengths: 0 minutes, 30 minutes, 1 hour, 90 minutes, 2 hours, All day, Custom. (If you choose "Custom", remove the check mark from the "All day" box by tapping that box.) Adjust the Start time by tapping the wrong time then choosing the right one from the menu. (If the menu isn't long enough to include your time, scroll through the menu by doing this: put your finger in the menu's middle and swipe up or down. If you chose "Custom", also adjust the End time.)

Before the event, the computer will send you a reminder. The computer assumes you want the reminder sent "18 hours" before the event. If you want the reminder at a different amount of time before the event, tap "Show more" then tap the Reminder box then choose from this menu:

none (which means no reminder at all)  
start time (send the reminder when the event starts)  
5 minutes (send the reminder 5 minutes before the event)  
15 minutes (send the reminder 15 minutes before the event)  
30 minutes (send the reminder 30 minutes before the event)  
1 hour (send the reminder an hour before the event)  
18 hours (send the reminder almost a day before the event)  
1 day (send the reminder on the day before the event)  
1 week (send the reminder a week before the event)

When you finish, tap the **Save button** (which is near the screen's top-right corner and looks like a floppy disk in a circle).

**Get the reminders** The computer will try to remind you about the event, in several ways:

On the month calendar, that day will show the event's name and starting time.

On the day of the event, the Calendar tile (on the Start screen) will show the event's name, starting time, and ending time.

Before the event, the computer will remind you: it will play a brief musical alarm, and the screen's top-right corner will briefly show the event's name, starting time, and ending time.

The computer will also try to send you an e-mail message about the event, though that message might arrive too late to be useful.

If a day includes *several* events, the month calendar will show just 2 of them, and the calendar tile will show just 1 of them, because there's not enough room to show more.

**See the events** If you want to see a clear list of all the day's events, do this:

While using the Calendar app, Press the Menu key then tap "Day". You see clearly the events from 9AM to 8PM. (To see events that are earlier or later than that range, put your finger in the day's middle and swipe up or down.) You also see the next day's events. To see even more days, put your finger in the screen's middle and swipe to the left.

To see more details about an event, tap it. When you finish admiring the details (and editing them), tap the Save button again.

**Erase an event** If you want to erase an event, do this:

Tap the event then the **trash can** (which is near the screen's top-right corner and is left of the X and the Save button). Then tap the "Delete" box.

## Calendar (old version)

Here's how the Calendar tile works if you're still using Windows 8 and haven't upgraded to Windows 8.1 yet.

On the Start screen, find the **Calendar tile**, which shows the date.

**HP all-in-one** The Calendar tile is purple. It's normally at the beginning of the 2<sup>nd</sup> row.

**Acer laptop** The Calendar tile is dark blue. It's normally the top row's 2<sup>nd</sup> tile.

Tap it. Then you see a calendar.

**See this month** Normally, the calendar shows the whole month; but it might show just a day or week instead.

Press the **Menu key**. (It's on the keyboard's bottom row, next to the rightmost Ctrl key, and shows a square containing 3 horizontal lines.) That makes the screen's bottom show this menu:

Day	Work week	Week	Month	Today	New
-----	-----------	------	-------	-------	-----

Tap "Month". That makes sure you see the whole month.

On the month calendar, today's date is highlighted in dark gray.

Each holiday is written in HP's purple or Acer's blue. (August has no holidays.)

**Switch months** Here's how to see different months:

To see the next month, put your finger in the screen's middle and swipe to the left, so you see the month that's to the right.

To see the previous month, put your finger in the screen's middle and swipe to the right, so you see the month that's to the left.

If you accidentally tap instead of swipe, escape from your mistake by pressing the Escape key (which is at the keyboard's top-left corner and says "Esc").

To return to the current month, swipe several times or use this shortcut:

Press the Menu key. Tap "Today".

**Add an event** To write an event on the calendar, do this:

On the month calendar, find the event's day; tap a gray space in that day.

Type the event's name. If you want to type a comment about the event, tap "Add a message" then type your comment.

The computer assumes the event will start at 9AM, so the screen tentatively says "9 00 AM" (unless that time has already passed). If the event will start at a different time, adjust the time, by tapping the wrong time then choosing the right one from the menu. (If the menu isn't long enough to include your time, scroll through the menu by doing this: put your finger in the menu's middle and swipe up or down.)

The computer assumes the event will last 1 hour, so the screen tentatively says "1 hour". If the event's length will be different, tap the "1 hour" then tap the right length from the menu. (The menu's choices are: 0 minutes, 30 minutes, 1 hour, 90 minutes, 2 hours, All day, Custom. If you choose "Custom", your next step is to choose the time the event ends.)

When you finish, tap the **Save button** (which is near the screen's top-right corner and is left of the X).

**Get the reminders** The computer will try to remind you about the event, in several ways:

On the month calendar, that day will show the event's name and starting time.

On the day of the event, the Calendar tile (on the Start screen) will show the event's name, starting time, and ending time.

15 minutes before the event, the computer will warn you: it will play a brief musical alarm, and the screen's top-right corner will briefly show the event's name, starting time, and ending time.

The computer will also try to send you an e-mail message about the event, though that message might arrive too late to be useful.

If a day includes *several* events, the month calendar will show just 2 of them, and the calendar tile will show just 1 of them, because there's not enough room to show more.

**See the events** If you want to see a clear list of all the day's events, do this:

While using the Calendar app, Press the Menu key then tap "Day". You see clearly the events from 9AM to 8PM. (To see events that are earlier or later than that range, put your finger in the day's middle and swipe up or down.) You also see the next day's events. To see even more days, put your finger in the screen's middle and swipe to the left.

To see more details about an event, tap it. When you finish admiring the details (and editing them), tap the Save button again.

**Erase an event** If you want to erase an event, do this:

Tap the event then the **trash can** (which is near the screen's top-right corner and is left of the X and the Save button). Then tap the "Delete" box.

## Maps

On the Start screen, find the **Maps tile**.

**HP all-in-one** The Maps tile is reddish purple. It's normally the 2<sup>nd</sup> row's 2<sup>nd</sup> tile.

**Acer laptop** The Maps tile is purple. It's normally the 2<sup>nd</sup> row's 3<sup>rd</sup> tile.

**Toshiba tablet** The Maps tile is reddish purple. You'll normally see it in the top row, after you swipe left.

Tap it.

If Windows 8.1 asks "Can Maps use your location?" (or Windows 8 asks "Do you want to turn on location services and allow Maps to use your location?") tap "Allow". That lets the computer's GPS system figure out where you are.

**Zoom in** You see a map of part of the world. If you want to zoom in (so you see more details), use one of these methods...

**Double-tap method** Double-tap where you want to zoom in.

**Stretch method** Put two fingers where you want to zoom in. Then **stretch** (slide your fingers apart).

**Address method** Press the Menu key (or swipe up from the screen's bottom black border). Tap the screen's bottom-right corner (which says "Search" in Windows 8.1, "Find" in Windows 8). Type a location (such as "196 Tiffany Lane, Manchester NH" or "Los Angeles airport" or "White House"). At the end of your typing, press the Enter key.

**Zoom out** If you want to zoom out (so you see fewer details but see a bigger part of the world), shrink the map by doing this: **pinch** your fingers (by putting two fingers on the screen then sliding the fingers toward each other). If you do that several times, you'll see the whole world on your screen.

**Yourself** Press the Menu key then tap "My location". That adjusts the map so your location is in the map's middle. You see an orange diamond there.

**Map style** Press the Menu key then tap "Map style". Tap "Road view" (to see a drawing of the streets) or "Aerial view" (to see an aerial photo taken by a satellite, with streets labeled).

To see a photo of your roof, combine those techniques: say "My location" then zoom in then choose "Aerial view".

While you're looking at an aerial photo, try this experiment:

To see 5 aerial photos, taken from different angles (looking north, east, south, west, and straight down), tap the circle at the screen's right edge, 4 times. (If you see 3 circles at the screen's right edge, tap the *top* circle.)

## News

On the Start screen, find the **News tile**.

**HP all-in-one** The News tile is normally the bottom row's 2<sup>nd</sup> tile.

**Acer laptop** The News tile is normally the bottom row's 3<sup>rd</sup> tile.

**Toshiba tablet** The News tile is normally the 3<sup>rd</sup> row's 2<sup>nd</sup> tile.

Tap it. Then you see the headline for today's top story.

To see headlines for other stories, put your finger on the screen's middle and swipe to the left. Swipe repeatedly, to see the other headlines. (To return to earlier headlines, swipe to the right.)

The headlines are organized into 8 categories:

top stories, world, technology&science, politics, opinion, business, entertainment, sports

Some headlines are accompanied by photos or leading sentences.

When you find a headline that interests you, tap it. Then you can read that headline's complete article.

If the article is short, the whole article fits on the screen.

If the article is long, you see the article's beginning. To see the rest of the article, put your finger in the screen's middle and swipe to the left.

When you finish reading an article, you have a choice.

To **read the next article**, put your finger in the screen's middle and swipe to the left.

To **see headlines for other articles**, tap the left-arrow (at the screen's top-left corner).

To see more headlines about a category, tap the category's name. To return to seeing just the main headlines, tap the left-arrow at the screen's top-left corner.

**Finance** To see news about finance, tap the Start screen's **Finance tile** instead of the News tile.

**HP all-in-one** In Windows 8.1, the Finance tile is the top row's 5<sup>th</sup> tile. In Windows 8, the Finance tile is the 2<sup>nd</sup> row's 5<sup>th</sup> tile.

**Acer laptop** The Finance tile is normally the 3<sup>rd</sup> row's 2<sup>nd</sup> tile.

**Toshiba tablet** The Finance tile is normally the 2<sup>nd</sup> row's 3<sup>rd</sup> tile. To see it, swipe left.

The Finance tile resembles the News tile but gives you these 7 **finance categories** instead:

top story, market, watch list, news, money, across the market (currencies, commodities, rates), tools (mortgage calculator, auto payments, currency converter, savings, retirement planner, value of money)

**Sports** To see news about sports, tap the Start screen's **Sports tile** instead of the News tile.

**HP all-in-one** In Windows 8.1, the Sports tile is the 2<sup>nd</sup> row's 4<sup>th</sup> tile. In Windows 8, the Sports tile is the 3<sup>rd</sup> row's 3<sup>rd</sup> tile.

**Acer laptop** The Sports tile is normally the 3<sup>rd</sup> row's 3<sup>rd</sup> tile.

**Toshiba tablet** The Sports tile is normally the bottom row's 2<sup>nd</sup> tile.

The Sports tile resembles the News tile but gives you these **sports categories** instead:

### **Windows 8.1**

top story, scoreboard, other top stories, editor's picks (which are essays but not included in HP's all-in-one), headlines, favorite teams, favorite sports, videos, slideshows

### **Windows 8**

top story, other top stories, headlines, favorite teams, favorite sports, scoreboard, videos, slideshows

**Travel** To see news about travel, tap the **Travel tile**.

**HP all-in-one** In Windows 8.1, the Travel tile is the top row's 4<sup>th</sup> tile. In Windows 8, the Travel tile is the 2<sup>nd</sup> row's 4<sup>th</sup> tile.

**Acer laptop** In Windows 8.1, the Travel tile is the top row's 5<sup>th</sup> tile. In Windows 8, the Travel tile is the 2<sup>nd</sup> row's 5<sup>th</sup> tile.

**Toshiba tablet** The Travel tile is not on the Start screen. The Travel tile is normally in the Apps screen's 3<sup>rd</sup> column.

If the computer asks "Can Travel use your location?" tap "Allow".

The Travel tile resembles the News tile but gives you these **travel categories** instead:

### **Windows 8.1**

featured destination, tools&tasks (search flights, flight status, flight schedules, search hotels), trip ideas, local destinations, United States, world (Africa, Asia, Caribbean, Central America, Europe, Middle East, North America, Oceania, South America), news

### **Windows 8**

featured destination, other featured destinations, flights, hotels, favorites, panoramas, news, featured videos

Tap whatever interests you, then press the Menu key (or swipe up from the bottom black border) to see even more choices.

Under "panoramas" (which is a Windows 8 category and a Windows 8.1 subcategory), do this:

Choose a photo (by tapping it). That enlarges the photo, so it consumes the whole screen.

The photo was taken in a city. If you walk in that city and turn your head, what will you see? To find out, put your finger in the screen's middle and repeatedly **swipe left or right** (or up or down). That makes the computer imitate turning your head, so you see different views.

**Weather** To find out the weather, tap the **Weather tile**.

**HP all-in-one** The Weather tile is normally the 4<sup>th</sup> row's 2<sup>nd</sup> tile.

**Acer laptop** The Weather tile is normally the bottom row's 2<sup>nd</sup> tile.

**Toshiba tablet** The Weather tile is the biggest tile. It's near the screen's bottom-right corner.

To make sure you're seeing the weather for your current location, press the Menu key (or swipe up from the screen's bottom black border) then do this:

**Windows 8.1** Tap "Current Location".

**Windows 8** Tap "Current Location" then "Confirm".

If the computer asks "Can Weather use your location?" tap "Allow" then "Confirm".

Then the screen's top-left corner shows your city's name. Below that, you see your city's current temperature & weather.

The screen's bottom center shows the forecast for several days. (You see 5 days on the Acer laptop, 6 days on the HP all-in-one, 7 days on the Toshiba tablet.) For each day, you see the high temperature, low temperature, weather, and chance of precipitation.

You see the prediction by **Weather Decision Technologies (WDT)**.

**HP & Acer computers** Below the WDT prediction, you can see predictions by AccuWeather.com and Foreca.com; if you don't see them yet, tap "▲". To see several more days, tap the right-arrow.

**Toshiba tablet** To the right of the WDT prediction, you can see predictions by AccuWeather.com and Foreca.com; if you don't see them yet, tap "►". To see 3 more days, put your finger on the screen's middle and swipe up.

If you put your finger in the screen's middle and flick your finger toward the left, you see a chart titled "HOURLY FORECAST". It shows the forecast for several hours (11 hours on the Acer laptop, 13 or 14 hours on the HP all-in-one, 22 hours on the Toshiba tablet). To see later hours, put your finger in the middle of those hours and flick your finger up. You can see 23 or 24 hours that way.

To see weather for different cities, press the Menu key or swipe up from the screen's bottom black border. (For Toshiba's tablet, switch to landscape mode.) Then you have these choices:

To see the weather for your current location, tap "Current Location".

To see the weather for 13 big cities around the world, tap "WORLD WEATHER".

To see the weather for your home, tap "HOME".

Here's how to see the weather for a different city. Tap "PLACES". You see a list of your favorite cities. To add another city to your list, do this: tap "+"; type the city's name; you see a list of cities having that name; tap the city you want. To remove a city from your list, tap the Edit button (which is to the right of "FAVORITES" and shows a picture of a pen) then the X of the city you want to remove. For each city on your list, you see the city's current temperature and today's highest and lowest temperature; for more details, tap the city.

To switch back to your current location, press the Menu key (or swipe up from the screen's bottom black border) then do this:

**Windows 8.1** Tap "Current Location".

**Windows 8** Tap "Current Location" then "Confirm".

## Internet Explorer

While you're looking at the Start screen, tap "Internet Explorer".

**HP all-in-one** Internet Explorer is normally the top row's 2<sup>nd</sup> tile.

**Acer laptop** Internet Explorer is normally the top row's 3<sup>rd</sup> tile.

**Toshiba tablet** Internet Explorer is normally the 5<sup>th</sup> row's 2<sup>nd</sup> tile.

At the screen's bottom, you should see a wide box. (The box might have text in it, depending on what you & the manufacturer were doing before. If you don't see that box yet, make it appear by tapping the Menu key or swiping up from the screen's black bottom.)

Tap that box's middle. A keyboard appears on the screen.

Using that on-screen keyboard (or a separate keyboard that came with the computer), type the Web address you want to visit. For example, if you want to visit [www.yahoo.com](http://www.yahoo.com), type:

[www.yahoo.com](http://www.yahoo.com)

Here's how to finish:

If you're using the on-screen keyboard, end your typing by tapping the ".com" key then the "Go" key. (The "Go" key is at the keyboard's right edge. On Toshiba's keyboard, the "Go" key has a right-arrow on it.)

If you're using the separate keyboard, end your typing by pressing the period then the C then O then M keys then the Enter key.

While you're typing a Web address, you see a list of Web pages matching what you've typed so far. If you want one of those Web pages, tap it.

To switch to a different Web page, make sure the screen's bottom has the wide box again. If it doesn't make the box reappear by using one of these methods:

**Fast method** (works usually, but not if you're on a tablet or you've been watching a full-screen video) Press the Menu key.

**Guaranteed method** (always works) Put your finger on the screen's bottom black border and swipe up.

Tap that box's middle, then start typing the new Web address you want to visit, such as:

[www.NyTimes.com](http://www.NyTimes.com)

**Magnify** If a Web page shows *several* columns of type, try **double-tapping** a column. That magnifies the column, so it fills more of the screen (and you don't see the other columns as much.) To make that column return to its normal size, double-tap it again.

Double-tapping works on some Web pages but not others. It works *usually*.

**Flick up** If a Web page is too tall to fit on the screen, here's how to see the page's bottom. Put your finger in the screen's middle, then **slide** up (or, to move faster, **flick** your finger up, as if you were flicking an insect off your screen). To return to the Web page's top, **slide** down or **flick** your finger down.

**Back** After viewing several Web pages, you can go back to the previous Web page by doing this:

**1-swipe method** Put your finger in the screen's middle, then swipe (slide) your finger toward the right.

**Tap method** Press Menu key (or swipe up from the screen's bottom), then tap the **Back button** (the left-arrow at the screen's bottom-left corner).

**Forward** After going back to the previous Web page, here's how to go forward (undo the "back"):

**1-swipe method** Put your finger in the screen's middle, then swipe (slide) your finger toward the left.

**Tap method** Press Menu key (or swipe up from the screen's bottom), then tap the **Forward button** (the right-arrow at the screen's bottom-right corner).

**Frequent** If you tap the address bar, you see tiles of 8 Web pages you visited frequently. Whenever you tap one of those tiles, you'll go to its Web page.

**Favorites** If you find a Web page you like a lot, do this while viewing it:

**Windows 8.1** Press the Menu key (or swipe up from the screen's bottom black border). Tap the **Favorites button** (the star at the screen's bottom) then the star above that star then "Add".

**Windows 8** Press the Menu key (or swipe up from the screen's bottom black border). Tap the **"Pin site" button** (the push pin near the screen's bottom-right corner) then "Add to favorites".

That puts a tile for that page onto the Favorites list.

To see the Favorites list, press the Menu key (or swipe up from the screen's bottom black border) then do this:

**Windows 8.1** Tap the star at the screen's bottom.

**Windows 8** Tap in the address box.

Your new tile is to the right of all the other Favorites tiles. (If you don't see that tile yet, put your finger on another Favorites tile and flick to the left.) Whenever you tap that tile, you'll go to that Web page.

If you change your mind, here's how to delete that tile from the Favorites list: right-click it (by using the mouse's right-hand button or the touchpad's bottom-right corner or by holding your finger on that tile awhile) then tap "Remove".

On the Favorites list, some of the tiles might have been put there by the computer's manufacturer. They're just ads. Feel free to remove them.

**Pin** If you find a Web page you like a lot, here's something else you can do while you're viewing it:

**Windows 8.1** Press the Menu key (or swipe up from the screen's bottom black border). Tap the **Favorites button** (the star at the screen's bottom) then the **"Pin site" button** (the push pin near the screen's right edge) then "Pin to Start".

**Windows 8** Press the Menu key (or swipe up from the screen's bottom black border). Tap the **"Pin site" button** (the push pin near the screen's bottom-right corner) then "Pin to Start" then "Pin to Start" again.

That puts a tile for that page onto the Start screen. Whenever you tap that tile, you'll go to that Web page.

That tile is to the right of all other tiles. To see that tile, go to the Start screen then swipe left (or hold down the keyboard's right-arrow key awhile).

If you change your mind, here's how to delete that tile:

Right-click that tile (by using the mouse's right-hand button or touchpad's bottom-right corner or holding your finger on that tile awhile). Tap **"Unpin from Start"** (which is at the screen's bottom-left corner).

**Print** If you have an all-in-one or laptop computer, you can **print** the Web page onto paper by doing this:

Make sure you've bought a printer, attached it to the computer, turned the printer's power on, and put paper into the printer. Tap the **Devices charm**. (For Windows 8.1, then tap "Print".) Tap your printer's name then the Print button (which is at the screen's right edge).

## Store

On the Start screen, tap the **Store tile** (which is green and has a white shopping cart on it).

**HP all-in-one** The Store tile is normally the top row's 3<sup>rd</sup> tile.

**Acer laptop** The Store tile is normally the top row's 4<sup>th</sup> tile.

**Toshiba tablet** The Store tile is normally the bottom row's first tile.

You see Microsoft's **app store**, which lets you buy (or get free!) apps from the Internet and copy them to your computer.

If the screen's top-left corner has a left-arrow, tap it.

**Get updates** If the screen's top-right corner says "Updates", do this:

For the programs & data you already got, you can get updates, free! Tap "Updates" then "Install". The computer says "Installing apps" then "Your apps were installed". Tap the left-arrow (at the screen's top-left corner).

**Browse the apps (just in Windows 8.1)** If you have Windows 8.1 (instead of 8), you see these **5 basic categories**:

picks for you, trending, new&rising, top paid, top free

To see them all, put your finger on the screen's center and repeatedly swipe all the way to the left edge, so you see what's on the right. (You also see a list of your manufacturer's favorites, such as "HP picks" or "Acer picks" or "TOSHIBA picks".) To return to seeing earlier categories, swipe in the opposite direction.

In each category, you see several tiles (for apps Microsoft wants to emphasize). On the HP all-in-one:

You see 6 tiles in each of these categories: picks for you, trending, new&rising  
You see 14 tiles in this category: top paid  
You see 7 tiles in this category: top free

On the Acer laptop:

You see 6 tiles in each of these categories: picks for you, trending, new&rising  
You see 12 tiles in this category: top paid  
You see 6 tiles in this category: top free

On the Toshiba tablet:

You see 9 tiles in each of these categories: picks for you, trending, new&rising  
You see 6 tiles in this category: top paid  
You see 11 tiles in this category: top free

Then use one of these 5 methods:

**Fast method** Tap one of those tiles.

**Main-category method** Tap a category name (so you see more of that category's tiles). Swipe to the left (to see all your choices). Tap the tile you want.

**Category-list method** Under the heading "Top categories", you can see this list of **20 extra categories**: games, social, entertainment, photo, music&video, sports, books&reference, news&weather, health&fitness, food&dining, lifestyle, shopping, travel, finance, productivity, tools, security, business, education, government. (Toshiba shows that whole list. HP & Acer show the list's beginning; to see the rest, tap "See all.") Tap the category you want to be restricted to. Swipe to the left (to see all your choices). Tap the tile you want.

**Menu-key method** Press the Menu key (or swipe up from the screen's black border). You see the **20 extra categories** (plus the **5 basic categories**). Tap the category you want to be restricted to. Swipe to the left (to see all your choices). Tap the tile you want.

**Magnifying-glass method** Tap the magnifying glass (at the screen's top-right corner). Type anything that interests you. Press the Enter key (whose on-screen version shows a magnifying glass). Swipe to the left (to see all your choices). Tap the tile you want.

To undo a tap (and return to the previous screenful), tap the left-arrow (at the screen's top-left corner).

If you tap an app's tile, you see more info about the app. For even more details, you put your finger in the screen's middle and swipe to the left again, so you see these categories about the app:

ratings&reviews, details, related apps, other apps by that company

If you decide *not* to get the app, tap the left-arrow (which is at the screen's top-left corner).

**Browse the apps (just in Windows 8)** If you have Windows 8 (instead of 8.1), you see these 21 Microsoft categories:

spotlight, games, social, entertainment, photo, music&video, sports, books&reference, news&weather, health&fitness, food&dining, lifestyle, shopping, travel, finance, productivity, tools, security, business, education, government

To see them all, put your finger on the screen's center and repeatedly swipe all the way to the left edge, so you see what's on the right. (You also see a list of your manufacturer's favorites, such as "HP picks" or "Acer picks".) To return to seeing earlier categories, swipe in the opposite direction.

In each category, you see 3 green tiles (marked "Top paid", "Top free", and "New & Rising") plus big tiles (for apps Microsoft wants to emphasize). Tap whatever interests you.

If you tap "Top free", you'll see about 100 apps that are free.  
If you tap "Top paid", you'll see about 100 apps you can buy.  
If you tap "New & Rising", you'll see about 100 apps that are new.  
To see more apps, tap the category's name instead (except "Spotlight").

After tapping, swipe to the left (so you can see all the apps on the right). To undo a tap (and return to the previous screenful), tap the left-arrow (at the screen's top-left corner).

If you tap an app's tile, you see more info about the app. For even more details, tap "Details" or "Reviews".

If you decide *not* to get the app, tap the left-arrow (which is at the screen's top-left corner).

**Get the app** If you decide to get the app, do this:

Tap a button at the screen's left edge. If the app is free, the button says "Install"; if the app isn't free, tap "Try" (if available for a free trial) or buy the app by doing this: tap "Buy" then "Confirm" then enter your Microsoft-account password and credit-card info.

Then the computer copies the app from the Internet to your computer. When the copying is finished, the screen's top-right corner says "was installed". To use the app, tap "was installed" now or do the following anytime: go to the Start screen (by tapping the Windows Start key), swipe to the left (so you can see the rightmost tiles), then tap the app's new tile (which is at the Start screen's right edge).

If you change your mind and want to uninstall the app, right-click the app's new tile (on the Start screen) then tap "Uninstall" (which is near the screen's bottom-left corner) then the rectangular "Uninstall" button.

# Calculator

Your computer can calculate.

**Calculator 8.1** is a tile. It's included in Windows 8.1 but not Windows 8.

**Calculator 8** is a window that runs on the Desktop screen. It's included in Windows 8 and Windows 8.1.

To calculate, do this:

**Windows 8.1** Go to the Apps screen (by putting your finger on a blank space near the Start screen's middle, then swiping up).

**If you want to use Calculator 8.1 (which most people prefer), tap the first "Calculator".** If you want to use Calculator 8 instead, type "ca" (which a tablet will let you do after you tap the space left of the magnifying glass) then tap the "Calculator" whose tile is blue (instead of green).

**Windows 8** Go to the Start screen (or Apps screen) and type "ca".

You see a list of programs whose names have "ca". One of them is "Calculator". Tap it.

Here's what you see:

**Calculator 8.1** The whole screen is devoted to the calculator, which is a gigantic picture of a pocket calculator.

**Calculator 8** You see the Desktop screen. On it you see the Calculator window, which is a small picture of a pocket calculator.

## How to calculate

To compute  $42+5$ , you can use 4 methods:

**Touch method** On the screen, tap the calculator's 4 button, then tap 2, then +, then 5, then =.

**Mouse method** On the screen, click the calculator's 4 button (by using the mouse or touchpad or to point at the 4 button and then clicking), then click 2, then +, then 5, then =.

**Main-keyboard method** On the physical keyboard's main section (the left section), press the 4 key (which is above the E and R keys), then the 2 key (which is above the Q and W keys), then (while holding down the Shift key) the + key, then 5. Then press the = key (or the Enter key).

**Numeric-keypad method** On the physical keyboard's far-right section (called the **numeric keypad**), try pressing the 4 key, which is below the 7 key. (If that doesn't make 4 appear on the screen, press the Num Lock key then try again to press the 4 key.) Then, still using the numeric keypad, press the 2 key, then the + key, then the 5 key, then the Enter key.

If you use any of those methods successfully, the calculator will show the answer, 47.

**Try all 4 methods**, and see which one you prefer. (You'll prefer whichever method you've practiced the most.)

Try fancier calculations, by tapping (or clicking) these calculator buttons on the screen:

Button	Meaning
+	plus
-	minus
× (Calculator 8 shows *)	times
/	divided by
=	show the final answer, the "total"
.	decimal point
C	clear the total, so it becomes zero
CE	clear this entry, so you can retype it
⌫ (Calculator 8 shows ←)	erase the last digit you typed
±	create (or erase) the total's minus sign

## Standard versus scientific

You can choose 2 popular kinds of calculators.

A **standard calculator** is simple and cute: it does just arithmetic.

A **scientific calculator** includes extra buttons, so you can do advanced math.

The first time you (or your colleagues) ask for the calculator, the computer shows a standard calculator (which is simple and cute). If you want the calculator to be scientific instead, do this:

**Calculator 8** Choose Scientific from the View menu. (To do that, click the word "View" then click the word "Scientific".)

**Calculator 8.1** Tap "Scientific".

Then you'll see extra buttons, such as these:

Button	Meaning
$x^2$	squared
n!	factorial
$\pi$	pi (a circle's circumference divided by the circle's diameter)

If you tap the 7 button and then say "**squared**" (by pressing the  $x^2$  button), the computer will multiply 7 by itself and say 49 (which is called "7 squared"). If you tap the 7 button and then say "**factorial**" (by pressing the n! button), the computer will multiply together all the numbers up to 7 (1 times 2 times 3 times 4 times 5 times 6 times 7) and say 5040 (which is called "7 factorial"). If you say "**pi**" (by pressing the  $\pi$  button), the computer will say 3.1415926535897932384626433832795.

After making the calculator scientific, you can make it standard again by doing this:

**Calculator 8** Choose Standard from the View menu.

**Calculator 8.1** Tap "Standard".

**Order of operations** The calculator's answer to " $2+3*4=$ " depends on whether you chose standard or scientific:

If you said you wanted the calculator to be standard, the computer does  $2+3$  (which totals 5), then multiplies by 4, giving a final total of 20.

If you said you wanted the calculator to be scientific instead, the computer does " $2+3*4=$ " by doing the multiplication first, like scientists do:  $3*4$  is 12, and  $2+12$  gives a final total of 14 (not 20).

## Tricky buttons

These 3 buttons are tricky:

Button	Meaning
$\sqrt{\quad}$	square root of the previous number example: " $49 \sqrt{\quad}$ " is 7 (because 49 is $7*7$ ) works on standard & scientific calculators
1/x	divide 1 by the previous number example: " $4 \ 1/x$ " is .25 (because $1/4$ is .25) works on standard & scientific calculators
%	multiply the 2 previous numbers, then divide by 100 example: " $2 \times 3 \ %$ " is .06 (because it's $2*3/100$ ) afterwards, click the C button (to clear the total) works on standard calculator but ignored on scientific calculator

## Memory buttons

When a number (such as a total) appears on your screen, you can copy that number from your screen to the computer's memory.

**Calculator 8.1** The calculator includes a **memory button**, called **M**. Tap it to copy the number to the screen's right edge.

To use that number later, tap it. (If there are too many numbers to fit on the screen's right edge, put your finger on one of those numbers and swipe up, to see the rest of the numbers.)

**Calculator 8** The calculator includes **memory buttons** to help remember the number:

Button	Meaning
MS	memory store (copy from the screen to memory)
MR	memory retrieve (copy from memory to the screen)
M+	memory add (put memory +screen into memory)
M-	memory subtract (put memory minus screen into memory)
MC	memory clear (erase what's in memory)

## Close (just Calculator 8)

In the Calculator 8 window's top-right corner, you see a red button with a white X on it. That button is called the **X button** (or the **close button**).

When you finish using the Calculator window, tap (or click) that button. It **closes** the Calculator window, so the Calculator window disappears.

You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

## WordPad

Your computer has some built-in word-processing programs. The simplest is called **WordPad**.

To use WordPad, do this:

**Windows 8.1** Go to the Apps screen (by putting your finger on a blank space near the Start screen's middle, then swiping up).

**Windows 8** Go to the Start screen (or Apps screen).

Then type "wo" (which a tablet will let you do after you tap the space left of the magnifying glass). You see a list of programs whose names have "wo". One of them is "WordPad". Tap it.

You see the Desktop screen. On it you see the **Word Pad window**.

In the window's top right corner, you see the X button. Next to the X button is the **resize button** (which is also called the **maximize/restore button**) Clicking the resize button changes the window's size.

Try clicking the resize button: see the window's size change! Try clicking the resize button *again*: see the window's size change *again*!

If the window is small, clicking the resize button makes the window become huge so it consumes the whole screen. If the window is huge and consumes the whole screen, clicking the resize button makes the window become small.

If the window consumes the whole screen, the window is said to be **maximized**. If the window is smaller, the window is said to be **restored** to a small size.

**Click the resize button if necessary, so the WordPad window consumes the whole screen** (and is maximized).

Now that the WordPad window consumes the whole screen, you can easily do word processing: you can easily type words and sentences. Try it! Type whatever sentences you wish to make up. (Type on a physical keyboard, or make an on-screen keyboard appear by tapping the keyboard icon at the screen's bottom.) For example, try typing a memo to your friends, or a story, or a poem. Be creative! Whatever you type is called a **document**.

## Fundamentals

Same as Windows 10, so **read these topics on pages 77-79**:

"Use the keyboard"  
 "Scroll arrows"  
 "Insert characters"  
 "Split a paragraph"  
 "Combine paragraphs"  
 "Zoom"  
 "All delete"

## Quick Access Toolbar

At the screen's top-left corner, you see a gray bar (called the **Quick Access Toolbar**), which includes these **icons** (little pictures) called **buttons**:

The **Save button** is a purple-and-white square that's supposed to look like a floppy disk (though it also looks like a TV set).

The **Undo button** is an arrow curving toward the left. The arrow is blue (unless you haven't typed anything yet).

If you **hover** over a button (by moving your mouse's arrow there, without clicking), the computer will tell you the button's name.

Here's how to use those buttons....

**Save button** To save the document you've been typing (copy it onto the disk), tap (or click) the **Save button**.

If you haven't saved the document before, the computer will say "File name", which means it's time for you to deal with the following issues....

The computer can save (copy) the document just to your computer's hard disk (called "**This PC**") or mainly to Microsoft's shareable hard disk (which was called "**SkyDrive**" but has been renamed "**OneDrive**"). To keep things simple, I recommend you save the document just to your computer's hard disk, by doing this:

Near the screen's top, make sure you see "► This PC ► Documents". If you see "SkyDrive" instead of "This PC", switch to "This PC" by doing this: tap (or click) "This PC" (at the screen's left edge) then double-tap "Documents".

Next, invent a name for your document.

Type the name. Your typing will appear in the "File name" box. At the end of your typing, press the Enter key (which has the symbol ↵). That tells the computer to copy the document onto the hard disk. (On a tablet, which has no hard disk, the computer copies the document onto a solid-state drive, which made of RAM chips imitating a hard disk.)

For example, if you named the document "mary", the computer puts a document called "mary.rtf" into the Documents folder. (The ".rtf" is hidden from you but stands for "rich text format".)

Afterwards, if you change your mind and want to do more editing, go ahead! When you finish that extra editing, save it by clicking the Save button again.

Save often! If you're typing a long document, **click the Save button about every 10 minutes**. Click it whenever you get to a good stopping place and think, "What I've typed so far looks good!" Then if an accident happens, you'll lose at most 10 minutes of work, and you can return to the last version you felt good about.

Instead of clicking the Save button, you can use this shortcut: while holding down the Ctrl key, tap the S key (which stands for "Save").

**Undo button** Same as Windows 10, so **read "Undo button" on page 80**.

## Advanced features

Same as Windows 10, so **read these topics on pages 80-85**:

"File menu"  
 "How to finish"  
 "Print"  
 "Font group"  
 "Select"  
 "Clipboard group"  
 "Paragraph group"  
 "Editing group"  
 "Insert group"

## Paint

Your computer has some built-in graphics programs. The most famous is called **Paint**.

To use Paint, do this:

**Windows 8.1** Go to the Apps screen (by putting your finger on a blank space near the Start screen's middle, then swiping up).

**Windows 8** Go to the Start screen (or Apps screen).

Then type "pa" (which a tablet will let you do after you tap the space left of the magnifying glass). You see a list of programs whose names have "pa". One of them is "Paint". Tap "Paint" (not "Fresh Paint").

You see the Desktop screen. On it you see the **Paint window**.

**Make sure the Paint window consumes the whole screen.** (If it doesn't consume the whole screen yet, maximize the window by clicking the resize button, which is next to the X button.)

To draw, you can use 3 methods:

**Finger method** Put your finger on the screen's middle, then slide your finger on the screen (right, left, up, or down), as if you were finger-painting on the screen. For example, try drawing a smile, by doing the following... Put your finger on the screen, where you want the smile to begin (at the smile's top-left corner), then move your finger on the screen while you draw the smile. When you finish drawing the smile, lift your finger off the screen. Then draw the rest of the face!

**Mouse method** Move the mouse pointer to the screen's middle. Then **drag** (move the mouse while holding down the mouse's left button). As you drag, you'll be drawing a squiggle. For example, try drawing a smile, by doing the following... Put the mouse pointer where you want the smile to begin (at the smile's top-left corner), then depress the mouse's left button while you draw the smile. When you finish drawing the smile, lift the mouse's button. Then draw the rest of the face!

**Touchpad method** By sliding your finger lightly across the touchpad, move the mouse pointer to the screen's middle. Then **drag** (while pressing the touchpad's bottom-left corner with your left hand's index finger, slide the right hand's index finger across the touchpad). As you drag, you'll be drawing a squiggle. For example, try drawing a smile, by doing the following... Put the mouse pointer where you want the smile to begin (at the smile's top-left corner), then press the touchpad's bottom-left corner while you draw the smile. When you finish drawing the smile, stop pressing the touchpad's bottom-left corner. Then draw the rest of the face!

Try all 3 methods!

The **finger method** is best for drawing big smooth curves.

The **mouse method** is best for drawing tiny objects.

The **touchpad method** is best for drawing tiny objects if you don't have a mouse.

## Advanced features

Same as Windows 10, so **read these topics on pages 86-89**:

"Colors"  
"Eraser"  
"Undo"  
"All delete"  
"Change the brush"  
"Shapes"  
"Color picker"  
"Save"  
"File menu"  
"How to finish"  
"Print"  
"Text"  
"Select"  
"Color 2"  
"Zoom slider"

## Nifty features

Windows has nifty features.

### Taskbar

At the Desktop screen's bottom-left corner, you see this fundamental area:

**Windows 8.1** the Windows logo and the symbol "e"

**Windows 8** the symbol "e"

At the Desktop screen's bottom-right corner, you see the time. Across the screen's bottom, running from the fundamental area to the time, you see a semi-transparent box that's very wide (as wide as the screen) and about half an inch tall. That box is called the **taskbar**. It includes the fundamental area (at the screen's bottom-left corner), the time (at the screen's bottom-right corner), and everything between them.

When the Desktop screen is running a task (program), the taskbar usually shows a button for that task. For example, while you're running WordPad, you see a WordPad button on the taskbar. While you're running Paint, you see a Paint button on the taskbar.

Try this experiment:

Start running WordPad (by clicking Start then Programs then Accessories then WordPad). Now the taskbar includes a WordPad button. Since WordPad is a word-processing program, type a few words, so you've created a short document on your screen.

While WordPad is still on your screen, start running Paint (by pressing the Windows Start key then typing "pa" then tapping "Paint"). Now the taskbar includes a WordPad button and a Paint button, because WordPad and Paint are both running simultaneously: they're both in the computer's RAM memory chips. Paint is blocking your view of WordPad, but WordPad is still running also.

To see WordPad better, click WordPad's button on the toolbar. Then you'll see WordPad clearly, and WordPad will block your view of Paint.

Here's the rule: clicking WordPad's button lets you see WordPad better; clicking Paint's button lets you see Paint better. Both programs are in RAM simultaneously, until you close them (by clicking their X buttons).

### Clipboard

To copy data, you can use this 2-step process: first **copy** the data to the computer's invisible **Clipboard**, then stick the clipboard's data wherever you want it by using **Velcro**. Here are the details...

**Ctrl with C** Same as Windows 10, so **read "Ctrl with C" on page 89**.

**Print Screen Key** Try this experiment: say **Print Screen** (by pressing a key labeled "Print Scrn" or "PrtSc"). That makes the computer secretly take a snapshot of *your whole screen* and put that photo onto the clipboard.

If you want the computer to take a snapshot of *just one window*, do this:

Click in that window. Then *while holding down the Alt key*, say Print Screen (by using the method above). The computer will put a snapshot of just that window onto the Clipboard.

After something's on the clipboard, stick it into a WordPad document or Paint document or some other document (by clicking there and then pressing Ctrl with V). Then, if you wish, edit the snapshot and print it on paper.

**Snipping Tool** If you want to copy *part* of the screen to the clipboard, use the **Snipping Tool**, by doing this:

Go to the Start screen (or Apps screen) and type “sn”. You see a list of programs whose names have “sn”. One of them is “Snipping Tool”. Tap it.

Make sure the mouse pointer is a white cross. (If it’s a different shape, make it a white cross by clicking the down-arrow next to “New” then “Rectangular Snip”.)

Draw a red box around the part of the screen you want to copy. To do that, put the mouse pointer where you want the box’s top-left corner to be, and drag to where you want the box’s opposite corner. If you drew the box wrong, click “New” then try again to draw the box.

Click the Copy button (which looks like 2 sheets of paper with bent corners). Close the Snipping Tool window (by clicking its X button then clicking “No”).

After you’ve done that, stick your clip into a WordPad document or Paint document or some other document (by clicking there and then pressing Ctrl with V).

## Play a music CD (not on tablet)

Before 1980, music came on records or tapes. Nowadays, music comes on compact disks instead.

If you’ve bought a **compact disk (CD)** containing music, you can shove that disk into your computer’s **optical drive** (which plays and creates CD and DVD disks) while the computer is on. Here’s how....

Turn on the computer. Then do this:

**HP all-in one** Stand to the right of the screen, so you see the computer’s right-hand edge clearly. On that edge, toward the back, you see a button marked ▲. That’s the optical drive’s **eject button**. Press it.

**Acer laptop** Stand to the right of the keyboard, so you see clearly the keyboard’s right-hand edge, which is black. On that edge, you see a horizontal button. (That button is across from the numeric keypad’s 9 key.) That’s the optical drive’s **eject button**. Press it.

The optical drive’s **drawer** pops out, part-way. Pull the drawer *all* the way out.

Grab the CD. Then do this:

**HP all-in one** Hold that disk upright, so its label is on the *front* surface. Don’t touch its shiny backside. Put that disk’s shiny backside against the drawer’s front side, so the drawer’s **hub** (circular bump) pushes sexily through the CD’s hole.

**Acer laptop** Hold that disk horizontally, so its label is on *top*. Don’t touch its shiny underside. Push that disk down onto the drawer, so the drawer’s **hub** (circular bump) pushes sexily up through the CD’s hole.

Push the drawer shut, so the CD goes into the computer.

Here’s what happens next:

**HP all-in one** The computer starts running the CyberLink PowerDVD program (which is *not* from Microsoft). Behind that program’s window, you see the Desktop screen. If you haven’t run that program before, the window says “**End User License Agreement (EULA)**”; to reply, click “I have read” then “Accept”.

**Acer laptop** You see the Desktop screen. The computer starts running the Acer Clear.fi Media program (which is *not* from Microsoft). If you haven’t run that program before, the computer asks “Do you want to allow?”; to reply, tap “Yes” and answer any remaining questions.

Then the computer plays the CD’s music.

**Adjust the volume** Here’s how to adjust the volume on the HP all-in-one:

At the keyboard’s top-right corner, 3 keys have loudspeaker symbols on them. The first loudspeaker key shows a loudspeaker with a crossed-out circle. Press it to mute the sound. Press it again to resume the sound.

The second loudspeaker key shows a loudspeaker with just one sound wave coming out of it. Press it to make the sound softer. Press the rightmost key (which shows a loudspeaker with 3 sound waves coming out of it) to make the sound louder. Press those keys repeatedly (or hold them down awhile) to make the sound even softer or even louder.

Here’s how to adjust the volume on the Acer laptop:

**Screen method** On the screen, near the bottom, you see a picture of a white loudspeaker. Tap it to mute the sound. Tap it again to resume the sound. To the right of that loudspeaker, you see a white circle; drag the circle toward the left to lower the volume, right to raise it.

**Key method** While holding down the Fn key (which is near the keyboard’s bottom-left corner), do this: press the Δ key (which is below the right Shift key) to raise the volume slightly, or press the ∇ key to lower, or press the F8 key to mute (or unmute).

**Advanced commands** To give advanced commands to the HP all-in-one, do this:

Maximize the program’s window by clicking its maximize button (which is next to the X button). Then you can see the window’s buttons and features better. Here’s how to use them....

In the program’s window, you see a **list of tracks** on the CD. For each track, you see its number or name. An arrow (▶) points to the track that’s playing.

Click the || button to **pause** in the middle of a song. To resume, click that button again (which has changed to a big ▶).

Click ■ to **stop** back at the beginning of the current track (song). To begin playing there, click the big ▶.

Click ▶ to **skip** ahead to the next track (song), ◀ to hop back to the beginning of the previous track. To skip to a far-away track, click those buttons repeatedly or double-click the track’s number (or name).

As a song plays, you see a blue horizontal line start at the screen’s left edge and gradually stretch farther toward the right. To skip ahead, use your mouse to drag that blue line’s right edge farther toward the right. To jump back (and repeat what you heard before), drag that edge back toward the left.

Click ▶▶ to make the music play slightly **faster**. Press it twice to go faster than that, 3 times to go even faster, 4 times to race humorously fast. If you press it a 5<sup>th</sup> time, the speed returns to normal.

To give advanced commands to the Acer laptop, do this:

In the program’s window, you see a **list of tracks** on the CD. For each track, you see its number or name. (You see track names instead of numbers if the CD’s in the recording industry’s database and you played the CD previously while connected to the Internet.) A loudspeaker icon is left of the track that’s playing.

Tap the || button to **pause** in the middle of a song. To resume, tap that button again (which has changed to ▶).

Click ■ to **stop** back at the beginning of the current track (song). To begin playing there, click the big ▶.

Tap ▶▶ to **skip** ahead to the next track (song), ◀◀ to hop back to the beginning of the previous track. To skip to a far-away track, tap those buttons repeatedly or double-tap the track’s number (or name).

As a song plays, you see a white circle gradually move toward the right. To skip ahead, drag that circle farther toward the right. To jump back (and repeat what you heard before), drag that circle back toward the left.

**Background music** While the CD plays, you can perform other tasks by doing this:

Press the keyboard’s Start Windows button. Tell the computer what other task you want to do. While you do that task, the CD will continue to play, as background music.

If you want to adjust the music, return to the music program’s window by doing this: press the Start Windows button (so you see the Start screen) then the Desktop tile (so you see the Desktop screen, which still has the music program on it).

**Finish** When you finish listening to the CD, press the optical drive’s eject button again. The optical drive’s drawer pops out, part-way. Pull the drawer *all* the way out. Remove the CD.

If you want to play another CD, insert it and close the drawer.

If you want to stop playing CDs, close the drawer and window, then press the Windows Start button.

## Play a movie DVD (not on tablet)

Videos used to come on videotape. Nowadays, a video come on **Digital Versatile Disk (DVD)** instead.

If you've bought a DVD containing a movie, you can shove that disk into your computer's optical drive while the computer is on. Playing a movie DVD is similar to playing a music CD, so before playing a movie DVD, practice playing a music CD.

Here's how to play a movie DVD.

Using the same techniques as for a CD, open the optical-disk drawer and insert the disk.

**HP all-in-one** If the screen says "Region Playback Control", click "OK".

**Acer laptop** If the screen says "DVD Region", tap "Change DVD drive's region code" then "Change it now".

The disk will start to play. (If the disk begins with a menu giving you a choice such as "play movie", tap "play movie".)

**HP all-in-one** To adjust the movie's volume, use the 3 loudspeaker keys (as for a CD). To see the on-screen controls, tap the screen's middle; those controls will appear temporarily, then disappear (until you tap the screen again).

**Acer laptop** To adjust the movie's volume, use the CD's key method. To make other adjustments, tap the screen's middle; on-screen controls will appear temporarily, then disappear (until you tap the screen again).

When you finish watching the movie, press the optical drive's eject button.

## Explore your computer

What's in your computer? How much hardware and software do you have, and what type? Let's find out!

### PC info

To find out what kind of computer you have, you can do this:

Go to the Desktop screen (by clicking the Desktop tile). See the charms (by swiping from the right-hand black border toward the left). Tap the Settings charm then "PC info".

You'll see a message about your computer.

**HP & Acer** When I bought HP's all-in-one computer (Envy 20-d013), its message said —

Windows edition  
Windows 8  
Copyright © 2012 Microsoft Corporation. All rights reserved.

System  
Rating: 5.5 Windows Experience Index  
Processor: Intel Core i3-3220 CPU @ 3.30GHz  
Installed memory (RAM): 8.00 GB (7.70 GB usable)  
System type: 64-bit Operating System, x64-based processor  
Pen and Touch: Full Windows Touch Support with 10 Touch Points

Computer name, domain, and workgroup settings  
Computer name: HP-Envy20

Windows activation  
Windows is activated  
Product ID: 00179-60233-26635-AAOEM

That means:

The computer is using Windows 8, invented in 2012 by Microsoft.

The computer's speed is rated 5.5, which is average (on a scale of 1 to 10, with 10 being the fastest). The computer's CPU chip, manufactured by Intel, is a Core i3-3220, whose speed is 3.3 gigahertz. The computer contains 8 gigabytes of RAM chips. The screen is a touch screen that's highly sensitive: even if all 10 of your fingers press the screen simultaneously, it can detect where each finger is.

I named the computer "HP-Envy20".

The copy of Windows 8 on this computer has been **activated** (declared legitimate by Microsoft) and has serial number 00179-60233-26635-AAOEM.

When I bought Acer's laptop (Aspire V5-571P-6866), its message said —

Windows edition  
Windows 8  
Copyright © 2012 Microsoft Corporation. All rights reserved.

System  
Rating: 4.6 Windows Experience Index  
Processor: Intel Core i3-3227U CPU @ 1.90GHz  
Installed memory (RAM): 4.00 GB (3.80 GB usable)  
System type: 64-bit Operating System, x64-based processor  
Pen and Touch: Full Windows Touch Support with 10 Touch Points

Computer name, domain, and workgroup settings  
Computer name: AcerLaptop

Windows activation  
Windows is activated  
Product ID: 00179-60543-45790-AAOEM

That means:

The computer is using Windows 8, invented in 2012 by Microsoft.

The computer's speed is rated 4.6, which is slightly below average (on a scale of 1 to 10, with 10 being the fastest). The computer's CPU chip, manufactured by Intel, is a Core i3-3227U, whose speed is 1.9 gigahertz. The computer contains 4 gigabytes of RAM chips. The screen is a touch screen that's highly sensitive: even if all 10 of your fingers press the screen simultaneously, it can detect where each finger is.

I named the computer "AcerLaptop".

The copy of Windows 8 on this computer has been **activated** (declared legitimate by Microsoft) and has serial number 00179-60543-45790-AAOEM.

Upgrading those HP & Acer computers to Windows 8.1 makes the "Rating" line disappear and makes the top 3 lines become:

Windows edition  
Windows 8.1  
Copyright © 2013 Microsoft Corporation. All rights reserved.

**Toshiba** When I bought Toshiba's tablet (Encore WT8-A32, which includes Windows 8.1), its message said:

Windows edition  
Windows 8.1  
Copyright © 2013 Microsoft Corporation. All rights reserved.

System  
Manufacturer: TOSHIBA  
Model: Encore  
Processor: Intel Atom CPU Z3740 @ 1.33GHz  
Installed memory (RAM): 2.00 GB (1.89 GB usable)  
System type: 32-bit Operating System, x64-based processor  
Pen and Touch: Full Windows Touch Support with 5 Touch Points

Computer name, domain, and workgroup settings  
Computer name: ToshibaTablet

Windows activation  
Windows is activated  
Product ID: 00258-60059-36853-AAOEM

That means:

The computer is using Windows 8.1, invented in 2013 by Microsoft.

The computer is made by Toshiba and called an Encore. The computer's CPU chip, manufactured by Intel, is an Atom Z3740, whose speed is 1.33 gigahertz. The computer contains 2 gigabytes of normal RAM chips. The screen is a touch screen that's sensitive: even if 5 of your fingers press the screen simultaneously, it can detect where each finger is.

I named the computer "ToshibaTablet".

The copy of Windows 8.1 on this computer has been **activated** (declared legitimate by Microsoft) and has serial number 00258-60059-36853-AAOEM.

**Finish** When you finish admiring your computer's message, close the window (by clicking its X button). You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

**Alternate method** If you have Windows 8.1, get PC info by using the method described above or by using this alternate method instead, which adds the computer's model number:

Go to the Start screen (not the Desktop screen). See the charms (by swiping from the right-hand black border toward the left). Tap the Settings charm then "Change PC settings" (which is at the screen's bottom) then "PC and devices" then "PC info".

That alternate method produces this message on my HP all-in-one computer upgraded to Windows 8.1:

hp 20-d013w  
PC name HP-Envy20  
Product ID 00179-60233-26635-AAOEM  
Processor Intel Core i3-3220 CPU @ 3.30GHz  
Installed RAM 8.00 GB (7.70 GB usable)  
System type 64-bit operating system, x64-based processor  
Pen and touch Full Windows touch support with 10 touch points  
Edition Windows 8.1  
Activation Windows is activated

It produced this message on my Acer laptop:

acer Aspire V5-571P  
PC name AcerLaptop  
Product ID 00179-60543-45790-AAOEM  
Processor Intel Core i3-3227U CPU @ 1.90 GHz  
Installed RAM 4.00 GB (3.80 GB usable)  
System type 64-bit operating system, x64-based processor  
Pen and touch Full Windows touch support with 10 touch points  
Edition Windows 8.1  
Activation Windows is activated  
Manufacturer Acer  
Phone 1-800-816-2237  
Hours open 24 hours a day, 7 days a week

It produced this message on my Toshiba tablet:

TOSHIBA Encore  
PC name ToshibaTablet  
Product ID 00258-60059-36853-AAOEM  
Processor Intel Atom CPU Z3740 @ 1.33 GHz  
Installed RAM 2.00 GB (1.89 GB usable)  
System type 32-bit operating system, x64-based processor  
Pen and touch Full Windows touch support with 5 touch points  
Edition Windows 8.1  
Activation Windows is activated  
Manufacturer TOSHIBA

## Disk drives

Each disk drive has a letter.

**Drive A** is the main floppy-disk drive (if you have one).

**Drive B** is the auxiliary floppy-disk drive (if you have one).

**Drive C** is the main hard drive's main part.

**Drives D, E, F, etc.** are any extra disk drives (or parts of disk drives).

A typical computer has these drive details:

Drive A is the 1.44M 3½-inch floppy drive (if any).

Drive B is the 1.2M 5¼-inch floppy drive (if any).

Drive C is the hard drive's main part.

Drive D is the hard drive's recovery part (a copy of drive C's essentials).

Drive E is the main DVD drive (or DVD RW drive or CD-ROM drive).

Drive F is an extra DVD drive (or CD-RW drive).

A tablet computer doesn't have floppy drives or DVD drives. It also doesn't really have a hard drive: instead, it has an imitation, called a **solid-state drive (SSD)**, which holds less info than a hard drive but consumes less space & electricity and runs faster.

Drive C is the most important: it's the main part of the main hard drive. Drive C holds Windows itself and the most important programs & documents.

Here's how the drives are named:

**Drive A** is called "**A:**" (which is pronounced "A colon").

**Drive B** is called "**B:**" (which is pronounced "B colon").

**Drive C** is called "**C:**" (which is pronounced "C colon").

**Drive D** is called "**D:**" (which is pronounced "D colon").

**File Explorer's computer window** To find out what drives are in *your* computer and how they're lettered, go to the **File Explorer's computer window** by using one of these methods:

**Windows 8.1 Apps-screen method** Go to the Apps screen. Type "fi" (which a tablet will let you do after you tap the space left of the magnifying glass). You see a list of programs whose names have "fi". One of them is "File Explorer". Tap it.

**Windows 8.1 Desktop-screen method** Go to the Desktop screen (by clicking the Desktop tile). Tap the **File Explorer** icon (which is near the screen's bottom-left corner and looks like yellow file folders).

**Windows 8 Start-screen method** Go to the Start screen (or Apps screen) and type "co". You see a list of programs whose names have "co". One of them is "Computer". Tap it.

**Windows 8 Desktop-screen method** Go to the Desktop screen (by clicking the Desktop tile). Tap the **File Explorer** icon (which is near the screen's bottom-left corner and looks like yellow file folders) then "**Computer**" (which is at the screen's left edge).

Then you see the **Computer window**. It shows an **icon** (little picture) labeled "C:" (for the main part of your main hard drive) and icons for your other disk drives also.

**Windows 8** On the Acer laptop, the icons are labeled like this:

Hard Disk Drives

Acer (C:)

Devices with Removable Storage

DVD RW Drive (D:)

That's because Acer's main files are on drive C, and the DVD-RW drive (into which you can pop DVD-RW disks) is called "drive D".

On the HP all-in-one, the icons are labeled like this:

Hard Disk Drives

OS (C:) Recovery image (D:)

Devices with Removable Storage

DVD RW Drive (E:)

That's because the OS (operating system) is on drive C, a copy of the OS fundamentals (to use for emergency recovery) is on drive D, and the DVD-RW drive (into which you can pop DVD-RW disks) is called "drive E".

**Windows 8.1** On the Acer laptop upgraded to Windows 8.1, the icons are labeled like this:

**Folders**  
Desktop Documents Downloads Music Pictures Videos

**Devices and drives**  
Acer (C:) DVD RW Drive (D:)

On the HP all-in-one upgraded to Windows 8.1, the icons are labeled like this:

**Folders**  
Desktop Documents Downloads Music Pictures Videos

**Devices and drives**  
OS (C:) Recovery image (D:) DVD RW Drive (E:)

On the Toshiba tablet (which includes Windows 8.1), the icons are labeled like this:

**Folders**  
Desktop Documents Downloads Music Pictures Videos

**Devices and drives**  
TI10677900H (C:)

## Drive C's files

To find out about drive C, do this:

Look at the screen. Below the "C:", you see a message about disk C, such as "865 GB free of 914 GB" (which means 255 GB are still unused & available, out of disk C's 914 GB total size). You also see a wide box, which represents the entire disk C: the blue part is what's used; the gray part is what's unused (free). If you right-click the "C:" (using the mouse's right-hand button) then click "Properties", you'll see a pie chart with more details. When you finish admiring the pie chart, click "OK".

To find out *even more* about your hard disk, **double-click the "C:" icon**. You'll see the **C window**, which lists files that are on disk C.

If disk C contains more files than can fit on the screen, view the remaining files by pressing the ▼ and ▲ buttons, which are at the screen's right edge.

For each file, you see the file's name and a tiny picture (**icon**) representing the file.

Your computer can handle 3 kinds of files:

If the file's a **document**, its icon typically looks like a page whose top-right corner is bent.

If the file's an **application program**, its icon typically looks cute.

If the file's a **folder** containing other files, its icon looks like a yellow manila folder that's open.

In the C window, the most important folders are called "Program Files", "Users", and "Windows". You'll see other folders also.

If you double-click a folder, a new window shows you what files are in the folder. When you finish examining the new window, either close it (by clicking its X button) or go back to the previous window (by clicking the **Back button**, which is a left-arrow near the screen's top-left corner).

If you double-click a file's icon, here's what happens:

If the file's a **folder**, you see what's in the folder.

If the file's an **application program**, the computer will try to run the program. Don't do that unless you've read instructions about how to run the program successfully!

If the file's a **document**, the computer will try to use that document: the computer will try to run the program that created the document, but sometimes the computer can't correctly deduce which program created the document.

Here's how to find the documents you wrote using WordPad:

The Users folder contains a personal folder (having your name on it), which in turn contains the My Documents folder (containing the documents you wrote).

**Views** While you're viewing icons, here's how to change their appearance.

Click "View" then choose one of these 8 views:

For most situations, click **Details**. That view is what the computer assumes you want anyway (unless you've said otherwise or the computer thinks you're in a picture-oriented folder). For each file, besides the filename you see a small icon and many details about the file.

If you click **List** instead of Details, the computer omits the details (so more files can fit on the screen).

If you click **Tiles** instead of Details, the computer makes the icons easier to see (medium-size instead of small) but includes just a *few* details about each file. If you click **Content**, you see a compromise between "Details" and "Tiles".

If you click **Extra large icons**, the computer makes the icons huge but omits any details about the files. If you don't want the icons so huge, click **Large icons** or **Medium icons** or **Small icons** instead. If you're in a picture-oriented folder, the computer assumes you want Large icons (unless you've said otherwise).

**New folder** Here's how to create a new folder:

Click "Home" (which is near the screen's top-left corner) then "New folder". A new folder will appear. Type a name for it (and press Enter).

**Close the window** When you finish examining the files that are on hard disk C, close the window by clicking its X button (at the screen's top-right corner).

## Optical-drive files

An optical drive resembles drive C.

Grab an optical disk (CD-ROM disk or DVD disk) that contains computer info, and put it in the optical drive.

The computer analyzes that disk. If the disk is a **CD containing music**, the computer automatically starts playing the music. If the disk is a **DVD containing a movie**, the computer automatically starts playing the movie. If the disk is **otherwise**, the computer does this:

If the disk **contains a program called autorun.inf**, the computer automatically starts running that program, which typically makes the computer run another program, called setup.exe. If you don't want to continue running such programs, exit from them by clicking their X buttons or by clicking whatever "Exit" choices they offer you. Then if you want to find out what's on the disk, right-click disk's icon (which is in the Computer window) and click "Open".

If the disk **lacks an autorun.inf program**, the computer might do nothing, or it might show you a list of files on the disk, or it might briefly flash this message at the screen's top-right corner: "Tap to choose what happens with removable drives". If you see that message, tap it then tap "Open folder to view files".

When you finish examining any files that are on the disk, close the disk's window by clicking its X button.

## Find a file's icon

To manipulate a file, the first step is to get the file's icon onto a Desktop-style screen.

If the file's a document you created using WordPad, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run WordPad. Click "File" then "Open". Then you see a list of WordPad's documents and their icons.

If the file's a painting you created using Paint, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run Paint. Click "File" then "Open". Then you see a list of Paint's paintings and their icons.

Another way to get a file's icon onto the screen is to go to the Computer window and click icons for drives & files until you find the file you want.

Many programs (such as WordPad) put documents into the Documents library. Here's how to see what documents are in that library:

Go to the Desktop screen (by clicking the Desktop tile). Tap the **File Explorer** icon (which is near the screen's bottom-left corner and looks like yellow file folders) then "**Documents**" (which is at the screen's left edge). You see what's in the Documents library. The Documents library includes what's in 2 folders: "My Documents" and "Public Documents". To see just what's in the "My Documents" folder, click the triangle that's left of "Documents" at the screen's left edge, until that triangle turns solid blue or black; then click "My Documents".

The Paint program puts paintings into the Pictures library. Here's how to see what's in that library:

Go to the Desktop screen (by clicking the Desktop tile). Tap the **File Explorer** icon (which is near the screen's bottom-left corner and looks like yellow file folders) then "**Pictures**" (which is at the screen's left edge).

## Manipulate a file

Now I'll explain how to manipulate a file.

If you want to practice this stuff, use a file you don't mind wrecking. For example, create a WordPad document containing just once sentence (such as "I love you") and save it as a file called "Love".

To manipulate a file, find its icon on a Desktop-style screen (by using the tricks in the previous section) then do one of these activities....

### Send to USB flash drive

Same as Windows 10, so read "**Send to USB flash drive**" on page 94.

### Send to optical disk

Here's how to copy the file to an optical disk (CD or DVD), if your computer has an optical-disk drive. (The typical tablet does *not* have an optical-disk drive.)

What optical disk do you want to copy the file to? Put that disk (which is blank or partially blank) into the drive.

The computer might briefly flash this message at the screen's top-right corner: "Tap to choose what happens with blank CDs." If you see that message, tap it then tap "Take no action".

Which file do you want to copy to the optical disk? Right-click the file's icon. Click "Send to" then "DVD RW Drive".

If that disk has never been used before (or was totally reformatted), do this:

Invent a name for the disk. The name must be short (no more than 16 characters). Type the name (and press Enter).

If the disk is rewritable (RW), the computer will say, "The format might take a long time"; to reply, press Enter then wait 22½ minutes (even though the computer accidentally says "5 seconds").

If the computer says "You'll need to provide administrator permission to copy this file", click "Continue".

The computer will copy the file. You can copy more files in the same way.

When you finish copying, press the optical drive's eject button.

The computer might say "Preparing to eject". The computer will write, onto the disk, filenames and other notes. Then the computer will open the drive's tray. Take the disk out of the tray. Push the tray back in.

If the computer still says "Preparing to eject", click that window's X.

### Send to My Documents folder

Here's how to copy the file to your hard disk's My Documents folder (if the file isn't there already):

Right-click the file's icon. Click "Send To" then "Documents". Then the computer copies the file to the My Documents folder.

### Send to Desktop screen

To copy the file to your Desktop screen, do this:

Right-click the file's icon. Click "Send To" then "Desktop".

To save disk space, that technique copies just the file's icon to the Desktop. The file itself stays just in its original location.

On the Desktop, the file's icon's bottom left corner has a bent arrow, which means the icon is just a **shortcut** (which points the computer to the original location).

That shortcut icon has the file's original name but with "- Shortcut" added afterwards. For example, if the file's original name was "Love", the shortcut icon's name is "Love - Shortcut".

If you double-click that shortcut icon, the computer will try to find the original file and run it. If the original file was on a floppy disk or optical disk, that works just if the file's floppy disk or optical disk is still in the drive.

### Send to a different location

To copy the file to a different location (such as a folder on your hard drive), do this:

Right-click the file's icon. Click "Copy". Right-click in any blank space (in any drive or any folder) where you want the copy to appear. Click "Paste".

### Rename

To change the file's name, do this:

Click the file's icon then the file's name. Type the new name (and press Enter).

### Delete

To delete the file, try this procedure:

Click the file's icon. Press the Delete key.

Does that procedure *really* delete the file? Here's the answer.

If the file's on a floppy disk, that procedure really deletes the file.

If the file's on a hard disk, that procedure just moves the file to the **Recycle Bin** (which holds hard-disk files you said to delete).

If the file's on a CD, the computer analyzes the CD: if the disk is **rewriteable** (CD-RW), the computer **deletes** the file; if the disk is just **CD-R** (which can't delete), the computer **hides** the file so it's inaccessible (though still taking up space on the disk); if the disk is a **plain CD** (which can't be altered at all), the computer **complains**.

**Advanced procedures** Same as Windows 10, so read **these topics on page 95**:

"Peek in the Recycle Bin"  
"Shift Delete"

### Multiple files

Same as Windows 10, so read "**Multiple files**" on page 95.

### Erase entire RW optical disk

Same as Windows 10, so read "**Erase entire RW optical disk**" on page 95.

# Tricks

These tricks will make you a pro and amaze your friends.

## Bypass the Login screen

When you turn on the computer, you normally see the Lock screen. To get past it, you must press the Enter key (or swipe up). Then you see the Login screen; to get past it, you must type your password then press the Enter key again.

That password tells the computer which person you are, in case several people share your computer. It also protects you from any enemy who turns on your computer and tries to use it.

But if you're the only person who has an account on this computer and you're also sure no enemy will grab your computer and cause mischief, you might prefer to shorten that startup procedure, so when you turn on the computer it *immediately* shows the Start screen or other useful screen, without forcing you to watch the Lock and Login screens and type your password.

Here's how to tell the computer "don't show the Lock screen and don't demand a Login-screen password":

While you're looking at the Apps screen, type "NetPLWiz". At the end of your typing, press the Enter key.

You see a check mark. (It's labeled "Users must enter a user name and password to use this computer.") Remove that check mark (by tapping it). Tap "OK".

For the Toshiba tablet, make the on-screen keyboard appear (by tapping the keyboard icon at the screen's bottom).

Type your password. At the end of your typing, tap the Confirm Password box. Type your password again. At the end of your typing, press the Enter key.

You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

If you give that command, here's what will happen:

**HP all-in-one** The computer will skip the Lock screen and skip the Login-screen password.

**Acer laptop** If the computer had been off, the computer will skip the Lock screen and skip the Login-screen password. But if the computer had been just sleeping, the computer will still put you at the Lock screen and demand a Login-screen password.

**Toshiba tablet** The tablet will show the Lock screen just if the tablet had been sleeping (instead of completely turned off). The tablet will demand a Log-screen password rarely, just if the tablet feels nervous!

Later, if you change your mind, you can reverse that procedure by doing this:

While you're looking at the Apps screen, type "NetPLWiz". At the end of your typing, press the Enter key.

Tap the box next to "Users must enter a user name and password to use this computer", so a check mark appears there. Tap "OK".

You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

## Bypass the Desktop screen

If your computer has a keyboard and Windows 8.1 Update, here's what happens when you turn the computer on: the computer shows you the Desktop screen instead of the Start screen. To force such a computer to always show you the Start screen instead, do this:

Go to the Desktop screen. At the screen's very bottom (on the taskbar), halfway between the Windows Start button and the time, right-click a blank place that has no icons. Click "Properties". Click the "Navigation" tab (which is left of "Jump Lists"). Remove the check mark from the box marked "When I sign in or close all apps on a screen, go to the desktop instead of Start". Click "OK".

# Control Panel

To control your computer completely, go to the **Control Panel** by using one of these methods:

**Start-screen method** Go to the Apps screen (or Windows 8's Start screen) and type "co" (which a tablet will let you do after you tap the space left of the magnifying glass). You see a list of programs whose names have "co". One of them is "Control Panel". Tap it.

**Desktop-screen method** Go to the Desktop screen (by clicking the Desktop tile). See the charms (by swiping from the right-hand black border toward the left). Tap the Settings charm then "Control Panel".

You can see 2 **views**.

The **category view** shows you these 8 categories:

System and Security	User Accounts and Family Safety
Network and Internet	Appearance and Personalization
Hardware and Sound	Clock, Language, and Region
Programs	Ease of Access

It also shows subcategories.

The **icon view** shows you many icons instead, in alphabetical order. The HP shows 52; the Acer shows 53. Here they are:

action center, add features to Windows 8, administrative tools, AutoPlay, Beats Audio control panel (just HP), color management, credential manager, date&time, default programs, device manager, devices&printers, display, Dolby advanced audio (just Acer), ease-of-access center, Energy Star (just HP), family safety, file history, Flash player, folder options, fonts, HomeGroup, indexing options, Intel graphics&media, Internet options, keyboard, language, location settings, mouse, network&sharing center, notification-area icons, pen&touch, performance information&tools, personalization, phone&modem, power options, programs&features, Realtek HD audio manager (just Acer), recovery, region, RemoteApp&Desktop connections, sound, speech recognition, storage spaces, Synaptics ClickPad V8.1 (just Acer), sync center, system, tablet PC settings, taskbar, troubleshooting, user accounts, Windows 7 file recovery, Windows Defender, Windows firewall, Windows Live language setting (just HP), Windows mobility center (just Acer), Windows Update

Upgrading to Windows 8.1 makes these changes:

"add features to Windows 8" becomes "add features to Windows 8.1"  
"Intel graphcs&media" becomes "Intel HD graphics"  
"taskbar" becomes "taskbar&navigation"  
"work folders" is added  
"performance information&tools" and "Windows 7 file recovery" disappear

The Toshiba shows 50:

action center, add features to Windows 8.1, administrative tools, AutoPlay, color management, credential manager, date&time, default programs, device encryption, device manager, devices&printers, display, ease-of-access center, family safety, file history, Flash player, folder options, fonts, HomeGroup, indexing options, Intel HD graphics, Internet options, keyboard, language, location settings, mouse, network&sharing center, notification-area icons, pen&touch, personalization, phone&modem, power options, programs&features, recovery, region, RemoteApp&Desktop connections, sound, speech recognition, storage spaces, sync center, system, tablet PC settings, taskbar&navigation, troubleshooting, user accounts, Windows Defender, Windows firewall, Windows mobility center, Windows Update, work folders

Here's how to switch between those 2 views:

Near the screen's top-right corner, you see "View by". Click the down-arrow that's to the right of "View by". Then click "Category" or "Large icons".

**Pointer trails** For your first experiment in Control Panel, play with pointer trails. Here's how.

Go to the icon view. Click "Mouse" then "Pointer Options" then put a check mark in the "Display pointer trails" box (by clicking there).

To make the trail be long and obvious, make sure the slider is dragged toward the right, to the "Long" position.

The long trail helps you notice the mouse pointer more easily. It's useful when you're giving a presentation to a group of people and want to make sure they always notice where the mouse is moving.

If you change your mind, stop the trails by clicking the "Display pointer trails" box again, so the check mark disappears.

When you finish experimenting with pointer trails, close the Mouse Properties window by clicking "OK".

**Experimenting beyond** You can experiment by clicking (or double-clicking) any of the other icons in the Control Panel window, but be careful! If you tell the computer to use hardware you don't own, Windows will stop working! Before changing a setting, make a note to yourself of what the setting was, so you can get back to it. Be especially cautious about playing with the Display icon, since if you make a wrong choice your screen will be unreadable.

**Finish** When you finish playing with the Control Panel window, close it by clicking its X button.

You see the Desktop screen. If you want to see the Start screen instead, press the Windows Start key.

## Notepad

**Notepad** is a stripped-down version of WordPad. Notepad is easier but does less.

Like WordPad, Notepad comes free as part of Windows.

Since WordPad does more than Notepad, most people prefer WordPad rather than Notepad. But sometimes WordPad is *too* fancy and *too* complex, and Notepad's primitive simplicity is appealing. Notepad is popular for writing "short notes", "computer programs", and "pages to put on the Internet". Notepad will confuse you less often than WordPad, since Notepad does less. It's retro; it's cool! Try it! Here's how...

To start using Notepad, do this:

Go to the Apps screen (or Windows 8's Start screen) and type "no". You see a list of programs whose names have "no". One of them is "Notepad". Tap it.

Make sure the Notepad window consumes the whole screen. (If it doesn't consume the whole screen yet, maximize the window by clicking the maximize button, which is next to the X button.)

Start typing whatever you wish, as if you were using WordPad. Here are the differences...

**Differences** Same as Windows 10, so read these topics on page 97:

"No formatting saved"  
"Optional word wrap"  
"No buttons"  
"No drag & drop"

## Keyboard tricks

The following keyboard tricks work while you're using the Desktop screen and its apps (such as Calculator, WordPad, Paint, Control Panel, and Notepad).

**Property window** Here are 4 ways to make an icon's property window appear:

**Right-click method** Right-click the icon (so the icon's shortcut menu appears). Then click "Properties".

**Menu-key method** Click the icon. Press the Menu key (so the icon's shortcut menu appears). Then either click "Properties" or press the R key (which is the code for "Properties").

**Alt-double method** While holding down the Alt key, double-click the icon.

**Alt-Enter method** Click the icon. Then while holding down the Alt key, tap the Enter key.

Use whichever method you wish! My favorites are the right-click method (which feels the most natural) and the Alt-double method (which is usually the fastest).

**Alt F4** While a window is open, try this experiment: while holding down the Alt key, tap the F4 key. That makes the computer click the window's X button, so the window closes.

Suppose your mouse stops working (because the mouse is broken or the computer gets too confused to handle the mouse). To get out of that mess, press Alt F4 several times. That starts the process of closing the windows and shutting down the computer. Finish shutting down the computer (as best as you can), then try again to turn the computer on.

## Help

To get more help about Windows, use one of these methods:

**Microsoft Internet method** Using the Internet (on any computer), go to "<http://windows.microsoft.com/en-US/windows/support>".

**Acer Internet method** Using the Internet (on any computer), go to "[www.acer.com/windows8-tutorial](http://www.acer.com/windows8-tutorial)". Then you see help about Windows 8 & 8.1.

**Windows 8.1 method** At the Start screen on a Windows 8.1 computer, tap the "Help+Tips" tile. Then you see tiles giving you brief help about Windows 8.1 and apps.

**Acer tile method** At the Start screen on the Acer laptop, tap the "Acer Explorer" tile. Then you see tiles giving you brief help about Windows 8 and apps.

**HP tile method** At the Start screen on the HP all-in-one computer, tap HP's help tile (which was called "Using Windows 8 apps" but now is called "Getting Started with Windows 8"). Then you see tiles about different Windows topics; tap your favorite.

# Windows 7

Most computers use an operating system called **Windows**, invented by Microsoft. The previous chapters explained the newest versions (Windows 8&8.1&10). This chapter looks at an earlier version: **Windows 7**, which was **invented in 2009** and is still popular.

Before inventing Windows 7, Microsoft invented many earlier versions:

**Windows 1** (in 1985), then **Windows 2** (in 1987), then **Windows 3** (in 1990), then **Windows New Technology (Windows NT)**, then **Windows 95** (in 1995), then **Windows 98** (in 1998), then **Windows 2000** and **Windows Millennium Edition (Windows Me)**, then **Windows eXperience (Windows XP)**, then **Windows Vista**. All those versions of Windows are obsolete; I explained them in this book's older editions (which you can get by phoning me at 603-666-6644).

Windows 7 comes in 4 editions:

The normal edition, **7 Home Premium**, is for use in homes and small businesses.

A fancier edition, **7 Professional**, is for big businesses that insist on more security (and more compatibility with old Windows XP programs).

An even fancier edition, **7 Ultimate**, is for even bigger businesses that require even more security and more help handling foreign languages.

A stripped-down edition, **7 Starter**, is for low-income people outside the USA (and people in the USA who buy netbook computers lacking enough RAM to handle other editions).

My explanation of Windows 7 emphasizes the normal edition (Windows 7 Home Premium). Other Windows 7 editions are similar.

Microsoft has corrected Windows 7's errors.

In 2011, Microsoft invented a slightly corrected Windows 7, called **Windows 7 with Service Pack 1 (Windows 7 SP1)**.

Windows 7 requires 1G of RAM to run at all, 3G to run well.

## Set up the computer

When you buy a new computer, you must set it up. I'll explain how. If you have difficulty, **phone me anytime for free help at 603-666-6644**.

### Setting up a laptop

Here's how to set up a typical Windows 7 **laptop computer**: the HP G71-340US. (Other laptop computers are similar.)

**Unpack** The computer comes in a cardboard box. Open the box and put the contents on your desk (or table). The box contains packing material plus 6 items:

the **computer itself** (16 inches wide, 11 inches front-to-back, 1 inch thick)  
a **battery** (8 inches wide)  
a **power cord** (which can plug into your home's electrical outlet)  
a **power adapter** (a box-with-cord that transforms DC power to AC)  
a **cleaning cloth** (to help wipe away dirt and fingerprints)  
**instructions**

Remove those 6 items from their plastic bags and boxes.

The computer's top is covered by a clear plastic protector sheet. Peel away that sheet and discard it.

Open the computer (by prying open one of its long edges). Discard the black plastic protector sheet inside, so you see the computer's screen and keyboard. Close the computer.

**Insert the battery** Flip the computer upside-down. You see an 8-inch hole in the computer's underbelly. Pop the battery into that hole. Then flip the computer right-side-up.

**Plug in** Plug the power adapter into the computer's side.

Plug the power cord into the power adapter. Plug the power cord's other end into an electrical outlet (in your room's wall or power strip or surge protector), and make sure the electrical outlet is on. A light on the computer's front side will glow.

**Power up** Open the computer, so you see the keyboard & screen.

On the keyboard, find the **power button** (which shows a circle having a line sticking up from it). That button is near the screen. It's above the F8 and F9 keys. Press that button. It lights up. The computer will say (on its screen) "Starting Windows."

### Setting up a desktop computer

A **desktop computer system** typically comes in several cardboard boxes. Open them, and put the contents on your desk.

One box contains the monitor (screen).

One box contains the computer's main part (**system unit**), keyboard, mouse, speakers, and disks.

One box contains the printer (unless you didn't buy a printer yet).

Each box also contains power cords, cables, and instruction manuals.

Into the back of the system unit, plug the cables that come from the monitor, printer, keyboard, mouse and speakers. Into your wall's electrical socket (or power strip), plug the power cords that come from the monitor, printer, speakers, and system unit. (On some computers, the cabling is different.)

**Turn on the system unit** On the system unit's front, find the **power button** (which shows a circle having a line sticking up from it). On a typical modern computer, that button is big, gray, and a third of the way up from the bottom.

Some system units are different:

If there are two similar buttons, make sure you press the one that shows a circle having a line sticking up from it, not the other button (which is the reset button).

If the system unit is old-fashioned, there might be a **power switch** instead of a power button. The power switch might be on the system unit's right side (instead of the front), might be red, and might say "1" and "0."

If the system unit is old-fashioned, there might be a power button on the front plus a power switch on the back. Put both on.

**Turn on the screen** Turn on the computer's screen (monitor).

After a few seconds, the screen will display some messages. (If you don't see the messages clearly, make sure the cable from the screen to the system unit is plugged in tightly, and adjust the screen's contrast and brightness knobs.)

The screen will eventually say "Windows 7".

### Attach any printer

If you have a printer that uses a cable, make sure the cable runs from the printer to the computer, and turn the printer on.

## Observe

Stare at your computer.

### Examine the keyboard

Same as Windows 10, so read “Examine the keyboard” on pages 66-67.

### Check Num Lock

If you have a desktop computer (instead of a laptop computer), be careful about this:

Your keyboard has a **Num Lock light**. On a typical keyboard, that light is near the keyboard’s top right corner and is labeled “Num Lock” or just “Num”. (Exception: on the Microsoft Natural Keyboard, that light is in the keyboard’s middle and labeled “1”.) **Make sure that light is glowing.** If it’s *not* glowing, make it glow by tapping the **Num Lock key** (which is near the keyboard’s top right corner).

### Try moving the mouse

The typical computer has a mouse. (If your computer doesn’t have a mouse, buy a mouse: a mouse is much easier to use than a touchpad!)

Look at the computer’s mouse. The traditional mouse has a **tail** (a cable that runs from the mouse to the computer); if your mouse is ultra-modern, it communicates with the computer wirelessly instead. The area where a tail meets the mouse is called the mouse’s **ass**.

The mouse’s underside — its belly — has a hole in it. Inside the hole is a ball (or ray of light).

Put the mouse on your desk and directly in front of your right arm. Make the mouse lie flat (so its ball rubs against the desk or its light ray shines on the desk). **Make the mouse face you** so you don’t see its ass.

Move the mouse across your desk. As you move the mouse, remember to keep it flat and facing you.

On the screen, you’ll see an arrow, which is called the **mouse pointer**. As you move the mouse, the arrow moves also.

If you move the mouse to the left, the arrow moves to the left. If you move the mouse to the right, the arrow moves to the right.

If you move the mouse toward you, the arrow moves down. If you move the mouse away from you, the arrow moves up.

Practice moving the arrow by moving the mouse. Remember to keep the mouse facing you at all times.

If you want to move the arrow far and your desk is small, move the mouse until it reaches the desk’s edge; then lift the mouse off the desk, lay the mouse gently on the desk’s middle, and rub the mouse across the desk in the same direction as before.

## Finish installing Windows 7

If nobody’s used the computer yet (because it’s new), the computer will say “Setup is preparing your computer for first use.” That means you must finish installing Windows 7 onto your computer.

To do that, practice using the mouse (or trackball), keyboard, and Windows 7 on a different computer, then finish installing Windows 7 onto your computer by getting help from the company that sold you the computer or from me at 603-666-6644 or by following a procedure such as the following (which works on the typical Windows 7 laptop computer):

The computer will say “Choose a user name.” Invent a name for yourself. For example, you can use your first name or nickname (such as “Russ”), but make sure the name differs from the name of other people using your computer or your home or office’s network. Type the name then press the Tab key. Press the Tab key again.

Invent a computer name (such as “HP-G71-Laptop” or “RussLaptop” or “BedroomLaptop”). To avoid difficulties, the name must be short (at most 15 characters), differ from your user name, contain at least one letter, and contain just letters, digits, and hyphens, without spaces. Type the name then press the Enter key.

The computer will say “Set a password for your account.” To save time, don’t bother creating a password yet: just press the Enter key.

Click both “I accept the license terms” boxes, then press Enter.

Press Enter again.

Click the “Time zone” box’s down-arrow (which looks like a triangle pointing down), then click your time zone (such as “Eastern Time”). On the calendar, click the correct date. On the digits under the clock, click next to the hour, then click the up-arrow or down-arrow to adjust the hour, then press Enter.

Make sure you’ve properly set up your room’s wireless router (which lets a laptop computer communicate with the Internet), then click the router’s name then “Start this connection automatically”. Click “Next”.

If you’re at home, click “Home network”; if you’re at work, click “Work network” instead.

The computer will say “Welcome” then “Preparing your desktop”.

If your computer says “WELCOME TO YOUR NEW HP COMPUTER”, click “GO” and follow Hewlett-Packard’s own registration process (or click “Register Later”).

## Use the Start menu

Eventually, the screen’s bottom left corner shows the **Start button** (which looks like colored windows in a blue globe).

The most important part of the mouse’s arrow is its tip, which is called the **hot spot**. Move the arrow so its hot spot (tip) is in the middle of the Start button. When you do that, you’re **pointing at** the Start button.

On the top of the mouse, you’ll see 2 or 3 rectangular buttons you can press. **The main button is the one on the left.** Tapping it is called **clicking**. So to **click**, tap the left button.

While you’re pointing at the Start button, click (by tapping the left button). That’s called **clicking Start**.

When you click Start, you see the **Start menu**, which is your starting list of choices and looks like this:

Documents  
Pictures  
Music  
Games  
Computer  
Control Panel  
Devices and Printers  
Default Programs  
Help and Support  
All Programs Shut Down

Your computer might offer extra choices also!

### How to shut down

Whenever you finish using the computer, click “Shut Down” then wait while the computer tidies the info on your hard disk. Finally, the computer will turn its own power off.

### Programs menu

Make the Start menu appear on the screen.

In that menu, “All Programs” has the symbol “▶” next to it. That symbol means that if you choose “All Programs” from the Start menu, you’ll see *another* menu.

Try it: point at “All Programs”. Then you see this **Programs menu**:

Default Programs  
 Desktop Gadget Gallery  
 Internet Explorer  
 Windows Anytime Upgrade  
 Windows DVD Maker  
 Windows Fax and Scan  
 Windows Media Center  
 Windows Media Player  
 Windows Update  
 XPS Viewer  
 Accessories  
 Games  
 Maintenance  
 Startup

If you bought extra programs, the menu mentions them too.

If the computer shows just *part* of the Programs menu, see the rest by using one of these methods:

**Click-arrow method** Click the Programs menu’s down-arrow (▼) or up-arrow (▲), several times.

**Hold-arrow method** Point at the Programs menu’s down-arrow (▼) or up-arrow (▲). Then hold down the mouse’s left button awhile.

**Wheel method** If your mouse has a wheel, point in the Programs menu’s middle (without pressing the mouse’s buttons) then rotate the mouse’s wheel toward you (or away from you).

## Accessories menu

From the Programs menu, choose “Accessories”, by pointing at it. Then you see this **Accessories menu**:

Calculator  
 Command Prompt  
 Connect to a Projector  
 Getting Started  
 Notepad  
 Paint  
 Remote Desktop Connection  
 Run  
 Snipping Tool  
 Sticky Notes  
 Sync Center  
 Windows Explorer  
 Windows Mobility Center  
 WordPad  
 Ease of Access  
 System Tools  
 Windows PowerShell

# Calculator

The Accessories menu includes a “Calculator”. To use the calculator, get the accessories menu onto the screen (by clicking Start then “All Programs” then “Accessories”) and then click “Calculator”. You’ll see the **Calculator window**, containing a picture of a pocket calculator.

## How to calculate

To compute  $42+5$ , you can use 3 methods:

**Mouse method** On the screen, click the calculator’s 4 button (by using the mouse or touchpad or to point at the 4 button and then clicking), then click 2, then +, then 5, then =.

**Main-keyboard method** On the keyboard’s main section (the left section), press the 4 key (which is above the E and R keys), then the 2 key (which is above the Q and W keys), then (while holding down the Shift key) the + key, then 5. Then press the = key (or the Enter key).

**Numeric-keypad method** If your keyboard is big, it includes a **numeric keypad** (which is the keyboard’s far-right section and is full of numbers). Try pressing the numeric keypad’s 4 key, which is below the 7 key. (If that doesn’t make 4 appear on the screen, press the Num Lock key then try again to press the 4 key.) Then, still using the numeric keypad, press the 2 key, then the + key, then the 5 key, then the Enter key.

If you use any of those methods successfully, the calculator will show the answer, 47.

**Try all 3 methods**, and see which one you prefer. (You’ll prefer whichever method you’ve practiced the most.)

Try fancier calculations, by pressing these calculator buttons:

Button	Meaning
+	plus
-	minus
*	times
/	divided by
=	show the final answer, the “total”
.	decimal point
C	clear the total, so it becomes zero
CE	clear this entry, so you can retype it
←	erase the last digit you typed
±	create (or erase) the total’s minus sign

## Standard versus scientific

You can choose two popular kinds of calculators. A **standard calculator** is small and cute: it does just arithmetic. A **scientific calculator** is big and imposing: it includes extra buttons, so you can do advanced math.

The first time you (or your colleagues) ask for the calculator, the computer shows a standard calculator (small and cute). If you want the calculator to be scientific instead, choose **Scientific** from the **View menu**. (To do that, click the word “View”, then click the word “Scientific”.) Then you see extra buttons, such as these:

Button	Meaning
$x^2$	squared
$x^3$	cubed
n!	factorial
$\pi$	circle’s circumference divided by diameter

If you click the 7 button and then say “**squared**” (by pressing the  $x^2$  button), the computer will multiply 7 by itself and say 49 (which is called “7 squared”). If you click the 7 button and then say “**cubed**” (by pressing the  $x^3$  button), the computer will do “7 times 7 times 7” and say 343 (which is called “7 cubed”). If you click the 7 button and then say “**factorial**” (by pressing the n! button), the computer will multiply together all the numbers up to 7 (1 times 2 times 3 times 4 times 5 times 6 times 7) and say 5040 (which is called “7 factorial”). If you click the  $\pi$  button, the computer will say 3.1415926535897932384626433832795.

After making the calculator scientific, you can make it standard again by choosing **Standard** from the View menu.

**Order of operations** The calculator’s answer to “ $2+3*4=$ ” depends on whether you chose standard or scientific:

If you said you wanted the calculator to be standard, the computer does  $2+3$  (which totals 5), then multiplies by 4, giving a final total of 20.

If you said you wanted the calculator to be scientific instead, the computer does “ $2+3*4=$ ” by doing the multiplication first, like scientists do:  $3*4$  is 12, and  $2+12$  gives a final total of 14 (not 20).

## Tricky buttons

On the standard calculator, these 3 buttons are tricky:

Button & meaning	
$\sqrt{\quad}$	square root of the previous number example: “ $49 \sqrt{\quad}$ ” is 7 (because 49 is $7*7$ )
$1/x$	divide 1 by the previous number example: “ $4 1/x$ ” is .25 (because $1/4$ is .25)
%	multiply the 2 previous numbers, then divide by 100 example: “ $2 * 3 \%$ ” is .06 (because it’s $2*3/100$ ) afterwards, click the C button (to clear the total)

## Memory buttons

When a number (such as a total) appears on your screen, you can copy that number from your screen to the computer’s memory. The calculator includes **memory buttons** to help remember the number:

Button & meaning	
MS	memory store (copy from screen to memory)
MR	memory retrieve (copy from memory to screen)
M+	memory add (put memory+screen into memory)
M-	memory subtract (put memory minus screen into memory)
MC	memory clear (erase what’s in memory)

## Close

In the Calculator window’s top-right corner, you see a red button with a white X on it. That button is called the **X button** (or the **close button**).

When you finish using the Calculator window, click that button. It **closes** the Calculator window, so the Calculator window disappears.

# WordPad

When you buy Windows 7, you get a word-processing program free! That word-processing program is called **WordPad**. It's one of the Windows accessories.

To use WordPad, get the Accessories menu onto the screen (by clicking Start then "All Programs" then "Accessories") and then click "WordPad." You'll see the **WordPad window**.

In the window's top right corner, you see the X button. Next to the X button is the **resize button** (which is also called the **maximize/restore button**) Clicking the resize button changes the window's size.

Try clicking the resize button: see the window's size change! Try clicking the resize button *again*: see the window's size change *again*!

If the window is small, clicking the resize button makes the window become huge so it consumes the whole screen. If the window is huge and consumes the whole screen, clicking the resize button makes the window become small.

If the window consumes the whole screen, the window is said to be **maximized**. If the window is smaller, the window is said to be **restored** to a small size.

**Click the resize button if necessary, so the WordPad window consumes the whole screen** (and is maximized).

Now that the WordPad window consumes the whole screen, you can easily do word processing: you can easily type words and sentences. Try it! Type whatever sentences you wish to make up. For example, try typing a memo to your friends, or a story, or a poem. Be creative! Whatever you type is called a **document**.

## Use the keyboard

Resembles Windows 10, so read "**Use the keyboard**" on pages 77-78. Your computer has a physical keyboard, not an on-screen keyboard, so skip any comments about an on-screen keyboard.

Exception:

**Enter key** Windows 7 automatically leaves a slight gap between the paragraphs, to separate them. If you want Windows 7 to leave a bigger gap between the paragraphs, press the Enter key *twice* instead of once.

## Scroll arrows

If your document contains too many lines to fit on the screen, the screen will show just *part* of the document, accompanied by two arrows at the screen's right edge: a **scroll-up arrow** (which is ▲) and a **scroll-down arrow** (which is ▼).

To see a higher part of your document, click the scroll-up arrow.  
To see a lower part of your document, click the scroll-down arrow.

## Insert characters

To insert extra characters anywhere in your document, click where you want the extra characters to appear (by moving the mouse's pointer there and then pressing the mouse's button). Then type the extra characters.

For example, suppose you typed the word "fat" and want to change it to "fault". Click between the "a" and the "t", then type "ul".

As you type the extra characters, the screen's other characters move out of the way to make room for the extra characters.

**2 ways to move the cursor** While you're inserting the extra characters, you see a blinking vertical line there, called the **cursor** (or **caret** or **insertion point**). To move the cursor to a different place in your document (so you can insert characters there instead), you can use 2 methods.

click the mouse's button there or **press these movement keys**:

### Key you press

right-arrow  
left-arrow  
down-arrow  
up-arrow  
End  
Home  
Page Down  
Page Up

### Where the pointer will move

right to the next character  
left to the previous character  
down to the line below  
up to the line above  
right to the end of the line  
left to beginning of the line  
down to the next screenful  
up to the previous screenful

On laptop computers (which have narrow keys), the Page Down key is labeled "Pg Dn" and the Page Up key is labeled "Pg Up".

Here's what happens if you press those movement keys while holding down the Ctrl key:

### Keys you press

Ctrl with right-arrow  
Ctrl with left-arrow  
Ctrl with down-arrow  
Ctrl with up-arrow  
Ctrl with Page Down  
Ctrl with Page Up  
Ctrl with End  
Ctrl with Home

### Where the pointer will move

right (to the next word or punctuation symbol)  
left (to the beginning of a word or punctuation)  
down to the next paragraph  
up to the beginning of a paragraph  
down to the end of the screen's last word  
up to the beginning of the screen's first word  
down to the end of the document  
up to the beginning of the document

**2 ways to erase** You can erase nearby mistakes by pressing the Backspace key or Delete key.

The Backspace key erases the character that's *before* the cursor.  
The Delete key erases the character that's *after* the cursor.

## Reparagraphing

Same as Windows 10, so read these topics on page 79:

"Split a paragraph"  
"Combine paragraphs"

## Zoom slider

At the screen's bottom-right corner, you see a plus sign (+). Left of it, you see a minus sign (-). Between those signs, you see the **zoom slider**, which is a pentagon.

Try this experiment: **drag the zoom slider toward the right**. Here's how:

Put the mouse pointer on the zoom slider. Then while pressing the mouse's main button (the left button), move the mouse toward the right.

If you drag the zoom slider toward the right, the screen's characters enlarge, so you can read them even if you're sitting far from the screen or have poor vision. It's like looking at the document through a magnifying glass: the document looks enlarged, so you can see the details of each word and character more clearly; but not as many words and characters fit on the screen. Use the arrow keys to see different parts of the page.

If you drag that slider toward the left, the screen's characters shrink, so they're harder to read but you can fit more characters and pages onto the screen.

When you finish playing with the zoom slider, put it back to its normal position (the middle), so the number left of the minus sign is "100%" (or a number close to 100%, such "98%"), by dragging the slider (or pressing the keyboard's arrow keys, which give you more accurate control).

## All delete

Same as Windows 10, so read "**All delete**" on page 79.

## Quick Access Toolbar

At the screen's top-left corner, you see a gray bar (called the **Quick Access Toolbar**), which includes these **icons** (little pictures) called **buttons**:

The **Save button** is a purple-and-white square that's supposed to look like a floppy disk (though it also looks like a TV set).

The **Undo button** is an arrow curving toward the left. The arrow is blue (unless you haven't typed anything yet).

If you **hover** over a button (by moving your mouse's arrow there, without clicking), the computer will tell you the button's name.

Here's how to use those buttons....

**Save button** To save the document you've been typing (copy it onto the disk), click the **Save button**.

If you haven't saved the document before, the computer will say "File name", which means you should do this:

Invent a name for your document. Type the name. Your typing will appear in the "File name" box. At the end of your typing, press the Enter key. That tells the computer to copy the document onto the hard disk. For example, if you named the document "mary", the computer puts a document called mary.rtf into the Documents library.

Afterwards, if you change your mind and want to do more editing, go ahead! When you finish that extra editing, save it by clicking the Save button again.

Save often! If you're typing a long document, **click the Save button about every 10 minutes**. Click it whenever you get to a good stopping place and think, "What I've typed so far looks good!" Then if an accident happens, you'll lose at most 10 minutes of work, and you can return to the last version you felt good about.

Instead of clicking the Save button, you can use this shortcut: while holding down the Ctrl key, tap the S key (which stands for "Save").

**Undo button** Same as Windows 10, so **read "Undo button" on page 80**.

## Use the File menu

Resembles Windows 10, so **read these topics on pages 80-81**:

"File menu"  
"How to finish"  
"Print"

Exceptions:

Instead of clicking "File", click the **WordPad button** (which is near the screen's top-left corner, just below the Save button). The File menu is also called the **WordPad menu**.

In the "How to finish" topic, ignore the "Exit" section's last two sentences (about the Desktop screen and Start screen).

## Font group

Resembles Windows 10, so **read "Font group" on pages 81-83**. Exception: **activating a button makes the button turn orange** (not medium-blue).

## Advanced features

Same as Windows 10, so **read these topics on pages 83-85**:

"Select"  
"Clipboard group"  
"Paragraph group"  
"Editing group"  
"Insert group"

## Paint

When you buy Windows 7, you get a graphics program free! That graphics program is called **Paint**. It's one of the Windows accessories.

To use Paint, get the Accessories menu onto the screen (by clicking Start then "All Programs" then "Accessories") and then click "Paint." You'll see the **Paint window**.

**Make sure the Paint window consumes the whole screen.** (If it doesn't consume the whole screen yet, maximize the window by clicking the resize button, which is next to the X button.)

Move the mouse pointer to the screen's middle. Then **drag** (move the mouse while holding down the mouse's left button). As you drag, you'll be drawing a squiggle.

For example, try drawing a smile:

To do that, put the mouse pointer where you want the smile to begin (at the smile's top left corner), then depress the mouse's left button while you draw the smile. When you finish drawing the smile, lift the mouse's button. Then draw the rest of the face!

## Main features

Same as Windows 10, so **read these topics on pages 86-87**:

"Colors"  
"Eraser"  
"Undo"  
"All delete"  
"Change the brush"  
"Shapes"  
"Color picker"

## Save

To save the picture you've been creating, (copy it onto the disk), click the **Save button**. (It's at the screen's top, near the left edge. It's a purple-and-white square that's supposed to look like a floppy disk, though it also looks like a TV set.)

If you haven't saved the picture before, the computer will say "File name". Invent a name for your picture. Type the name and press Enter.

That makes the computer copy the picture onto the hard disk. For example, if you named the picture "mary", the computer puts a picture called mary.png into the Pictures folder. If you wish, you can prove it by doing this:

Click Start then "Pictures". If you called the picture "mary", you'll see mary is one of the files in the Pictures folder. If you right-click mary's icon then click "Properties", you'll see the type of file is ".png", which is pronounced "ping" and means "Portable Network Graphics". Finally, clear that proof off your screen (by clicking "OK" then the red X button).

Afterwards, if you change your mind and want to do more editing, go ahead! When you finish that extra editing, save it by clicking the Save button again.

Save often! **Click the Save button about every 10 minutes**. Click it whenever you get to a good stopping place and think, "What I've drawn so far looks good!" Then if an accident happens, you'll lose at most 10 minutes of work, and you can return to the last version you felt good about.

## Use the File menu

Resembles Windows 10, so **read these topics on page 88**:

"File menu"  
"How to finish"  
"Print"

Exceptions:

Instead of clicking “File”, click the **Paint button** (which is near the screen’s top-left corner, just below the Save button). The File menu is also called the **Paint menu**.

In the “How to finish” topic, ignore the “Exit” section’s last two sentences (about the Desktop screen and Start screen).

## Advanced features

Same as Windows 10, so **read these topics on pages 88-89**:

“Text”  
“Select”  
“Color 2”  
“Zoom slider”

## Nifty features

Windows 7 has nifty features.

### Time & date

The screen’s bottom-right corner shows the time & date, like this:

8:45 PM  
4/27/2011

**Date in English** If you move the mouse’s arrow to the time, the date in English will flash on the screen briefly, like this:

Wednesday, April 27, 2011

**Calendar** To see a calendar, click the time. Then you see a calendar for this month, with today’s date highlighted in blue.

The calendar also shows the end of last month and the beginning of next month. (If you want to see a calendar for *all* of next month, click the right-arrow.)

You also see the face of a traditional clock, with an hour hand, minute hand, and second hand that all move.

While viewing the calendar, you can click “Change date and time settings”. Then you see a bigger window, called the **“Date and Time” window**. It shows the traditional clock, the time zone (such as “Eastern Time”), and when Daylight Savings Time will begin or end. If you want to change the time zone (because your computer traveled to a different time zone), do this:

Click “Change time zone”. Press the keyboard’s right-arrow key (or left-arrow key) several times, until your time zone is chosen. Press Enter.

Once you’ve chosen the correct time zone, the computer will automatically show the correct time, usually. (That’s because, once a week, the computer synchronizes its internal clock with the Internet’s clock.) When you finish using the “Date and Time” window, click “OK”.

### Taskbar

At the screen’s bottom left corner, you see the Start button. At the screen’s bottom right corner, you see the time. Across the screen’s bottom, running from the Start button to the time, you see a bluish gray box that’s very wide (as wide as the screen) and about half an inch tall. That box is called the **taskbar**. It includes the Start button (at the screen’s bottom-left corner), the time (at the screen’s bottom-right corner), and everything between them.

When you’re running a task (program), the taskbar usually shows a button for that task. For example, while you’re running WordPad, you see a WordPad button on the taskbar. While you’re running Paint, you see a Paint button on the taskbar.

**Experiment** Try this experiment!

Start running WordPad (by clicking Start then Programs then Accessories then WordPad). Now the taskbar includes a WordPad button. Since WordPad is a word-processing program, type a few words, so you’ve created a short document on your screen.

While WordPad is still on your screen, start running Paint (by clicking Start then Programs then Accessories then Paint). Now the taskbar includes a WordPad button and a Paint button, because WordPad and Paint are both running simultaneously: they’re both in the computer’s RAM memory chips. Paint is blocking your view of WordPad, but WordPad is still running also.

To see WordPad better, click WordPad’s button on the toolbar. Then you’ll see WordPad clearly, and WordPad will block your view of Paint.

Here’s the rule: clicking WordPad’s button lets you see WordPad better; clicking Paint’s button lets you see Paint better. Both programs are in RAM simultaneously, until you close them (by clicking their X buttons).

**Many tasks** You can run *several* programs simultaneously. For example, you can run WordPad, Paint, and Calculator all simultaneously, so you see all their buttons on the taskbar simultaneously. But if you try to run many programs simultaneously, the computer will tend to get confused and fail (especially if you bought too little RAM or your computer’s been on for many hours in a row). To avoid headaches, run no more than two major programs at a time.

### Clipboard

To copy data, you can use this 2-step process: first **copy** the data to the computer’s invisible **Clipboard**, then stick the clipboard’s data wherever you want it by using **Velcro**. Here are the details....

**Ctrl with C** You can copy data from one document to another, even if the documents were created by different programs, and even if one “document” is a drawing and the other “document” contains mostly words. (For example, you can copy data that’s a drawing, from Paint to WordPad.) Here’s how:

Get onto the screen the data you want to copy. Select that data, by dragging across it. (If that data’s in Paint, click Paint’s Select button before dragging.)

Say **“copy”** by pressing **Ctrl with C**. That secretly copies the data to the **Clipboard** (a file you can’t see).

Get onto the screen the document you want to copy the data to. In that document, click where you want the data to be inserted.

Say **“Velcro”** by pressing **Ctrl with V**. That sticks the Clipboard’s data into the document.

If you’re sticking the data into a WordPad document, the computer sticks it where you requested. If you’re sticking the data into a Paint document, the computer insists on sticking it at the painting’s top-left corner; afterwards, drag the data where you want it.

If you want to stick the Clipboard’s data somewhere else also, click there and press Ctrl with V again.

**Print Screen Key** Try this experiment: say **Print Screen** (by pressing a key labeled PrintScreen or PrtScr or PrtScn or PrtSc, or by pressing a key labeled **fn** then a key labeled **prt sc**). That makes the computer secretly take a snapshot of *your whole screen* and put that photo onto the clipboard.

If you want the computer to take a snapshot of *just one window*, do this:

Click in that window. Then *while holding down the Alt key*, say Print Screen (by using the method above). The computer will put a snapshot of just that window onto the Clipboard.

After something’s on the clipboard, stick it into a WordPad document or Paint document or some other document (by clicking there and then pressing Ctrl with V). Then, if you wish, edit the snapshot and print it on paper.

**Snipping tool** If you want to copy *part* of the screen to the clipboard, do this:

Click Start then “All Programs” then “Accessories” then “Snipping Tool”.  
Make sure the mouse pointer is a white cross. (If it’s a different shape, make it a white cross by clicking the down-arrow next to “New” then “Rectangular Snip”.)  
Draw a red box around the part of the screen you want to copy. To do that, put the mouse pointer where you want the box’s top-left corner to be, and drag to where you want the box’s opposite corner. If you drew the box wrong, click “New” then try again to draw the box.  
Click the Copy button (which looks like 2 sheets of paper with bent corners). Close the Snipping Tool window (by clicking its X button then clicking “No”).

After you’ve done that, stick your clip into a WordPad document or Paint document or some other document (by clicking there and then pressing Ctrl with V).

## **Play a music CD**

Before 1980, music came on records or tapes. Nowadays, music comes on compact discs instead.

If you’ve bought a compact disc containing music, you can shove that disk into your computer’s **CD-ROM drive** (or **DVD-ROM drive**) while Windows is running. Here’s how....

**Find the drive** Find your computer’s **CD-ROM drive** (or **DVD-ROM drive**, which is a souped-up CD-ROM drive). It’s in a desktop computer’s front or a laptop computer’s side.

If you’re lucky, it’s a 5-inch horizontal **slit**. If you’re unlucky (which is more likely), it’s a 5-inch-wide **drawer** you must open by pressing an **eject button** (which is on the drawer, or under the drawer’s right-hand end).

**Insert the disk** Grab the CD. Hold that disk horizontally, so its label is on the *top* surface. Don’t touch its shiny underside.

Put that CD into the CD-ROM drive, as follows:

If the CD-ROM drive is a **slit**, put the CD into the slit.

If the CD-ROM drive is a **drawer**, open the drawer (by pressing the eject button) then drop the CD onto the drawer’s tray then close the drawer).

**Finish installing Media Player** If your computer’s never played any CDs, it might ask you questions. Here’s how to reply:

If your computer says “AutoPlay”, click “Play audio CD using Windows Media Player”.

If your computer says “Validate your copy of Windows”, click “Validate” then “I accept”.

If your computer says “Welcome to Windows Media Player 11”, click “Express Settings” then “Finish”.

If your computer says “Welcome to Windows Media Player” with no number, click “Recommended settings” then “Finish”.

If your computer asks you to agree to legal stuff, click “I Accept”.

**Enjoy the music** The computer will play the CD as background music, while you continue your work.

**Adjust the volume** On a desktop computer, do this:

To adjust the music’s overall volume, turn the **master volume knob**, which is typically on the front of the right speaker.

(Some old systems put the master volume knob on the computer’s back wall instead, below where the speaker’s cable enters the computer. Some cheap systems have no master volume knob at all!)

If you have a subwoofer (an extra speaker, to produce a booming bass), its front has a **bass knob**, which you can turn to boost the bass volume as much as you wish.

If you have a 5-speaker system (2 stereo speakers plus 1 subwoofer plus 2 surround-sound speakers), you can boost the surround-sound speaker volume by turning the **surround knob** (which is next to the master-volume knob on the front right stereo speaker).

On most systems, the screen’s bottom right corner shows a **Volume icon** (which looks like a blaring loudspeaker and is next to the time).

If you click the Volume icon, you’ll see a slider. Using the mouse, drag the slider up (to raise the master volume) or down (to lower it).

You can adjust the volume further by doing this:

Click “Mixer” (which is at the slider’s bottom). You’ll see more sliders. To make sure you can get maximum volume, drag all those sliders up.

When you finish adjusting the slider window, close it by clicking its X.

**Control what you hear & see** Here’s how to control what you hear & see.

While the music plays, you see the **Windows Media Player window**. Maximize that window by clicking its maximize button (which is next to the X button).

At the window’s bottom, you should see several buttons. (If you don’t see them yet, make them appear by moving the mouse.)

Click the || button to pause in the middle of a song. To resume, click that button again (which has changed to a big ▶).

Click ■ to stop back at the beginning of the current track (song). To begin playing there, click the big ▶.

Click ▶ or ▶▶ to skip ahead to the next track (song), ◀ or ◀◀ to hop back to the beginning of the previous track. (If you don’t hear any music, click the big ▶ to remind the computer to play.) To skip to a far-away track, click those buttons repeatedly or double-click the track’s number (or name) at the screen’s right edge. (If the screen’s right edge doesn’t show the list of tracks yet, right-click the screen’s middle then click “Show list”. You’ll see track names instead of numbers just if the CD is in the recording industry’s database and you’re connected to the Internet.)

As a song plays, you see a tiny blue bubble (with a long blue tail) slide from left to right. To fast-forward, use your mouse to drag that bubble farther to the right immediately. To reverse, drag that bubble back to the left.

As the music plays, you see the music’s **visualization** (an animated abstract cartoon that thumps to the music’s beat).

The most amazing visualization is called **Alchemy**: to choose it, right-click the screen’s middle then click Visualizations then Alchemy then Random. Another amazing choice is Battery Randomization: to choose it, right-click the screen’s middle then click Visualizations then Battery then Randomization.

When you tire of listening to that CD, click the eject button (which is the rightmost button on your CD-ROM drive), then remove the CD. If you wish, insert a different CD instead. If you don’t want to listen to any CD now, close the Windows Media Player window (by clicking its X button).

## Play a movie DVD

Videos used to come on videotape. Nowadays, a video come on **Digital Versatile Disk (DVD)** instead.

If you've bought a DVD containing a movie, you can shove that disk into your computer's **DVD-ROM drive** while Windows is running. Playing a movie DVD is similar to playing an audio CD. Here's how to do it.

**Find the drive** Find your computer's **DVD-ROM drive**. It's in a desktop computer's front or a laptop computer's side.

If you're lucky, it's a 5-inch horizontal **slit**. If you're unlucky (which is more likely), it's a 5-inch-wide **drawer** you must open by pressing an **eject button** (which is on the drawer, or under the drawer's right-hand end).

**Insert the disk** Grab the DVD. Hold that disk horizontally, so its label is on the *top* surface. Don't touch its shiny underside.

Put that DVD into the DVD drive, as follows:

If the DVD drive is a **slit**, put the DVD into the slit.

If the DVD drive is a **drawer**, open the drawer (by pressing the eject button) then drop the DVD onto the drawer's tray then close the drawer (by pressing the eject button again).

**Finish installing Media Player** If your computer has never played any movie DVDs, it might ask you questions. Here's how to reply:

If your computer says "AutoPlay", click "Play DVD movie using Windows Media Player".

If your computer says "Welcome to Windows Media Player 11", click "Express Settings" then "Finish".

If your computer asks you to agree to legal stuff, click "I Accept".

**Enjoy the movie** The computer will start playing the movie. (If the movie begins with a menu giving you a choice such as "play movie", click "play movie" with your mouse.)

**Adjust the volume** To adjust the movie's overall volume on a desktop computer, turn the **master volume knob**, which is typically on the front of the right speaker.

**Control what you see** If you move the mouse, the screen's bottom will show several buttons temporarily.

Move the mouse's pointer to the screen's bottom. That makes the buttons stay on the screen until you move the mouse's pointer back up.

While the buttons are on the screen, here's what you can do....

Click the || button to pause the movie. To resume, click that button again (which has changed to a big ►).

Click ■ to stop back at the movie's beginning. To begin playing there, click the big ►.

While the movie plays, click ►► to skip ahead to the next scene, ◀◀ to hop back to the previous scene.

As the movie plays, you see tiny blue bubble (with a long blue tail) slide from left to right. To fast-forward, use your mouse to drag that object farther to the right immediately. To reverse, drag that object back to the left.

**Ending** When you tire of watching that movie, click the eject button (which is the rightmost button on your DVD drive). Then remove the DVD.

If you wish, insert a different DVD instead.

If you don't want to watch any more DVDs now, press the **Escape key** (which is at your keyboard's top left corner and says "Esc" on it). Then close the Windows Media Player window (by clicking its X button).

## Explore your computer

What's in your computer? How much hardware and software do you have, and what type? Let's find out!

### System properties

To find out what kind of computer system you have, click Start then "Computer" then "System properties".

You'll see a message about your computer's properties.

When I bought a computer using Windows 7, its message said —

Windows edition	
Windows 7 Home Premium	
Copyright © 2009 Microsoft Corporation. All rights reserved.	
System	
Manufacturer:	Hewlett-Packard
Model:	HP G71 Notebook PC
Rating:	3.4 Windows Experience Index
Processor:	Intel Core2 Duo CPU T6600 @ 2.20GHz
Installed memory (RAM):	4.00 GB
System type:	64-bit Operating System
Computer name, domain, and workgroup settings	
Computer name: HP-G71-Notebook	
Windows activation	
Windows is activated	
Product ID: 00359-OEM-8992687-00010	

That means:

The computer is using Windows 7 Home Premium, invented in 2009 by Microsoft.

The computer is built by Hewlett-Packard and called an HP G71 Notebook PC. Its speed is rated 3.4. (You need a rating of at least 1 to run Windows 7 Starter, at least 3 is needed to run the most popular parts of Windows 7 Home Premium, at least 4 to run Windows 7's most luxurious features (such as handling 2 monitors simultaneously or handling HDTV). The computer's CPU chip is an Intel Core2 Duo T6600, whose speed is 2.2 gigahertz. The computer contains 4 gigabytes of RAM chips. The version of Windows 7 Home Premium is advanced (64-bit).

I named the computer "HP-G71-Notebook".

The copy of Windows 7 Home Premium on this computer has been **activated** (declared legitimate by Microsoft) and has serial number 00359-OEM-8992687-00010.

What message does *your* computer show?

When you finish admiring your computer's message, close the window (by clicking its X button).

## Disk drives

Each disk drive has a letter.

**Drive A** is the main floppy-disk drive (if you have one).  
**Drive B** is the auxiliary floppy-disk drive (if you have one).  
**Drive C** is the main part of the main hard drive.  
**Drives D, E, F, etc.** are any extra disk drives (or parts of disk drives).

A typical computer has these drive details:

Drive A is the 1.44M 3½-inch floppy drive (if any).  
Drive B is the 1.2M 5¼-inch floppy drive (if any).  
Drive C is the hard drive's main part.  
Drive D is the hard drive's recovery part (a copy of drive C's essentials).  
Drive E is the main DVD drive (or DVD RW drive or CD-ROM drive).  
Drive F is an extra DVD drive (or CD-RW drive).

Drive C is the most important: it's the main part of the main hard drive. Drive C holds Windows itself and the most important programs & documents.

Here's how the drives are named:

**Drive A** is called "**A**:" (which is pronounced "A colon").  
**Drive B** is called "**B**:" (which is pronounced "B colon").  
**Drive C** is called "**C**:" (which is pronounced "C colon").  
**Drive D** is called "**D**:" (which is pronounced "D colon").

**To find out what drives are in your computer and how they're lettered, click Start then "Computer".**

You'll see the My Computer window. Make sure it consumes the whole screen. (If it doesn't consume the whole screen yet, maximize the My Computer window by clicking the maximize button, which is next to the X button.)

You'll see an **icon** (little picture) labeled "C:" (for the main part of your main hard drive) and icons for your other disk drives also.

The icons are labeled like this:

Hard Disk Drives  
Local Disk (C:) RECOVERY (D:)

Devices with Removable Storage  
DVD RW Drive (E:)

## Drive C's files

To find out about drive C, do this:

Look at the screen. Below the "C:", you see a message about disk C, such as "255 GB free of 285 GB" (which means 255 GB are still unused & available, out of disk C's 285 GB total size). You also see a wide box, which represents the entire disk C: the blue part is what's used; the white part is what's unused (free). If you click the "C:" then "Properties" (which is near the screen's top), you'll see a pie chart with more details. When you finish admiring the pie chart, click "OK".

To find out *even more* about your hard disk, **double-click the "C:" icon**. You'll see the **C window**, which lists files that are on disk C.

Make sure the C window consumes the whole screen. (If it doesn't consume the whole screen yet, maximize the C window by clicking the maximize button, which is next to the X button.)

If disk C contains more files than can fit on the screen, view the remaining files by pressing the ▼ and ▲ buttons, which are at the screen's right edge.

For each file, you see the file's name and a tiny picture (**icon**) representing the file.

Your computer can handle 3 kinds of files:

If the file's a **document**, its icon typically looks like a notepad (or else a page whose top right corner is bent).  
If the file's an **application program**, its icon typically looks like a window.  
If the file's a **folder** containing other files, its icon looks like a yellow manila folder.

In the C window, you see a folder called "Program Files", a folder called "Windows", and a folder called "Users". Those folders are extremely important. You might also see some extra folders, documents, and application programs.

If you double-click a folder, a new window shows you what files are in the folder. When you finish examining the new window, either close it (by clicking its X button) or go back to the previous window (by clicking the **Back button**, which is near the screen's top-left corner).

If you click a file's icon, the screen's bottom-left corner shows the file's name, the file's type (such as "Document", "Application", or "File Folder"), the date & time when the file was last modified, and (if the file's a document or application) the file's size & the date it was originally created.

**Here's what happens if you double-click a file's icon:**

If the file's a **folder**, you see what's in the folder.

If the file's an **application program**, the computer will try to run the program. Don't do that unless you've read instructions about how to run the program successfully!

If the file's a **document**, the computer will try to use that document: the computer will try to run the program that created the document, but sometimes the computer can't correctly deduce which program created the document.

Here's how to find the documents you wrote using WordPad:

The Users folder contains a personal folder (having your name on it), which in turn contains the My Documents folder (containing the documents you wrote).

**Views** While you're viewing icons, here's how to change their appearance.

Click the down-arrow near the screen's right edge, left of the question mark, then choose one of these 5 views:

For most situations, click **Details** (or drag the slider there). That view is what the computer assumes you want anyway (unless you've said otherwise or the computer thinks you're in a picture-oriented folder). For each file, besides the filename you see a small icon and many details about the file.

If you click **Tiles** instead of Details (or drag the slider there), the computer makes the icons easier to see (medium-size instead of small) but includes fewer details about the files.

If you click **Content** (or drag the slider there), you see a compromise between "Details" and "Tiles".

If you click **Large Icons** (or drag the slider there), the computer makes the icons large but omits any details about the files. If you drag the slider to Large Icons then drag further up (toward **Extra Large Icons**), the icons gradually grow even larger; if you drag the slider a bit down (toward **Medium** or **Small**), the icons gradually shrink.

If you click **List** (or drag the slider there), the computer makes the icons small and puts them very close together, so many files can fit on the screen.

Here's a different way to express your desires: if you click the **Views icon** (which is left of the down-arrow) repeatedly, the computer will cycle among those 5 popular choices (from **Details** to **Tiles** to **Content** to **Large Icons** to **List** then back to **Details**).

**New folder** To create a new folder, click "New folder" (which is near the screen's top). A new folder will appear. Type a name for it (and press Enter).

**Close the C window** When you finish examining the files that are on hard disk C, close the C window by clicking its X button.

## CD-ROM files

The CD-ROM drive resembles drive C. (If your computer is modern, that drive can also create CD-R and CD-RW disks and handle DVD disks.)

Grab a CD-ROM disk that contains computer info, and put it in the CD-ROM drive. (To find out how, read “Find the drive” and “Insert the disk” on page 127.)

The computer will analyze that disk.

**If it's a CD that contains music**, the computer will automatically start playing the music (as I explained on page 127).

**If it's a CD-ROM disk containing a program called autorun.inf**, the computer will automatically start running that program, which typically makes the computer run another program, called setup.exe. If you don't want to continue running such programs, exit from them by clicking their X buttons or by clicking whatever “Exit” choices they offer you. Then if you want to find out what's on the disk, right-click the CD-ROM disk's icon (which is in the My Computer window) and click “Open”.

**If it's a CD-ROM disk that lacks an autorun.inf program**, the computer will typically show you a list of files that are on the disk, with their icons. (If the computer doesn't show you that list yet, press Enter.)

When you finish examining any files that are on the CD-ROM disk, close the CD-ROM disk's window by clicking its X button.

## Close

When you finish using the My Computer window, close it by clicking its X button.

## Find a file's icon

To manipulate a file, the first step is to get the file's icon onto the screen.

If the file's a document you created using WordPad, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run WordPad. Then click the WordPad button then “Open”. You see a list of WordPad documents and their icons.

If the file's a painting you created using Paint, here's the easiest way to get the file's icon onto the screen:

Make sure you saved the file and you're not in the middle of using it. Run Paint. Then click the Paint button then “Open”. You see a list of Paint's paintings and their icons.

If the file's on disk C, here's another way to get the file's icon onto the screen:

Click Start.

Begin typing the file's name — or whatever part of the name you remember. (You don't have to capitalize.) For example, if you want to search for WordPad, start typing “wordpad”. If you want search for a file that might be called “Lovers” or “My love” or “To my lovely”, you can start typing just “love”. As you type, you see a list of files (and programs) that match what you've typed so far. The more of the file's name that you type, the more accurate the list will be. The list has an icon for each file.

Another way to get a file's icon onto the screen is to go to the My Computer window and click icons for drives & files until you find the file you want.

Many programs put documents into a folder called Documents. To see what documents are in that folder, click Start then “Documents”.

The Paint program puts paintings into a folder called Pictures. To see what's in that folder, click Start then “Pictures”.

Some programs put music into a folder called Music. To see what's in that folder, click Start then “Music”.

## Manipulate a file

Now I'll explain how to manipulate a file.

If you want to practice this stuff, use a file you don't mind wrecking. For example, create a WordPad document containing just once sentence (such as “I love you”) and save it as a file called “Love”.

To manipulate a file, find its icon (by using the tricks in the previous section) then do one of these activities....

## Send to USB flash drive

Here's how to copy the file to a USB flash drive.

Close all windows (by clicking their X).

Plug the USB flash drive into one of the computer's USB ports. (To do that, you must first uncover the flash drive, if the flash drive had a protective cover.)

If the flash drive has a light, that light will flash awhile.

When any light stops flashing, you might see the AutoPlay window:

That window tells you the flash drive's letter (such as “E:” or “F:” or “J:”), which you should memorize. That window also asks whether you want to open a folder, but don't bother answering the question: just close that window (by clicking its X).

Which file to you want to copy to the flash drive? Right-click that file's icon, then click “Send to” then the flash drive's letter.

If the flash drive has a light, that light will flash. When the light stops flashing, the file's been copied.

## Send to CD

Here's how to copy the file to a CD (or DVD) disk.

What CD do you want to copy the file to? Put that CD (which is blank or partially blank) into the drive.

If the CD has never been used before (or was totally reformatted), do this:

Click “Burn files to disk”. Invent a name for the disk. The name must be short (no more than 16 characters). Type the name (and press Enter).

If the CD is rewritable (CD-RW), the computer will say, “The format might take a long time”; to reply, press Enter then wait about 25 minutes.

The computer will say “Open folder to view files”. Press Enter. You'll see the CD's folder.

Which file do you want to copy to the CD? Use any of these methods:

**Burn method** Click the file's icon then “Burn”. (This method works just if you see “Burn”.)

**Drag method** Drag the file's icon to the CD's folder. (This method works just if you see the file's icon and the CD's folder simultaneously.)

**Send method** Right-click the file's icon, then click “Send to” then “DVD RW Drive”.

Copy more files that way, if you like.

When you finish copying files, click “Eject” (which is at the top of the CD's window). The computer writes final notes onto the disk then opens the drive's tray.

Remove the CD. Push the tray back in.

## Send to My Documents folder

Here's how to copy the file to your hard disk's My Documents folder (if the file isn't there already):

Right-click the file's icon. Click “Send To” then “Documents”. Then the computer copies the file to the My Documents folder.

## Send to Desktop

To copy the file to your Desktop (which is the main screen), do this:

Right-click the file's icon. Click "Send To" then "Desktop".

To save disk space, that technique copies just the file's icon to the Desktop. The file itself stays just in its original location.

On the Desktop, the file's icon's bottom left corner has a bent arrow, which means the icon is just a **shortcut** (which points the computer to the original location).

That shortcut icon has the file's original name but with "- Shortcut" added afterwards. For example, if the file's original name was "Love", the shortcut icon's name is "Love - Shortcut".

If you double-click that shortcut icon, the computer will try to find the original file and run it. If the original file was on a floppy disk or CD, that works just if the file's floppy disk or CD is still in the drive.

## Send to a different location

To copy the file to a different location (such as a folder on your hard drive), do this:

Right-click the file's icon. Click "Copy". Right-click in any blank space (in any drive or any folder) where you want the copy to appear. Click "Paste".

## Rename

To change the file's name, do this:

Click the file's icon then the file's name. Type the new name (and press Enter).

## Delete

To delete the file, try this procedure:

Click the file's icon. Press the Delete key. Press Enter.

Does that procedure *really* delete the file? Here's the answer.

If the file's on a floppy disk, that procedure really deletes the file.

If the file's on a hard disk, that procedure just moves the file to the **Recycle Bin** (which holds hard-disk files you said to delete).

If the file's on a CD, the computer analyzes the CD: if the disk is **rewriteable** (CD-RW), the computer **deletes** the file; if the disk is just **CD-R** (which can't delete), the computer **hides** the file so it's inaccessible (though still taking up space on the disk); if the disk is a **plain CD** (which can't be altered at all), the computer **compleats**.

**Peek in the Recycle Bin** To discover what's in the hard disk's Recycle Bin (which holds hard-disk files you said to delete), double-click the **Recycle Bin icon** (which is typically at the screen's left edge but might have moved elsewhere, such as to the screen's bottom right corner). You'll see the **Recycle Bin window**, which shows a list of hard-disk files you said to delete. (If you don't see a file list, the Recycle Bin is empty.)

To see lots of info about the files in the Recycle Bin, make sure the Recycle Bin window is maximized (so it consumes the whole screen). Make sure you're seeing the Details view, by doing this: click the down-arrow that's near the screen's right edge, left of the question mark, then click "Details".

To see even more details about a certain file, right-click the file's icon and then click "Properties". When you finish admiring the details, click "OK".

If you change your mind and do *not* want to delete a certain file, click the file's icon then "Restore this item". That makes the computer pull the file out of the Recycle Bin and put the file back to its original location on the hard disk.

If, on the other hand, you really *do* want to delete a certain file, click the file's icon then press the Delete key then press Enter. The file will disappear.

To delete *all* files from the Recycle Bin, click "Empty the Recycle Bin" (which is at the screen's top) then press Enter.

When you finish admiring the Recycle Bin window, click its X button.

**Shift Delete** You've learned that to delete a file, the usual procedure is to click the file's icon, then tap the Delete key, then tap the Enter key. If the file was on the hard disk, that procedure moves the file into the Recycle Bin. Notice that the procedure involves tapping the Delete key. If instead you tap the Delete key *while holding down the Shift key*, the computer deletes the file immediately instead of moving it to the Recycle Bin.

## Multiple files

Same as Windows 10, so read "**Multiple files**" on page 95.

## Erase entire CD-RW

Here's how to erase an entire CD-RW disk.

Put the CD-RW disk into the drive. You see that disk's window. At the window's left edge, you see "DVD RW Drive"; right-click it. Click "Erase this disc". Press Enter.

The computer will spend about a minute erasing all files from the CD-RW disk. Then the computer will say "You have erased the files on this disc." Press Enter.

## Tricks

These tricks will make you a pro and amaze your friends.

## Sample music

Windows 7 comes with free samples of music. Here's how to hear them.

Click Start then "Music". Double-click "Sample Music".

You see the names of 3 musical samples:

"Kalimba" (funky electronic by Mr. Scruff)  
"Maid with the Flaxen Hair" (classical romantic orchestra by Debussy)  
"Sleep Away" (smooth jazz piano by Bob Acri)

Each name begins with an icon of a musical note.

Double-click whichever sample you want to hear. If the computer says "Welcome to Windows Media Player", click "Recommended settings" then "Finish".

## Sample video

Windows 7 comes with a free sample video. Here's how to see it:

Click Start then "Computer". Click "Videos" (which is on the left). Double-click "Sample Videos" then "Wildlife".

## Recently used

The computer keeps track of what you've recently used.

When you click Start, you see a list of the 10 programs you've used most often recently. That list appears at the screen's left edge, above "All Programs" but below the horizontal line under "E-mail".

## Sleep

When you try to shut down the computer, the computer might take several seconds — or even several *minutes* — to do so. When you try to turn the computer back on, the computer might take several seconds — or several *minutes* — to do so. You might get annoyed at waiting for the computer to shut down and turn back on — especially during your lunch break!

Instead of telling the computer to “shut down” and then “turn back on”, you can tell the computer to “**sleep**” and then “**wake** back up”. The computer can go to “sleep” almost instantly and “wake up” almost instantly, so you don’t have to wait.

While the computer sleeps, you can say it’s “**napping**” and “**in standby mode**”.

**How to make the computer sleep** To make the computer sleep, try one of these 4 methods:

**Close method** If your computer’s a laptop, close its lid (so you don’t see the screen).

**Keyboard method** If your keyboard has a Sleep key (which has a picture of a crescent moon or Z<sup>Z</sup> on it), press it. Exception: if the Sleep key also has an F on it (such as F5), press the Sleep key *while holding down the Fn key*.

**Menu method** Click Start then the Shut Down button’s right-arrow then “Sleep”.

**Wait method** Don’t touch the keyboard or mouse for 20 minutes.

Go ahead: try one of those sleep methods! It’s okay to give one of those “sleep” commands anytime — even while you’re running a program whose window is still open and whose work is still unsaved.

**What happens during sleep** When you give a sleep command, the computer makes a note in its RAM about what you’ve been doing.

Then the screen goes black and the computer takes a nap. While the computer is napping, it uses little electricity (about 5 watts) and its power light flashes.

**Waking** The best way to wake the computer from its nap is to tap the Shift key. Other ways, which usually work, are to tap any other key on the keyboard, or jiggle the mouse (or the table it’s on), or press the mouse’s button. If none of those techniques work, quickly tap the system unit’s power button (which wakes the system unit from sleep).

The computer will wake up and make its screen show exactly the same image as when you put the computer to sleep, so you can continue your work where you left off. (Exception: if your computer has a password or several different users, the computer might ask you to identify yourself first.)

**Is sleep good?** Sleep is fun, cute, consumes significantly less electricity than leaving the computer fully on, and happens fast enough to maximize your lunch break. But at night you should turn the computer off completely by giving the usual “Shut Down” command, which erases the computer’s RAM and lets the computer start fresh the next day.

## Run

Here’s a different way to tell the computer to run WordPad:

Click Start then “All Programs” then “Accessories” then “Run”. Type “wordpad” (and press Enter).

To run Paint instead of WordPad, type “mspaint” instead of “wordpad”. To run the Calculator, type “calc” instead.

When you buy a program, it typically comes on a disk (a floppy disk or a CD-ROM disk). The instructions for copying it onto your hard disk might say to run a program called “setup”. To obey such instructions, do this:

Put the floppy disk or CD-ROM disk into your disk drive. Click Start then “All Programs” then “Accessories” then “Run”.

If the program came on a floppy disk, type “a:setup”. If the program came on a CD-ROM disk and your CD-ROM drive is called “D:”, type “d:setup”. If the program came on a CD-ROM disk and your CD-ROM drive is called “E:”, type “e:setup”.

At the end of your typing, press Enter.

For some programs, the instructions say to type “install” instead of “setup”.

## Control Panel

To control your computer completely, go to the **Control Panel**. To do that, click “Start” then “Control Panel”. Maximize the window.

You can see 2 **views**.

The **category home view** shows you these categories:

System and Security  
Network and Internet  
Hardware and Sound  
Programs  
User Accounts and Family Safety  
Appearance and Personalization  
Clock, Language, and Region  
Ease of Access

You also see subcategories.

The **icon classic view** shows you these icons instead:

Action Center  
Administrative Tools  
AutoPlay  
Backup and Restore  
Color Management  
Credential Manager  
Date and Time  
Default Programs  
Desktop Gadgets  
Device Manager  
Devices and Printers  
Display  
Ease of Access Center  
Folder Options  
Fonts  
Getting Started  
HomeGroup  
Indexing Options  
Internet Options  
Keyboard  
Location and Other Sensors  
Mouse  
Network and Sharing Center  
Notification Area Icons  
Parental Controls  
Performance Information and Tools  
Personalization  
Phone and Modem  
Power Options  
Programs and Features  
Recovery  
Region and Language  
RemoteApp and Desktop Connections  
Sound  
Speech Recognition  
Sync Center  
System  
Taskbar and Start Menu  
Troubleshooting  
User Accounts  
Windows Anytime Upgrade  
Windows CardSpace  
Windows Defender  
Windows Firewall  
Windows Mobility Center  
Windows Update

To switch between those 2 views, do this:

In the screen’s top-right corner, click in the “View by” box. Then click “Category” or “Large icons”.

**Pointer trails** For your first experiment in Control Panel, play with pointer trails. Here's how.

Go to icon classic view. Click the Mouse icon. Click "Pointer Options".

Then if you put a  in the "Display pointer trails" box by clicking it, you'll see a trail of mouse pointers whenever you move the mouse.

To make the trail be long and obvious, make sure the slider is dragged toward the right, to the "Long" position. The long trail helps you notice the mouse pointer more easily. It's useful when you're giving a presentation to a group of people and want to make sure they always notice where the mouse is moving.

If you change your mind, stop the trails by clicking the "Display pointer trails" box again, so the check mark disappears.

When you finish experimenting with pointer trails, close the Mouse Properties window by clicking "OK".

**Experimenting** You can experiment by clicking (or double-clicking) any of the other icons in the Control Panel window, but be careful! If you tell the computer to use hardware you don't own, Windows 7 will stop working! Before changing a setting, make a note to yourself of what the setting was, so you can get back to it! Be especially cautious about playing with the Display icon, since if you make a wrong choice your screen will be unreadable!

When you finish playing with the Control Panel window, close it by clicking its X button.

## Notepad

**Notepad** is a stripped-down version of WordPad. Notepad is easier but does less.

Like WordPad, Notepad comes free as part of Windows 7.

Since WordPad does more than Notepad, most people prefer WordPad rather than Notepad. But sometimes WordPad is *too* fancy and *too* complex, and Notepad's primitive simplicity is appealing. Notepad is popular for writing "short notes", "computer programs", and "pages to put on the Internet". Notepad will confuse you less often than WordPad, since Notepad does less. It's retro; it's cool! Try it! Here's how...

To start using Notepad, click Start then "Programs" then "Accessories" then "Notepad". Make sure the Notepad window consumes the whole screen. (If it doesn't consume the whole screen yet, maximize the window by clicking the maximize button, which is next to the X button.)

Start typing whatever you wish, as if you were using WordPad. Here are the differences...

**No formatting saved** When you save the document (copy it to the hard disk), Notepad saves info about which characters you typed (which letters of the alphabet, digits, and symbols, and where you hit the Space bar, the Enter key, and Tab key); but it saves no info about the document's appearance. Notepad doesn't save any info about fonts, boldfacing, italics, underlining, font size, color, centering, justification, margins, or bullets; all those features are missing.

The document that's saved is called a **plain-text document**, since it contains just text, no formatting.

A stripped-down word-processing program (such as Notepad) that produces just pure text documents (and saves no formatting) is called a **plain-text editor**.

While you stare at your document (in the Notepad window), which font are you seeing? Here's the answer:

The font is 10-point Lucida Console, unless you switch to a different font (by clicking "Format" then "Font" then choosing a different font then clicking "OK"). The font you choose affects Notepad forever (it affects how Notepad displays *all* documents), unless you switch fonts again.

But when you save your document, no font info is saved as part of the document.

**Optional word wrap** If you type near the screen's right edge, and you type a word that's too long to fit on the screen, WordPad automatically moves the word to the line below. Notepad does so just if you request **word wrap**.

Here's how to request word wrap:

Click "Format". You see "Word Wrap". If there's no check mark before "Word Wrap", put a check mark there by clicking "Word Wrap".

**No buttons** Notepad has no buttons.

Instead of clicking a Save button,	click File then Save.
Instead of clicking a Print button,	click File then Print.
Instead of clicking an Open button,	click File then Open.
Instead of clicking a New button,	click File then New.
Instead of clicking an Undo button,	click Edit then Undo.

**No drag & drop** To move a phrase, WordPad lets you use drag & drop, but Notepad doesn't understand that; Notepad requires you to use cut & paste instead. So here's how to move a phrase in Notepad: select the phrase (by dragging across it), then say "cut" (by pressing Ctrl with X), then click where you want the phrase to be, then say "paste Velcro" (by pressing Ctrl with V).

## Keyboard

A traditional keyboard contains 101 keys. If your keyboard is designed especially for modern Windows, it contains 3 extra keys near the Space bar, so you get 104 keys altogether (or more).

Two of those extra keys are the **Windows keys**: each shows a flying window. **If you press either of the Windows keys, the Start menu appears.** So pressing either of those keys has the same effect as if your mouse clicked the Start button. You can press *either* of the Windows keys: those two keys serve the same purpose as each other, except that one is nearer your left hand, the other is nearer your right. Your keyboard has two Shift keys, two Ctrl keys, two Alt keys, and two Windows keys.

The other extra key, called the **Menu key**, shows an arrow pointing at a menu. **If you press the Menu key, a shortcut menu appears.** For example, if you click an icon and then press the menu key, that icon's shortcut menu appears.

**Advanced tricks** Same as Windows 8 & 8.1, so **read these topics on page 120:**

"Property window"  
"Alt F4"

## Help

To get more help about using Windows, you can click Start then "Help and Support". You see the Help and Support window. Maximize it (by clicking its maximize button).

What topic do you want help about? To express your desire, do this —

You see a list of the *major* topics. Click the topic you want. Then you see a list of subtopics; click the subtopic you want.

or do this:

Click in the **Search Help box**. (That box is at the screen's top. It says "Search Help" and has a magnifying glass at its right edge.) Type any topic you can imagine. Your typing will appear in that box. Then press Enter.

If you want to go back to seeing the previous screenful of help, click the **Back button** (the white left-arrow at the screen's top-left corner).

When you finish using help, close the Help and Support window by clicking its X button.

# Web

A **computer network** is a group of computers (or computer terminals) that communicate with each other (by **phone** or other **cables** or **wireless** transmissions).

The most popular computer network is the **Internet**. It connects computers all over the world, by phone lines and by other communication methods that are faster. You can connect *your* computer to the Internet, so you can access computers all over the world, peek at their hard disks, and transfer their info to *your* computer. The Internet transfers games, news, photos, love letters, chitchat, ads, and other info, public & private, to and from *billions* of workers, jokers, kids, and kooks across the country & around the world.

You can use the Internet to send & receive electronic mail and browse through announcements posted by folks worldwide.

The Internet gives you a huge sea of info. You stand on its shore, watch its waves coming at you, and get high by jumping into them. That's called **surfing the Net**, which means "browsing through the amazing info available on the Net".

You'll get addicted to surfing the Net and spend many hours each day doing it. As you explore the Net, your electronic requests & their responses travel at electronic speeds around the world, on what Vice President Al Gore dubbed the **Information Superhighway (I-way)**, propelling you through **cyberspace** (the vast, surreal world where all info and people are represented by bits, bytes, and electronic signals, as opposed to the "real world", called **meatspace**, where people are composed of meat).

The Internet lets your mind fly around the world faster than an astronaut's. Folks will call you an **infonaut** or **Internaut** or **Internut** or **Net-head**. You'll have fun, while learning more about the world than any pre-computer human could ever imagine.

The Internet lets you read facts & opinions contributed by many people. If you contribute *your* thoughts, so they can be read by other people on the Internet and you've improved our world, you're called a "good Internet citizen," a **netizen**.

The Internet's most popular feature is the **World Wide Web (WWW)**.

joined Arpanet, so Arpanet became international.

On October 27, 1980, the entire Arpanet got shut down by a **virus** that was spread accidentally. The virus accomplished what bombs could not! Fortunately, the virus got eradicated.

Many universities around the world joined Arpanet because it was nifty, funded, and could be used for non-military purposes also, such as personal email.

## Internet (1983)

Arpanet finally became too big to be managed simply, so in 1983 the military divided it into 2 networks:

One network, called **Milnet**, was strictly for use by military personnel (at military bases).

The other network, called "the new, smaller Arpanet", was for civilian use (at universities).

To let those 2 networks communicate with each other, an inter-network communication method was invented, called the **Internet Protocol (IP)**. That's how the Internet began! IP came in several versions, the most popular being the **Transmission Control Protocol for IP (TCP/IP)**.

At the end of 1983, the Internet included about 600 **hosts** (computers that had permanent Internet addresses and could supply data to other computers). The Internet grew fast:

## How the Internet arose

The Internet arose because of the Cold War. Here are the details.

### Cold War research

In 1957, while the US fought the Cold War against Russia, the Russians launched the first satellite, **Sputnik**. That made the US military realize it was dangerously behind Russia in scientific research, so in 1958 the US **Department of Defense (DoD)** created the **Advanced Research Projects Agency (Arpa)**, which paid universities to do scientific research to help win the Cold War against Russia.

### Arpanet (1969)

In 1969, Arpa created a computer network called **Arpanet**, which let university computers send data over phone lines using a sneaky method that would work even if Russians bombed the phone lines. The sneaky method was called **packet switching**.

It divided each computer message into many little **packets**. If a packet couldn't reach its destination directly (because a phone line got bombed), the computer would sneakily switch that packet through different phone lines to different computers that would reroute the packet to its ultimate destination. At the ultimate destination, a computer would automatically make sure all packets arrived, put them in the proper order, and make any lost (or damaged) packets be retransmitted.

At first, the Arpanet included just 4 computers: 1 at the University of Utah and 3 in California (at UCLA, UC Santa Barbara, and the Stanford Research Institute). The next year (1970), Arpanet added 3 computers in Massachusetts (at MIT, BBN, and Rand). The next year (1971), Arpanet added more computers (in California, Massachusetts, Pennsylvania, Ohio, and Illinois), to make a total of 15 computers. The next year (1972), Arpanet expanded to more parts of the country, so 2000 people were using Arpanet — and they were starting to have fun, since **electronic mail (email)** was added to Arpanet that year. (Before that, Arpanet was just a big boring mass of technical documents & data.) The next year (1973), email became so popular that 75% of all Arpanet transmissions were emails; and research institutions in **England** and **Norway**

### How many Internet hosts at end of year

Year	How many Internet hosts at end of year
1983	600
1984	1,000
1985	2,000
1986	6,000
1987	30,000
1988	80,000
1989	200,000
1990	400,000
1991	700,000
1992	1,300,000
1993	2,200,000
1994	5,800,000
1995	14,000,000
1996	21,000,000
1997	29,000,000
1998	43,000,000
1999	72,000,000
2000	109,000,000
2001	147,000,000
2002	171,000,000
2003	233,000,000
2004	317,000,000
2005	394,000,000
2006	433,000,000
2007	541,000,000
2008	625,000,000
2009	732,000,000
2010	818,000,000
2011	888,000,000
2012	904,000,000

Let's see why it grew so fast....

## NSF (1986)

In 1986, the **National Science Foundation (NSF)** thought of letting researchers share 5 supercomputers by using Arpanet, but NSF changed its mind and decided to create its own network, called **NSF Net**. Like Arpanet, NSF Net used TCP/IP and was Arpanet-compatible, so NSF Net became part of the Internet. NSF Net ran faster than Arpanet (by running more phone lines between big cities, to form a strong Internet **backbone**), so universities switched to it from Arpanet. In 1990, Arpanet shut down permanently.

Arpa, which had created Arpanet, lived on but under its new name: the **Defense Advanced Research Projects Agency (Darpa)**.

## Packet switching is practical

Though packet switching was invented to avoid bombs, it has another advantage: it prevents any single user from hogging the Internet. If a “bad guy” tries to hog the Internet by sending a long message, the Internet divides his message into many little packets. Other users can squeeze their packets into the system without waiting for all the bad guy’s packets to go through. Any overloaded phone lines are automatically bypassed by routing packets through other phone lines.

Packet switching made the Internet “free for democracy” in 4 senses:

free from destruction by bombs  
 free from overload by user hogs  
 free from censorship by governments  
 free from big start-up costs (because government already paid for the backbone)

You can still wreck a country’s Internet if you’re evil enough to bomb *all* phone lines or send *many* long messages or force *all* Internet computers to censor transmissions. Though misguided folks tried such tactics, the Internet outlasted them.

## Web (1990)

The Internet was a boring collection of documents, data, and emails until 1990, when Englishman **Tim Berners-Lee** invented the **World Wide Web (WWW)**. To be briefer, folks call it just the **Web**. Here’s how it works:

It lets you view a document on the Internet and, if a word in the document is underlined, you can click that word to get “more info” about that word. The “more info” can be a whole page and reside in a different file on a different hard disk in a different computer in a different country; so by clicking that underlined word, you can access relevant info from a different computer in a different country. The person who invented the original document sets all that up for you, so by just clicking the underlined word you automatically access the info you want without needing to know what computer or country it’s coming from.

The World Wide Web turns a whole world of documents into a unified system. The underlined words are called **links**, because they link you to other documents.

To invent the Web, Tim was inspired by **Ted Nelson**.

Ted Nelson was a US visionary who in 1965 had predicted that text would someday be connected worldwide by underlined links and called **hypertext**. Ted Nelson’s concept furthered what an earlier visionary, **Vannevar Bush**, had written in 1945.

Tim was the first person to take the ideas of Ted & Vannevar, apply them to the Internet, and make the whole system practical enough for humans to use.

Tim invented the World Wide Web while he was working in Switzerland at the **Conseil Européen pour la Recherche Nucléaire (CERN)**, which was later renamed the **European Laboratory for Particle Physics**. Afterwards, Tim moved to the **Massachusetts Institute of Technology (MIT)**, where he directs the **World Wide Web Consortium (W3C)**, which plans the Web’s future.

## Wartime use (1991)

The US’s allies copied Internet technology — and so did the US’s enemies:

In January 1991, during the US war against Saddam Hussein’s Iraq, the Internet’s ability to defend itself against bombs was proved in a strange way: Iraq’s own Internet helped Iraq’s military command network withstand attack from US bombs!

In August 1991, the Soviet Union was paralyzed by a news blackout during the coup against Gorbachev, but the truth got out to the world by Internet transmissions from **Relcom** (a small pro-Yeltsin Internet service provider in the Soviet Union).

## Mosaic (1994)

To use the World Wide Web, you had to use a program called a **browser**. When Tim invented the World Wide Web, he invented his own crude browser. The first *pleasant* browser was **Mosaic**, invented in 1994 by Marc Andreessen, an undergrad at the University of Illinois’ **National Center for Supercomputing Applications (NCSA)**. Since his research was funded by the National Science Foundation, everybody was allowed to copy Mosaic for free. Later that year, he left NCSA and formed a company called **Netscape Communications Corp.**, which invented an improved Web browser (called **Netscape Navigator**) and sold it cheaply (\$50 or less, per copy).

Mosaic and Netscape made the Web become more popular. At the beginning of 1994, there were 600 **Web sites** (places on the Web that provide Web info); at the end of 1994, the number of Web sites shot up to 10,000; in later years, the number of Web sites continued to climb:

Year	How many Web sites at end of year
1993	600
1994	10,000
1995	100,000
1996	600,000
1997	1,700,000
1998	3,700,000
1999	9,600,000
2008	182,000,000

## Mass market (1995)

In 1995, the Internet suddenly become more popular, for 5 reasons:

- Netscape Navigator version 2 came out. It worked better than version 1.
- Windows 95 came out. It handled the Internet better than Windows 3.11.
- Microsoft invented Internet Explorer. Like Netscape Navigator, it was based on Mosaic and sold for \$50 or less. Soon afterwards, Microsoft began giving Internet Explorer away for free.
- The World Wide Web reached a critical mass: enough good Web sites were created to make browsing worthwhile for the average consumer.
- Many training schools offered crash courses in how to use the Internet.

That year, the Internet got too big for the NSF to fund. The NSF stopped running NSF Net but gave grants to help universities buy Internet time from commercial networks that sprang up, such as **Sprint**, **Altnet**, and **Performance Systems International (PSI)**. Consumers could use the Internet on their home personal computers by making their computer modems phone an **Internet service provider (ISP)**, which was part of the Internet. Many companies sprang up to act as ISPs.

Several old companies invented their *own* networks for consumers by using a trick: they took non-Internet business networks (which were busy in the day but idle in the evening) and offered them to consumers at low evening rates.

The first 2 such companies were **Compuserve** (owned by H&R Block) and **The Source** (owned by Readers Digest). After The Source went out of business, 2 other big companies arose: **Prodigy** (owned by IBM & Sears) and **America OnLine (AOL)**. AOL bought Compuserve (and Netscape and Time Warner, but AOL later split from Time Warner). All those companies thought consumers would enjoy online reference materials (computerized dictionaries, encyclopedias, and databases) but discovered consumers preferred to just send email and chat instead of doing “research”.

When the Internet became popular (because it included so *many* email addresses and so *many* Web sites), those old companies modified their networks to include access to the whole Internet.

### *Unlimited access (1996)*

Those old companies and new ISPs weren’t sure how much to charge consumers. At first, they charged \$3 per hour. In 1996, most offered a better deal: **unlimited access for \$20 per month**. (A few **discount ISPs** charged even less. A few **business ISPs** charged more, for superior service.)

Later came **free ISPs**, which offered free Internet service in return for forcing consumers to watch ads while using the Internet.

### *Who pays?*

Here’s who invented and paid for the Internet...

At first, funding came from the **Defense Department (ARPA)** and the **National Science Foundation**. To invent the Internet, much research was done by university **professors** (funded by government grants, student tuition, and alumni donations). Much research was done by **student volunteers**, who wanted to be famous by being helpful.

When consumer ISPs became popular, many **consumers** paid \$20 per month per household. Many Web sites show ads, paid for by **advertisers**.

Many **businesses** pay for their own Web sites, in the hope that those sites will act as ads. The businesses also hope their Web sites will show lots of info online, so the businesses don’t have to mail brochures to customers and don’t have to hire employees to answer customer questions.

Many Web sites are created by startup companies who dream of greatness and convince investors to buy stock in that dream. Some of those dreamy companies succeed, and their stockholders get rich; other dreamy companies fail, and their stockholders lose their shirts. All those **stockholders** pay for the Internet and hope to reap rewards in return. While the stockholders wait for results, the company’s managers get high salaries (funded by stockholders), even though many of those startup companies haven’t earned any profit yet and never will.

In 1999, many such startup companies began. Investors sunk many millions of dollars into them, hoping the managers wouldn’t waste the money and would eventually turn a profit. Lots of jargon was invented to describe the situation:

A company whose Web site is its main fame is called a **dot com** (because its Web-site address ends in .com). Its employees are called **dot commers**.

A Web site letting customers type credit-card numbers to place orders is said to do **electronic commerce (e-commerce)** and offer an **electronic shopping cart**.

A company selling mainly to consumers is called a **business-to-consumer company (B2C company)**. A company selling mainly to other businesses instead is called a **business-to-business company (B2B company)**.

A company selling mainly to organizations who run Internet host computers (and helping those organizations improve their Internet computers & connections) is called an **Internet infrastructure company**.

An old-fashioned company (which ignores the Internet and runs just traditional retail stores in brick buildings) is called a **real-world company** and a **bricks-and-mortar company**. An ultra-modern company (which exists just on the Web and doesn’t bother staffing any storefront buildings) is said to **exist just in cyberspace** and be a **pure-play Internet company**. A company doing *both* — having brick-like retail stores (or warehouses) and also selling on the Internet (by letting customers use mice to click on what they want) — is called a **bricks-and-clicks company**.

If a startup company lures investors by telling an enticing story about how it could become profitable — but has no customers yet — its stock is called just a **story stock**.

Many Web companies are in San Francisco, where the managers are freaky-looking snotty kids who are young (under 30), wear nose rings, drive fancy cars, and got rich by inventing a story that got investors to give them millions of dollars, even though their companies haven’t made a profit yet and have hardly any customers yet and actually *lose* lots of money daily. Many Web-company managers bought office space in San Francisco (south of Market Street), encouraging landlords to jack up rents and kick out the poor people and non-profit organizations that had been there. People who resent those managers call them **e-holes, dot snots, and dot commies**.

### *Who uses the Internet?*

When the Internet began, it was just for university scientific researchers, who were mostly men. But eventually the Internet grew, so people outside universities could get access. In the year 2000, women Internet users finally outnumbered men users, for 3 reasons:

The world contains more women than men.

The World Wide Web grew to become a big worldwide library. “Reading in a library” appeals to women more than men.

Email grew to be a powerful force. Sending email is like passing a note. “Writing, reading, and passing notes” are activities that appeal to women more than men.

Now the Internet can be used to spy on and control many things (such as appliances & cars), which are called **smart devices** and part of the **Internet of Things (IoT)**.

## *Modern providers*

To access the Internet, you can choose from 7 kinds of service.

### *Dial-up service*

Some people still use **dial-up service**. Here’s how it works...

To use dial-up service, your computer must contain a **modem**. (The fastest kind of modem is called a **56K modem**.) Unplug your home’s phone cord from your landline phone, and attach the phone cord to your computer’s modem instead, so your computer can make phone calls. Yes, you’ll be using the **plain old telephone system (POTS)**. Tell your computer to phone a computer belonging to an **Internet service provider (ISP)**, which charges **about \$15 per month** for the service, billed to your credit card. You might have to pay a \$20 start-up fee also.

The phone number your computer calls is called an **Internet dial-up access number** or **point of presence (POP)**. Make sure the POP is a *local* phone number, so you don’t pay any long-distance bills. To make *sure* it’s local, ask your local phone company whether the POP’s phone number is indeed a free call under your calling plan.

While your computer uses the Internet through this method, your computer is “tying up the phone line”, so if any of your friends try to phone you they’ll get a busy signal. You can solve that problem in 3 ways:

**Method 1** Tell the phone company to install a **second phone line**, which will cost you about \$25 per month (including taxes).

**Method 2** Use the Internet just **late at night** (or early in the morning), when your friends don’t try to phone you.

**Method 3** Pay the phone company \$4 per month for **voice messaging**, which makes the phone company create a voicemail system that takes messages when your phone is busy — but then you have to call your friends back at your own expense.

Of all the dial-up Internet service providers, the one with the best reputation is **EarthLink**, based in Pasadena, California.

It was started in 1994 by a 23-year-old guy named Sky Dalton, who ran a West Los Angeles coffeehouse, worked for ad agencies & computer-graphics companies, and was repeatedly voted one of the most influential technologists in the Los Angeles area.

Now EarthLink is national, affiliated with Sprint, and has POPs in Canada and all states except Alaska and Hawaii. Its POPs are in over 1000 cities! EarthLink recently bought excellent competitors (such as MindSpring, JPS Net, OneMain.com, and **PeoplePC**), so now EarthLink is even bigger and better.

EarthLink’s **PeoplePC** division is cheap: pay just \$8.47 per month for the first 3 months, \$17 per month afterwards, or save money by paying \$114 for a year. To chat with an PeoplePC human who will help you get started, phone PeoplePC’s sales department at 877-947-3327.

To pay no money at all, you can try an **ad-supported service**. It’s the same as standard dial-up service, except you pay no monthly fee but must watch ads while you’re using the Internet. The main ad-supported ISP is **Juno**, which is owned by NetZero and limits you to 10 hours per month; phone 800-879-5866 for info.

Unfortunately, dial-up service is too slow to handle the modern Internet reasonably. Just 2% of people use dial-up service.

## Cable-modem service

For faster transmission, try **cable-modem service**.

It resembles dial-up service, except you use cable-TV wires instead of phone wires (so you don’t tie up a phone line), get much faster transmission, and pay more (about \$45 per month for the service, plus \$25 for a **Ethernet card** (a network card you put into your computer, if your computer doesn’t have one already), plus about \$50 for a **cable modem** (which attaches the Ethernet card to a cable-TV cord).

The cable-modem method has 2 advantages over dial-up service:

It’s **much faster**. For example, Comcast (a cable-TV company) offers local TV channels plus Internet access at a speed of **25 megabits per second (Mbps)** for \$45 per month (plus taxes). If you pay \$55 instead of \$45, you get 75 Mbps instead of 25 Mbps and also get more TV channels. That’s over 1,000 times faster than dial-up! Those prices hold for the first year; afterwards, Comcast jacks up your price.

It **doesn’t consume a phone line**; you do *not* need to get a 2<sup>nd</sup> phone line.

Since this method achieves its high speed by using a broad spectrum of frequencies for transmission, it’s an example of **broadband transmission**.

Cable-modem service is available just if your neighborhood is wired for cable TV and your cable-TV service company is modern. To find out, phone your local cable-TV company or a local computer store (such as your local Best Buy).

## DSL service

If your neighborhood lacks cable, try **DSL service**.

A **digital subscriber line (DSL)** is a broadband transmission method that resembles the cable method; but instead of using cable-TV wires, it uses ordinary phone wires and makes them handle many frequencies at once.

The most common type of DSL is **Asymmetric DSL (ADSL)**. It costs less than the cable method: it usually costs \$20 per month. Usually, it works slightly slower than the cable method, but it’s popular because it’s more predictable: it’s unaffected by your neighbors’ usage. It’s popular for businesses, who are in business districts that haven’t been wired for cable-TV yet and therefore can’t use the cable method. DSL works fastest if you’re close to a telephone switching station; if you’re more than 2½ miles from a telephone-switching station, DSL works so slowly that the phone company will refuse to install it. The main complaint about DSL is that service technicians delay several weeks before showing up to install it, and you must take a day off from work to wait for them, and often they don’t show up on the scheduled day.

To find out about DSL, start by calling your local phone company.

## FiOS

**Verizon** (a local phone company) offers **fiber-optic service (FiOS)** in some neighborhoods. It’s faster than traditional cable and DSL. Inside each cable, Verizon shoots light rays instead of wires.

\$70 per month (plus taxes) gets you 100 Mbps. That price also includes TV and phone service.

## Cell phones

To access the Internet, you can use one of the cell-phone companies. (The biggest are Verizon Wireless, AT&T, T-Mobile, and Sprint.) They send Internet signals from their cell-phone towers. Buy a smart cell phone (a smartphone), pay a fee to a cell-phone company, and have fun!

Using cell-phone towers can cost a lot per gigabyte. To save money, use cell-phone towers just when you’re not able to use other Internet methods.

## Free-group service

To pay nothing for the Internet, try **free-group service**. For example, if you visit your **local public library**, you can use the library’s Internet-connected computers for free (though you might have to wait for other users to finish). While you’re enrolled in a typical **college**, you can freely use the college’s Internet-connected computers, which are in the college’s computer labs, libraries, and dorms. Many restaurants and cafés include free **Wi-Fi hotspots**, so you can bring your notebook computer and let it communicate wirelessly with the Internet.

## Satellite service

If you can’t use cable, DSL, FiOS, or a free-group service (because you live in a rural area or boat that hasn’t been wired yet), try **satellite service**. It uses a satellite-TV dish to communicate with the Internet. It’s slower than cable, DSL, and FiOS. This service is financially attractive if you already bought a satellite dish to watch TV.

The main source of this service is **HughesNet** (800-428-9570), whose service you can also buy from resellers, such as **SatelliteInternet.com** (877-884-6795), which charges \$40 per month.

# Browser choices

The most popular part of the Internet is called the **World Wide Web** (or just the **Web** or just **WWW**).

The World Wide Web sometimes runs slowly. You can spend lots of time waiting for it to respond to your commands. Cynics call it the “World Wide Wait”.

To use the World Wide Web, you need a program called a **Web browser**.

The first good Web browser was **Mosaic**, invented by a University of Illinois undergrad, Marc Andreessen, in 1994. Later that year, he left the university and formed a company called **Netscape Communications Corp.**, where he invented a better Web browser called **Netscape Navigator** (or just **Navigator**).

In 1995, Microsoft invented a competing Web browser called **Internet Explorer (IE)**.

Versions 1 & 2 were invented in 1995, version 3 in 1996, version 4 in 1997, version 5 in 1999, version 6 in 2001, version 7 in 2006, version 8 in 2009, version 9 in 2011, version 10 in 2012, and version 11 in 2013.

Its recent versions (5 and later) are better than Netscape Navigator. They're free. They're included as part of Windows. Windows 10 includes IE and also Microsoft's newest Web browser, called **Edge**.

In 1998, Netscape Communications Corp. gave up trying to compete against Microsoft: the company sold itself to AOL, which wrecked Netscape Navigator by putting lots of AOL ads into it. But a group of volunteers called **Mozilla.org** (helped by funding from AOL) invented an improved ad-free Netscape Navigator called **Mozilla** then invented further improvements, called **Firefox**.

Firefox version 1 was invented in 2004, version 2 in 2006, version 3 in 2008, versions 4-9 in 2011, versions 10-17 in 2012, versions 18-26 in 2013, versions 27-34 in 2014, versions 35-43 in 2015, versions 44-48 in 2016.

For many years, people considered Firefox to be better than IE; but IE 9&10&11 are dramatic improvement over earlier IE versions, so they're about as good as Firefox.

Another popular Web browser is **Opera**. It was invented in 1994 by researchers at Norway's telephone company (**Telenor**), then spun off as a separate company (**Opera Software**) in 1995. It became famous for running faster than IE and Firefox and consuming less RAM. It consumes so little RAM that it can fit comfortably even in cell phones and the smallest videogame machines.

In 2005, a company called **YouTube** started putting videos on the Internet. In 2006, **Google** bought YouTube but was frustrated that IE was handling YouTube's videos too slowly, so in 2008 Google invented its own Web browser, called **Chrome**, which handled videos faster.

Version 1 was invented in 2008, versions 2 & 3 in 2009, versions 4-8 in 2010, versions 9-16 in 2011, versions 17-23 in 2012, versions 24-31 in 2013, versions 32-39 in 2014, versions 40-47 in 2015, versions 48-52 in 2016.

Apple's devices (the Mac, the iPad, and the iPhone) come with Apple's own Web browser, called **Safari**. Microsoft used to make Mac versions of IE but stopped when Apple invented Safari.

Though Firefox, Opera, Chrome, and Safari were each intended to improve on IE, many people still use IE or Microsoft Edge, because they come preloaded on most Windows computers and have been improved, so they're about as fast & good as those other browsers.

Here's what people actually use on normal computers (not tablet, not phone, not embedded):

**51%** of Web browsing is done by people using **Chrome**.  
**30%** of Web browsing is done by people using **IE**.  
**8%** of Web browsing is done by people using **Firefox**.  
**5%** of Web browsing is done by people using **Edge**.  
**4%** of Web browsing is done by people using **Safari**.  
**1%** of Web browsing is done by people using **Opera**.  
**1%** of Web browsing is done by people experimenting with other browsers.

This chapter explains the most popular Web browsers: **Chrome** (version 52) and **IE** (versions 9&10&11). Other versions are similar. It also explains **Edge**, whose popularity is increasing.

(The iPad's version of **Safari** is explained later, in the iPad chapter. **Firefox**, whose popularity is decreasing, is explained in this book's 32<sup>nd</sup> edition, which you can get by phoning me at 603-666-6644.)

## Install your browser

To use Edge or IE or Chrome, you (or your dealer) must put it onto your computer's hard disk.

### How to get Microsoft Edge

Windows 10 includes Microsoft Edge already. To use Microsoft Edge, you need Windows 10.

**Get help** To use Microsoft Edge, you might have to tell Windows about your **Internet service provider (ISP)**. To find out how, read the instructions your ISP sent you. If you don't understand them, phone your ISP's technical-support number (or phone me at 603-666-6644).

### How to get IE

If you bought your computer in 1996 or afterwards, its hard disk probably contains IE already, since IE is included in all modern Windows versions.

**Get help** To use IE, you might have to tell Windows about your **Internet service provider (ISP)**. To find out how, read the instructions your ISP sent you. If you don't understand them, phone your ISP's technical-support number (or phone me at 603-666-6644).

**Versions** IE comes in many versions:

IE 8 requires Windows XP or Vista or 7. It's included as part of Windows 7.  
IE 9 requires Windows Vista or 7. It's often included as part of Windows 7.  
IE 10 requires Windows 7 or 8. It's included as part of Windows 8.  
IE 11 requires Windows 7 or 8.1 or 10. It's included as part of Windows 8.1&10.

**Upgrade** This chapter assumes you have at least IE 9. If you're stuck with an older IE version (before IE 9), use one of these methods:

**Method 1** get a newer computer (which includes at least IE 9)

**Method 2** if you already know how to go to a Website, get a newer version of IE free by going to <http://windows.microsoft.com/en-US/internet-explorer/download-ie>

**Method 3** get *The Secret Guide to Computers* 30<sup>th</sup> edition (which includes IE 5&5.5&6&7&8)

You can call my cell phone, 603-666-6644, day or night, for free help accomplishing those methods.

### How to get Chrome

If you're using Windows 10 (which includes Microsoft Edge), here's how to add Chrome 52:

Start using Microsoft Edge (by tapping the blue "e" that's at the screen's bottom, to the right of the Start button). Type "www.google.com/chrome" (so your typing is in the address box) and press Enter. Tap "Download now". For now, remove the check mark from "Set Google Chrome as my default browser" (by tapping the check mark). Tap "Accept and Install".

The computer will say "Thank you for downloading Chrome". Tap "Save" (which is at the screen's bottom) then "Run" then "Yes".

A window will say "Keep Chrome at your fingertips". Close that window (by clicking its X) and close the other window (by clicking its X), so you can start fresh.

# Start browsing

Turn on the computer.

**Windows 10** Your computer came with Edge and Internet Explorer 11, and you could have added Chrome. Use one of these methods:

To access **Edge**, tap the Microsoft Edge icon (the blue “e” that’s at the screen’s bottom, to the right of the Start button) or the Microsoft Edge tile (normally the first tile in the second row).

To access **Internet Explorer 11**, type “int” in the Search box (which is to the right of the Start button) then tap “Internet Explorer: Desktop app”.

To access **Chrome** (after you added it), type “chr” in the Search box (which is to the right of the Start button) then tap “Google Chrome: Desktop app”.

**Windows 8.1** Your computer comes with two versions of Internet Explorer 11. **Access the powerful version** (which understands the most commands) by one of these methods:

**Desktop method** Go to the Desktop screen (by tapping the Desktop tile). Tap the Internet Explorer icon (the blue “e” near the screen’s bottom-left corner).

**Tile method** Tap the Internet Explorer tile. You see a weak version of Internet Explorer. Switch to the powerful version by doing this: press the Menu key; tap the **Page tools** icon (the wrench near the screen’s bottom-right corner) then “View in the desktop”.

**Windows 8** Your computer comes with two versions of Internet Explorer 10. **Access the powerful version** (which understands the most commands) by one of these methods:

**Desktop method** Go to the Desktop screen (by tapping the Desktop tile). Tap the Internet Explorer icon (the blue “e” at the screen’s bottom-left corner).

**Tile method** Tap the Internet Explorer tile. You see a weak version of Internet Explorer. Switch to the powerful version by doing this: press the Menu key; tap the **Page tools** icon (the wrench near the screen’s bottom-right corner) then “View on the desktop”.

**Windows 7** Make sure you see the Start button in the screen’s bottom-left corner. Then choose one of these methods:

**Double-click method** Double-click an icon saying “Internet Explorer” or “Google Chrome”.

**Start method** Click the Start button then either “Internet Explorer” or “Google Chrome”.

**Small-e method** Click the small Internet Explorer icon that’s next to the Start button and has an “e” on it.

If the computer asks for your user name, type it and press the Tab key. You’ll see the Internet Explorer (or Google Chrome) window. Make sure it consumes the whole screen. (If it doesn’t consume the whole screen yet, maximize it by clicking its resize button, which is next to the X button.) If Chrome says “Google Chrome isn’t your default browser”, click “Don’t ask again”.

## Hide useless toolbars (just IE)

Here’s how to avoid having your IE screen cluttered with useless toolbars:

Right-click the star (which is near the screen’s top-right corner). Make sure you have a check mark in front of just “Lock the Toolbars”, not in front of anything else. (If the computer asks “Do you want to disable this add-on?” press Enter.)

## Address box

Click in the **address box**, which is the wide box near the screen’s top-left corner. (In IE 9 and Chrome, that box is white; in IE 8, that box is light gray; in IE 10&11, that box is white or light blue or light gray.) That box is also called the **address bar** or **location bar**.)

Any writing in that box turns blue. Then type the Internet address you wish to visit.

For example, if you wish to visit **Yahoo**, type Yahoo’s **Internet address**, which is —

`http://www.yahoo.com/`

Yes, that’s Yahoo’s **Internet address**. It’s also called Yahoo’s **Uniform Resource Locator** (or **URL**, which is pronounced “Earl”).

When typing an Internet address (such as “http://www.yahoo.com/”), make sure you type periods (not commas); type forward slashes (not backslashes).

The address’s first part (“http://”) tells the computer to use **HyperText Transfer Protocol**, which is the communication method used by the Web. The “www.” emphasizes that you’re using the World Wide Web. The “.com” means the service (Yahoo) is a commercial company.

Instead of typing “http://www.yahoo.com/”, you can be lazy and type just this:

`www.yahoo.com`

That’s because the computer automatically puts “/” at the address’s end and puts “http://” before any address that doesn’t contain “:” already.

In an Internet address, each period is called a **dot**, so “www.google.com” is pronounced “dubbilyoo dubbilyoo dubbilyoo dot yahoo dot com” by literate computerists; grunters say just “wuh wuh wuh dot yahoo dot com”.

Notice that the typical address (such as “www.yahoo.com”) begins with “www.” and ends with “.com”.

At the end of your typing, press Enter. (If you typed just “yahoo.com” and forgot to type the “www.”, the computer will automatically do the “www.” for you after a slight delay.)

Here’s another shortcut: you can type just —

`yahoo`

but afterwards, instead of just pressing the Enter key, do this:

Hold down the Ctrl key; and while you keep holding down the Ctrl key, tap the Enter key.

That “Ctrl with Enter” makes the computer automatically type the “www.” and “.com” for you.

Here’s another shortcut: start typing “yahoo” (by typing “y” then “a” then “h”) but look below where you’re typing; if you see what you want (such as www.yahoo.com) because the computer successfully guessed what you wanted, click the computer’s correct guess.

Here’s another shortcut: start typing “yahoo” (by typing “y” then “a”) but notice that if it’s something you typed previously, the computer will complete the typing for you: if you’re satisfied with the computer’s typing, just press Enter afterwards.

Using any of those methods, you’ll eventually see the beginning of Yahoo’s home page.

**Seeing the rest of the page** To see the rest of the page, click the scroll-down arrow (the ▼ or ∨ near the screen’s bottom right corner) or roll the mouse’s wheel (which is between the mouse’s buttons) *toward* you or put your finger in the screen’s middle and swipe up. To see the page’s beginning again, click the scroll-up arrow (▲ or ∟) or roll the mouse’s wheel *away* from you or put your finger in the screen’s middle and swipe down.

## Links

On Yahoo’s home page, you see many topics to choose from.

The screen’s left edge shows these 13 **hot topics**:

mail, news, sports, finance, celebrity, sports, shopping, movies, poitics, beauty, style tech, TV

The screen's center shows today's **news**. The rest of the screen shows extra topics.

Each topic is called a **link** (or **hot spot**). Click whichever link interests you.

You can click anyplace where the mouse's pointer-arrow turns into a pointing finger. But for your first experiment, I recommend you **click an item from today's news** (in the screen's center), since the news is simpler to handle than the topics at the screen's edges.

As soon as you click — presto! — the computer shows you a whole new page, devoted entirely to the topic you linked to! Read it and enjoy!

While you're looking at that new page, you'll see its address in the address box. On that new page, you'll see more topics that are links: places where the mouse's pointer-arrow turns into a pointing finger. (The links are usually underlined or colored or bolded.) Click whichever link interests you, to visit a further page.

## Back & forth

After admiring the new page you're visiting, if you change your mind and want to go back to the previous page you were looking at, click the **Back button** (which is near the screen's top-left corner and has a left-arrow on it).

Then you see the previous page. (On that page, any links you clicked might have changed color.)

After clicking the Back button, if you change your mind again and wish you hadn't clicked the Back button, click the **Forward button** (which is next to the Back button and has a right-arrow on it).

**Back list** To hop back several pages, you can click the Back button several times.

To hop back faster, right-click the Back button (or while pointing at the Back button, hold down the mouse's left button awhile). You see a list of pages you visited recently. The list is short: at most 9 pages in IE, 10 pages in Edge, 17 pages in Chrome. Click the page you want to go back to.

**Home (useful just in IE)** Each time you launch IE, the first page you see is called your **start page** or **home page** (because that's where life starts — at home). If you view other pages (by clicking links) and later change your mind, you can return to viewing the home page by clicking the Back button many times — or click the **Home button** once. (The Home button has a picture of a house on it. It's near the screen's top-right corner.)

**History** Here's how to see a list of pages you visited in the last few weeks:

**Edge** Tap the Hub button (which is a stack of 3 horizontal lines) then the History button (which shows a counterclockwise arrow going back around a clock). You see the History window.

Decide which time's history you want to see: tap either "Last hour" or "Earlier today" or "Yesterday" or "Last week" or "Older". (Tap once or twice, until you see that date's list of pages.) Tap whichever page you want to visit.

**IE** Click the Favorites button (which is a star) then the word "History". You see the History window.

Decide which date's history you want to see: click either "Today" or a recent day or "Last Week" or "2 Weeks Ago" or "3 Weeks Ago". (Click once or twice, until you see that date's list of sites; then click a site once or twice, until you see that site's list of pages.) Click whichever page you want to visit.

**Chrome** While holding down the Ctrl key, tap the H key. You see a list of all pages you visited in the last few weeks. (To see the whole list, scroll down.)

Which page do you want to visit? Click the page's *title* (which is usually capitalized words), not the page's *www*, not the page's icon (symbol).

**Favorites** If you're viewing a wonderful page, here's how to make the computer remember that the page is one of your favorites and bookmark it.

**Edge** Tap the Add-to-favorites button (which is a star) then the star below it then "Save".

In the future, whenever you want to return to your favorite pages, tap the Hub button (which is a stack of 3 horizontal lines) then the star below it: you'll see a list of your favorite pages. Tap whichever page you want to visit, (or delete a page from the list by doing this: right-click the page name you want to delete, then tap "Delete").

**IE** Click the Favorites button (which is a star) then "Add to Favorites". Press Enter.

In the future, whenever you want to return to your favorite pages, click the Favorites button (which is a star) then the word "Favorites" that's left of "Feeds": you'll see a list of your favorite pages. Click whichever page you want to visit (or delete a page from the list by doing this: right-click the page name you want to delete, then click "Delete").

**Chrome** Click the **star** (which is near the screen's top-right corner). Press Enter.

In the future, whenever you want to return to that page, click the Menu button (the symbol ☰, which is near the screen's top-right corner) then "Bookmarks": you'll see a list of your favorite pages. Click whichever page you want to visit (or delete a page from the list by doing this: right-click the page name you want to delete, then click "Delete").

## Open something different

To switch to a completely different address, click in the address box again then type the Internet address you wish to visit.

For example, if you wish to visit **Google**, type this —

`http://www.google.com/`

or type just this:

`www.google.com`

At the end of your typing, press Enter.

In the screen's middle, you see a white box, called the **search box**.

Try this experiment: click in the search box, then type a topic that interests you. For example, type:

`lincoln`

Don't bother capitalizing: the computer ignores capitalization.

At the end of your typing, press Enter. Google will find about 425 million Web pages mentioning Lincoln. Google will begin by listing, at the screen's left edge, 14 Web pages that Google thinks you'll find the most useful, plus some ads. (Ads are usually in a box and say "Ad" or "Sponsored".)

For example, if you asked for "lincoln", Google will list 10 Web pages about President Abraham Lincoln, Lincoln cars (made by Ford), the town of Lincoln in Massachusetts, and the Lincoln Financial Group (an insurance company). To see all 10 of those Web pages, scroll down to the bottom of the page by using your mouse's wheel or the down-arrow near the screen's bottom-right corner or sliding your finger up the screen.

Each Web page's name is blue. Click whichever Web page you want — or click "Next" (at the bottom of Google's page) to see a list of 10 more Web pages about Lincoln.

To be more specific, type more words in the search box. For example, if you're interested just in Abraham Lincoln, type:

`Abraham Lincoln`

If you're interested in just Lincoln cars, type:

`Lincoln cars`

If you're interested in just Abraham Lincoln's log cabin, type:

`Abraham Lincoln log cabin`

Google is called a **search site**, since its purpose is to help you search for other sites on the Internet. (Yahoo is also a search site, since it includes a search box, but Yahoo's search box doesn't work as well as Google's.) Google and Yahoo are also called **Web portals**, since their purpose is to serve as a grandiose door through which you pass to launch your journey across the World Wide Web.

## Print

While you're viewing a page, here's how to print a copy of it onto paper:

<b>Edge</b>	While holding down the Ctrl key, tap the P key. Tap "Print".
<b>IE</b>	While holding down the Ctrl key, tap the P key. Press Enter.
<b>Chrome</b>	Click the Menu button (the symbol ≡) then "Print". Press Enter.

That makes your printer try to print the whole page — even the part of the page that goes below the screen's bottom edge and doesn't fit on the screen.

If the Web page is wider than your paper, the computer squeezes the Web page onto your paper by printing a shrunken image of the page.

If the Web page is very wide, make the printer rotate the page 90 degrees, so it fits on the paper. Here's how:

<b>Edge</b>	While holding down the Ctrl key, tap the P key. Tap the box under "Orientation". Tap "Landscape" then "Print".
-------------	--

<b>IE</b>	Click the Tools button (which is a bumpy-circle gear at the screen's left edge) then Print then Page Setup then Landscape then OK. Then while holding down the Ctrl key, tap the P key.
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<b>Chrome</b>	Click the Menu button (the symbol ≡) then "Print" then the Layout box then "Landscape". Then press Enter.
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## Simultaneous pages

Here's how to make your computer's RAM (memory chips) hold *two* Web pages simultaneously, so you can switch back and forth between those pages fast.

While you're viewing a Web page, try one of these activities:

Click a link <i>while holding down the Ctrl key</i> .
---

While the mouse is pointing at a link, <i>click the mouse's wheel</i> (instead of the mouse's left button).
---

In the address box, type an address and then, <i>while holding down the Alt key</i> , press Enter.
--

Near the screen's top, you see two wide **tabs**: each tab contains a Web page's name (title). To switch between the two Web pages, click their tabs.

When you get tired of having two tabs, here's how to have just one tab again:

Decide which tab you don't want anymore. For Chrome, click the X on that tab; for Edge & IE, click that tab then the X on it.
---

That tab disappears, along with its Web page, so you see just the other tab.
--

## Exit

When you finish using Edge or IE or Chrome, close its window (by clicking its X button).

# 3 ways to search

Here are the 3 popular ways to search for a topic on the Web.

## Search-box method

In a search box, type the topic you're interested in, and then press Enter. That makes Google (or Yahoo or Bing) use its **search engine**, which searches on the Internet for pages about that topic.

## Google has the best search engine. Here's how to use Google's search box. (Yahoo and Bing are similar.)

When you make Google search for a topic, Google typically finds *thousands* of pages about that topic. Google tries to guess which of those pages are the most relevant; Google begins by trying to show you a list of the most relevant pages (on a white background). That list is interrupted by some ads, which are marked "sponsored links" and have pastel colored backgrounds. The ads relate vaguely to the topic you requested, but you can ignore them. They're listed first because the advertisers paid for such listing.

**What Google ignores** Google ignores capitalization, so don't bother capitalizing. Typing "george washington" has the same effect as typing "George Washington".

In the search box, type just words separated by spaces. Google ignores commas, periods, question marks, and exclamation points.

Google usually ignores these common words:

a, the
be, is, are, was, will
I, it
of, for, about, in, on
what, when, where, why, how
and, or

**Restricting your search** The more words you type in the search box, the more restricted the search will be, since Google will show you a Web page just if the page includes *all* the words you mentioned.

If you type "bush", Google will list all Web pages that mention "bush". Google will guess that you're mainly interested in the British rock band called "Bush" or President George W. Bush, so it will begin by listing Web pages about them. Google will also mention Web pages about the Bush School (a prep school in Seattle) and the Bush Foundation (founded by Archibald & Edith Bush), and eventually many other people named Bush, a discothèque in Belgium called "La Bush", any plant called a "bush", and pubic hair (for which the slang word is "bush").

If you're more specific, Google will mention fewer Web pages.

For example, if you're interested in just Kate Bush the singer, type "Kate Bush" instead of just "Bush". Then Google will show you info about just Kate Bush.
---

If you want info about plants that are bushes, type "bush plant". That gets you mostly Web pages about plants that are bushes but also includes a few jokes about President Bush being a plant and some comments about President Bush's opinions of nuclear power plants. You can also try "bush shrub" or "bush garden" (which includes info about gardens but also about a Japanese restaurant called "Bush Garden") or "bush landscaping".
---

If you type "bush pubic", you get Web pages about shaving & combing pubic hair and a feminist protest against George Bush. Go try other combos that get closer to whatever kind of info you want to know about a "bush".
--

The more words you type in the search box, the more specific your request is, and the fewer Web pages will match. If you get too few Web pages, try different words instead.

Try variations. If you're interested in plants that are bushes, and you don't like what you get when you search for "bush plant", try searching for "shrub" instead, which will get you a different list: Web pages that mention the word "shrub".

Google notices your word order. If you say "bush plant", Google begins by listing Web pages that mention "bush" before "plant"; if you say "plant bush", Google begins by listing Web pages that mention "plant" before "bush".

Google searches for just the words you requested. For example, if you search for "airline", Google will list Web pages that contain the word "airline" but not Web pages that contain just the word "airlines" instead. For complete listings, search for "airline" then search again for "airlines".

If you type quotation marks around a phrase (such as “to be or not to be”), Google shows just Web pages containing that exact phrase.

**Which Web pages are important** To determine which Web pages to show you first, Google considers how closely each Web page *matches* what you requested — but also considers how *important* each Web page seems to be. Google considers a Web page to be important if many other Web pages contain links to that page, and if the Web pages that link to it are themselves important also (by being linked to from other Web pages).

**Phone book** In the search box, if you type a phone number (such as “603-666-6644”), Google will look through phonebook white pages and tell you who has that phone number (if the number is listed).

If instead you type a name (of a person or business) with a city and state (such as “Russ Walter Manchester NH”), Google will look through the phonebook white pages and tell you the phone number (if the number is listed), street address, and ZIP code. When you type a person’s name, you must type at least the last name; do *not* type a middle name; type the first name or first initial if you know how it’s listed in the phonebook white pages. Instead of typing a city and state, you can type a ZIP code if you know it.

**Maps** In the search box, if you type an address (such as “196 Tiffany Lane Manchester NH”), Google will show you a map of that address.

Here’s another way to get a map. Go to:

<https://maps.google.com>

Type an address. Press Enter.

**Pictures** To search for a picture (instead of words), do this:

Click “Images” (which is near the top-right corner). In the search box, type what topic you want the picture to be about. Press Enter.

You’ll see tiny pictures about your topic. Click whichever picture you like. You’ll see it enlarged.

Click the Back button to return to Google. Google will assume you want all future searches to be about pictures, until you click “Web” instead of “Images” (or until you stop using Google).

**Single site** If you want Google to search through just one Web site, say so. For example, if you want to search for info about Windows Vista just on Microsoft’s Web site (which is [microsoft.com](http://microsoft.com)), say “Windows Vista site:microsoft.com”.

**Who links to you?** To find all Web pages that link to your favorite Web page, type “link:” then your Web page’s address, like this: “link:secretfun.com”.

**Censor** Google can censor the list of Web pages and pictures, so you don’t see pornography.

To change how Google censors what you see, click “Settings” (which is at the screen’s bottom-right corner) then “Search settings” then put a check mark in “Filter explicit results” (by clicking there) then the “Save” button (which you’ll see when you scroll down) then press Enter.

**Translate** Google can translate 80 languages (English, Spanish, French, and many others). Go to:

<http://translate.google.com>

You see 2 big boxes.

Above the left big box (which is white), you see 3 languages (such as “English” and “Spanish” and “French”); to see other languages, click the “▼”. Click the language you’re translating from.

Above the right big box (which is yellow), click the language you’re translating to.

What text do you want to translate? Type it in the left big box (or copy it there by using copy-and-paste).

If you type words (or sentences or paragraphs), their translation appears immediately in the right box. To hear the computer’s voice say the translation out loud, tap the right box’s Listen button (which looks like a speaker).

To translate a whole Web page instead, do this:

In the left box, type the Web page’s address (such as [www.SecretFun.com](http://www.SecretFun.com)), or copy the address there by using copy-and-paste. Then tap the blue “Translate” button. You’ll see the whole page translated.

The translations are done by Google’s robots (which are computers). They make many translation mistakes but give you at least a rough idea of how to translate.

**Cached pages** When Google shows you a list of Web pages about your topic, that list is based on info that Google collected several months ago about the Internet. The list might no longer be correct. When you click on one of the Web pages in the list, the Internet might give you an error message saying the page no longer exists, or the Internet might give you a page different from what you were expecting.

Fear not! Though the original Web page might have disappeared from the Internet, Google’s kept a copy of that original Web page in **Google’s cache**. To see the original, go back to Google’s list of Web pages; but instead of clicking the Web page’s name, click the “▼” below it then click “Cached”. Then you’ll see the same original page that Google saw.

**Experiment** The Internet is huge. For a typical topic, Google will find thousands of pages about it. For the most popular topics, Google will find *millions* of pages.

If you try to fool Google by typing a short fake word (such as a nonsense syllable), you’ll be surprised: Google will typically inform you that the word was already invented by others and will show you several pages about it (because it turns out to be the name of a rock band, or an organization’s initials, or a word in a foreign language, or a word invented by a novelist to describe a splat-like sound). If you try to fool Google by typing several seemingly unrelated words or names (separated by spaces), Google will typically find a Web page containing them all (because the Web page is from a crazy novel or reading list or alumni list or dictionary).

**Other search engines** Here’s a list of popular search engines:

Google.com  
Bing.com  
Yahoo.com  
Ask.com  
Yandex.com

Try them! Each gives slightly different results.

## Subject-tree method

Go to [www.dMoz.org](http://www.dMoz.org). That Website was called the **Directory of Mozilla** but is now called the **Open Directory Project (ODP)**. You see this list of broad topics:

arts, business, computers, games, health, home, kids&teens, news, recreation, reference, regional, science, shopping, society, sports

That list is called the **subject tree of knowledge** (because it’s as tempting as the tree of knowledge in the Garden of Eden). Click whichever topic interests you (or click “World”, which lets you read the site in 88 foreign languages instead of English.) Then you see a list of that topic’s branches (subtopics). Click whatever subtopic interests you. Then you see a list of subsubtopics (twigs). Click whichever subsubtopic interests you. Keep clicking until you finally zero in on the very specific topic that interests you the most: it’s the fruit of your search!

That site was created by 100,000 volunteers. It organizes 5 million of the Web’s best sites. AOL funded that site and owns it.

## Address-box method

Give your friends a sheet of paper and ask them to jot down the addresses of their favorite Web pages. (Or get lists of nifty Web addresses by reading computer books, magazines, newspaper articles, or ads.)

For example, here's a list of excellent Web sites:

Topic	Best Web site
maps	maps.google.com
driving directions	MapQuest.com/directions
encyclopedia	wikipedia.org
health	InteliHealth.com
classified ads	Craigslist.org
short movies	YouTube.com

Type one of those addresses in the address box, then press Enter.

To understand how addresses work, consider the best driving-directions Web site, whose full address is:

<http://www.MapQuest.com/directions/>

The address's first part ("http://") is called the **protocol**.

The address's next part ("www.MapQuest.com") is called the **domain name**; it tells you which computer on the Internet contains the info. The typical domain name begins with "www.", then has the name of a company (such as "MapQuest"). The domain name's ending (called the **top-level domain**) is typically ".com", which means "USA commercial company". Some addresses have different top-level domains. Here are different top-level domains and what they mean:

.com USA commercial company	
.org USA organization (typically non-profit)	
.gov USA government (typically federal)	
.mil USA military	
.edu USA educational institution	
.net USA network resource (typically ISP)	
.us USA other (typically local government)	
.ar Argentina	.in India
.au Australia	.it Italy
.br Brazil	.jp Japan
.ca Canada	.kr Korea (South)
.ch Confoederacio Helvetica (Switzerland)	.mx Mexico
.cn China	.nl Netherlands (Holland)
.es España (Spain)	.no Norway
.fi Finland	.nz New Zealand
.fr France	.ph Philippines
.de Deutschland (Germany)	.ru Russia
.dk Denmark	.se Sweden
.hk Hong Kong	.tv Tuvalu (South Pacific islands)
.ie Ireland	.tw Taiwan
.il Israel	.uk United Kingdom (Britain&N.Ireland)

Recently, these new top-level domains were invented: .info, .name, .biz (for business), and .ws (for website).

The rest of the address (such as "/directions/") is called the **page name**; it tells which file on the computer contains the page you requested.

Type each address carefully:

**While typing an address, never put a space in the middle.**

**Watch your punctuation.** The typical address will contain a dot (.) and a slash (/). An address can also contain a hyphen (-) or squiggle (~). Addresses never contain commas, backslashes, or apostrophes.

**For the typical address, type small letters (uncapitalized),** since capitalized page names are rare. (The computer doesn't care whether you capitalize the protocol and domain name.)

## Best sites

To enrich your life, go to the best Websites. Here they are...

### Links

**SecretFun.com** is my own site. It contains info about the *Secret Guide to Computers & Tricky Living*. By clicking the links in the first pink box, you and your friends can read parts of the *Secret Guide to Computer & Tricky Living* free and jump to other sites recommended in this chapter.

### General searches

**Google.com** finds the most topics on the Internet. If you type some words, then press Enter, you'll see a list of the main Web sites containing those words. Its main competitor is **Bing.com**, which is owned by Microsoft. Try them both, to get 2 different views of your subject.

### News

To find news headlines and the stories behind them, **Microsoft** offers these methods:

**Tile method** Click the **News tile**, which is part of Windows 8, 8.1, and 10. In those Windows chapters, I explained how to use it. At the screen's top, you see a menu that divides the news into these categories: top stories, US, world, crime, technology, politics, good news, opinion, entertainment, money sports, Microsoft

**Edge method** Use **Microsoft Edge**, which automatically starts you at a home page whose menu divides the news into these categories: politics, US, world, technology, entertainment, sports, money, lifestyle, autos, video

**MSN method** Go to **MSN.com/news**, whose menu divides the news into these categories: headlines, US, local, world, crime, good news, politics, opinion, technology, video, photos

**Bing method** Go to **Bing.com/news**, whose menu divides the news into these categories: top stories, US, world, local, entertainment, sci/tech, business, politics, sports, health, products

You can click a category or just browse through the sample stories that are already on the main page.

An alternative is to go to **Yahoo.com**, where the news is less organized but more fun.

At the screen's top, you see an ad. Below it, you see a big story's photo. Below it, you see a row of 4 smaller stories. Below all that, you see a long list of stories.

Click any story you wish, to see its details.

Above each story in the long list, you see the story's category. To see more stories in that category, click the category's name. Avoid stories whose category is "Sponsored," which means "This story is just a paid ad."

Yahoo also offers a variant, at **news.Yahoo.com**, where the news tends to be more serious and adds this menu on top:

News Home US World Politics Tech Science Odd News ABC News Yahoo Originals

For a bigger collection of news stories, try **Google News (news.google.com)**, which uses a computer (rather than humans) to decide which of the moment's news stories are the hottest. The main stories are all in the central column, in bunches that have these headings:

top stories, world, U.S., business, technology, entertainment, sports, science, health

Each bunch (except "top stories") shows just 4 stories; but at the bunch's bottom, you see "More", which you can click to see 3 more stories from that bunch, then click "More" again to see another 3 more. If you click a story's blue headline, you see the full story; but if you click a story's black 1-or-2 line summary instead, you see competing stories about the same topic. The righthand column shows the most recent stories, weather, sports,

and local news. It also shows 4 stories from one nice source; to change the source, click the “>”.

## Weather

The easiest way to predict the weather is to use the **Weather tile** (which is part of Windows 8, 8.1, and 10) or the **weather app on your smartphone**.

If you don't have those, try these Websites:

**Weather.com** (which is produced by The Weather Channel)  
**AccuWeather.com**  
**TheWeatherNetwork.com**  
the **Weather Underground (wUnderground.com)**.

An alternative is to walk outside, notice if you get wet or blown away, and guess the future. Your prediction might be better than the computer's.

## Time

Here's how to find the exact time.

For time in the U.S., do this:

Go to **Time.gov**, which is run by the U.S. government. You see a digital clock, which is accurate to the nearest second and updates itself every second. To see the time for a different time zone, click “◀” (to go west) or “▶” (to go east).

For time in many cities around the world, do this:

Go to **TimeAndDate.com/worldclock**. You see an alphabetical list of 143 cities and their times, accurate to the nearest minute. To see over 600 cities instead, click the “Cities Shown” box's down-arrow then “Extended List”.

Click the place that interests you. Then you see its time accurate to the nearest second, plus a map of its continent. Scroll down to see its weather.

To see a particular big place, even if it's not in that list, click the “Place or country” box then start typing the place's name. Below your typing, you see a list of places that match what you've typed so far. (For example, if you type “Mos”, the list will include “Moscow, Russia” but also 8 other cities that begin with “Mos”.) Click the city you want.

An alternative is to go to **TimeAndDate.com/time/map**. You see a map of the entire world, with each time zone in a different color. Each red dot is a city. If you move the mouse pointer to a city, without clicking, you immediately see the city's name & time. If you then click, you can also see its weather (when you scroll down).

## Travel

The Internet lets you explore the whole world!

**Maps** The best way to see maps online is to go to **Google Maps (maps.google.com)**.

You see a map of your neighborhood. If you click in the map then rotate the mouse's wheel toward you, you see a map of bigger & bigger territory, until eventually you see a map of the whole world.

To see more details about a spot on the map, do this:

Move your mouse until its pointer is at the spot on the map where you want more details; then rotate the mouse's wheel away from you (or double-click). If the map isn't centered the way you like, drag the map (by holding down the mouse's left button while you move the mouse). If you keep repeating that process, you'll eventually find a map showing the individual streets, unless you pick a rural area or third-world country. Another way to get a map of a location is to click in the white “Search Google Maps” box then type the location's address (or as much of it as you know) then press Enter.

If you click “Earth” (which is at the screen's bottom-left corner), you see an aerial photo of that spot, taken from a satellite. Yes, you can even see a photo of your own house's roof! (Exception: summertime trees look like giant cabbages.) If you zoom in on a popular street, you can even see what a person would see when walking down the street. If you drag your mouse left or right (while holding down the mouse's left button), you see what the person would see when turning his head. When you get tired of looking at Earth views, return to a normal map by zooming back out then clicking “Map” (at the screen's bottom-left corner).

**Driving directions** The best way to get driving directions is to go to **MapQuest Directions (MapQuest.com/directions)**.

Go ahead, have fun! See how MapQuest advises you to travel to your neighbors, your relatives, your job, and across the country. Mapquest's advice might surprise you: it might find a faster route you hadn't thought of.

If the screen's bottom asks “Let mapquest.com use your location?” click “Yes”. If the screen's middle asks “Let Microsoft Edge access your precise location?” click “Yes”.

Start typing the address where your trip starts (so it appears in the “Where are you starting?” box at the screen's left edge) or click “Current Location” (if you want to start from where you are now). As you type, you see the computer's guess about what address you're going to type. Click the computer's guess (if it's right) or finish typing the address yourself (and press Enter).

Click “Where are you going?” then type the address where your trip ends and press Enter (or click the computer's guess).

Click “Get Directions”.

Near the screen's left edge, you see “Route #1” and how many minutes & miles it will take. You also see a map, with the route marked in green. If you click “Route #2”, you see an alternate route instead, which is usually worse but might appeal to your personality.

Which route do you prefer? Click your favorite: “Route #1” or “Route #2”.

Click “View Route Directions”. You start seeing the turn-by-turn directions. Scroll down to see them all.

Click “Print” (which is near the screen's top, above the directions). Then you see route directions that are even more detailed.

To print onto paper, then click the green “Print” button then the “Print” that's at the screen's bottom-left corner.

While you're driving, reset your car's mileage counter to 0 each time you make a turn, so you can use the directions about how far to drive before turning — or if you prefer, try using the cumulative mileages that your printer adds for you.

Warning: the directions might mislead you (because highway exit numbers have changed, or the directions accidentally say “turn left” when they should say “turn right”, or construction makes you take a detour, or a vandal removed a street sign, or you didn't notice a turn), so give yourself extra time to backtrack, ask neighbors for directions, and try to bring along a traditional map!

MapQuest started as a division of a printing company (R.R. Donnelley), then became independent, then became part of AOL, so now AOL owns MapQuest.

**Different countries** The US Government has a branch called the “Central Intelligence Agency” (CIA), whose job is to spy on all the other countries. For a summary of what the CIA found out about each country, go to the **Central Intelligence Agency (CIA.gov)**, then click “World Factbook” (which is below “Resources”).

Click “Please select a country to view”. You see a list of all the world's countries and oceans. (Use that list's scroll arrow to see the whole list, which includes 267 places.) Click whichever country or ocean interests you.

Then you see a map. Below the map, you see these 10 topics:

introduction, geography, people (& society), government, economy, energy, communications, transportation, military (& security), transnational issues

Click whichever topic interests you. To stop viewing that topic, click the topic's name again.

**Airplane flights** If you want a cheap plane ticket and are flexible about what day you'll travel, try **CheapFlights.com**.

Of the major airlines, **Southwest Airlines (Southwest.com)** and **Jet Blue (JetBlue.com)** tend to have the lowest prices. For other airlines, try going to **Orbitz.com** (a consortium of 20 major

airlines), though Orbitz doesn't handle Southwest, American Airlines, and Delta.

**Hotels** To find a hotel, try **Kayak.com** or **Trivago.com**, or rent a room in somebody's home through **AirBnB.com**.

## Reputable references

The Internet contains many reputable references, which you can use, free!

**Encyclopedia Wikipedia.org** is the world's biggest encyclopedia — and it's free!

It includes over 5,321,000 articles written in English, 3,783,000 in Swedish, 3,667,000 in Cebuano (spoken in the Philippines), 2,015,000 in German, 1,888,000 in Dutch, 1,828,000 in French, 1,362,000 in Russian, 1,321,000 in Italian, 1,305,000 in Spanish, 1,261,000 in Waray (spoken in the Philippines), 1,200,000 in Polish, 1,152,000 in Vietnamese, 1,043,000 in Japanese, 951,000 in Portuguese, 918,000 in Chinese, 670,000 in Ukrainian, 529,000 in Catalan (spoken on the Spanish-French border), 518,000 in Persian, 459,000 in Norwegian, 455,000 in Arabic, and many in other languages (295 languages altogether), making a total of over 43 million articles.

To find an article, click in the empty white box, type the topic you want to search for, then press Enter (assuming your language is English). While you read the article, you can click any blue word to find a related article about that word.

The articles are written and edited by thousands of volunteers.

To edit an article yourself, click "Edit" (which is at the screen's top) while you're reading the article. (Exception: if the article is on a controversial topic that's often vandalized, such as "Obama" or "France" or "abortion", the article is locked so "Edit" is invisible.)

The edits you suggest will be reviewed by other editors, to make sure your suggestions are academically correct, appropriately footnoted, unbiased, and free of any sales pitches — and you're not a vandal. The computer keeps track of who did which editing.

Some articles begin with a warning that the article needs further editing.

Old-fashioned professors required students to write "term papers", but modern professors require students to write articles for Wikipedia instead.

The encyclopedia is based on the honor system: to keep it worthwhile, please edit responsibly!

Over 99% of Wikipedia's articles are correct. A few are misleading, so you can't trust Wikipedia completely and must double-check what you read there, but it's a good starting point for your research on any topic, especially since most of its articles on controversial topics give a balanced view.

**Health** For info about health, start at **InteliHealth.com**. It contains info that's reliable, easy to understand, and well organized. The Web site is owned by Aetna insurance company, but most of the info comes from (or is approved by) the Harvard Medical School and the University of Pennsylvania School of Dental Medicine, with additional input from the National Institutes of Health (a government agency).

More details from the National Institutes of Health (and the National Library of Medicine) are at **MedlinePlus (nlm.nih.gov/medlineplus)**.

Bogus health claims, from marketers of supplements and "natural cures," are called "quackery". To find out which health claims are bogus (false), go to **QuackWatch.com**.

**Tutorials About.com** includes easy-to-read articles that tutor you in over 70,000 topics.

Click in the white box that says "Search". Type whatever topic interests you and press Enter.

You'll see 3 lists of Web sites. Ignore the first and third lists (both titled "Ads related to"), which are just ads; use the second list (titled "About WEB RESULTS"), which shows About.com's tutorials: click whichever tutorial you want.

**Fact checking** Often you'll hear a statement that's hard to

believe: a rumor, exaggeration, or lie, from a friend, politician, email, or Website. Check it!

To check the accuracy of statements by **politicians**, you can go to **FactCheck.org** or, even better, The Washington Post's **Fact Checker (WashingtonPost.com/news/fact-checker)**, written by Glenn Kessler & Michelle Ye Hee Lee).

To check the accuracy of **other statements**, go to **Snopes.com**, which analyzes pernicious rumors & lies (just as William Faulkner's novels analyze the pernicious Snopes family). Here's how Snopes.com works....

At the screen's top, you see a menu, whose most useful choices are "What's New" (to see the newest rumors), "Hot 25" (to see the rumors that are spreading fastest), and "Archive" (to see the complete collection of rumors).

If you click "Archive", you see these rumor categories:

autos, business, Cokelore, college, computers, crime, critter country, Disney, embarrassments, entertainment, fake news, fauxtography, food, fraud&scams, glurge gallery, history, holidays, horror, humor, inboxes, rebellion, language, legal affairs, lost legends, love, luck, media matters, medical, military, old wives' tales, politics, quotes, racial rumors, religion, risqué business, science, September 11, sports, technology, travel, viral phenomena, weddings

Click the category you want. Then you see a list of rumors, each marked "FACT CHECK"; scroll down to see them all. (Above them and to the right of them are ads, which you can ignore.) Click the rumor that interests you. Then you see the rumor's details, with a circle. If the rumor is true, you see "TRUE", whose circle is green; if the rumor is false, you see "FALSE", whose circle is red; if the rumor is partly true, you see "MIXTURE", whose circle has both green & red.

Another way to check for rumors is to click "Search keywords or URL" (which is at the screen's top), then type the rumor's main words. At the end of your typing, press Enter. You'll see a list of rumors that relate to what you typed.

Snopes.com was started by David Mikkelson and his wife Barbara Mikkelson. She became the world's best investigative journalist, but she fell ill, got divorced from David, and is no longer associated with Snopes.com.

**Lawns** For advice on caring for your lawn, go to a Web site run by the University of Illinois and called **Lawn Talk (www.urbanext.uiuc.edu/lawnchallenge)**.

Click on one of these 4 topics:

selecting grasses  
planting & maintenance  
weeds & other problems  
other lawn care issues

Then you see a list of subtopics. Click on your favorite, then read the lecture.

The details apply to lawns in northern Illinois, but the general principles apply to all lawns. Next time you argue with your neighbors or family about your lawn, here's how to make them shut up: say "I took a college course on the topic."

## Government

You can reach your government through the Internet.

**General site** To explore the US government, start at **USA.gov** and follow the links.

**Taxes** For help with federal taxes, contact the **Internal Revenue Service (IRS.gov)**.

At the screen's left edge, you see a short list of popular forms & publications. If you want one of them, click it; if you want a different form or publication instead, do this:

Click "Find Forms". Click "Search current forms and publications" (which is in the screen's middle).  
Type the word "Form" and its number (such as "Form 1040" or "Form

1040 schedule B”) or type “Pub” and its number (such as “Pub 17”) or type a tax topic (such as “mortgage”). At the end of your typing, press the Enter key.

You see a list of items that match your search. (If you typed a form number, the list includes the form and also its instructions.) Click whichever you want.

Then you see the form or instructions or publication you requested (assuming your computer contains the Acrobat Reader program, so your computer can handle a PDF file).

To print the file onto paper simply, do this (assuming you’re using Windows 10 with Microsoft Edge):

Make sure your printer is turned on. Click in the screen’s middle, so a Printer icon appears near the screen’s top-right corner. Click that icon (or while holding down the Ctrl key, tap the P key). Click “Print” (which is at the screen’s bottom-left corner).

When the printing has finished, click the Back button (which is at the screen’s top-left corner and has a left arrow on it) so you can see and print other forms and instructions.

**Post office** For info about how to mail a letter, go to the Web site of the **United States Postal Service (USPS.com)**. It answers several questions...

What’s the best way to write an address on an envelope? For example, if you live in the USA, what’s the best way to write *your* address? What’s your 9-digit ZIP code? What’s the *best* way to write your street name, house number, apartment number, etc.? You might be surprised! To find out all that, do this:

Click “Look up a ZIP Code” (which is at the screen’s left edge).

You see a form that has 6 empty boxes (called “Company,” “Street Address,” “Apt/Suite/Other,” “City,” “State,” and “ZIP Code”). Fill those boxes as best you can. (“Company” is optional. For the “State” box, click its down-arrow, so you see a list of states, then click the state.)

Click the “Find” button. (It’s at the screen’s bottom. You might have to scroll down to see it.)

The computer will analyze what you typed, fix your mistakes, and write the address the way the post office prefers it. For example, the computer will put in the 9-digit ZIP code, abbreviate words such as “Road,” “Lane,” and “Highway,” get rid of all punctuation, and capitalize everything, so your address will be written the way the post office prefers and junk mailers use.

How much postage should you put on your letter or package? To find out, do this instead:

Click “Calculate a price” (which is at the screen’s left edge). The computer will ask you a series of questions then tell you the correct postage. (One of the questions might be the package’s weight; if you’re not sure, give an approximation, and the computer will give you an approximate answer, which you’ll need to double-check by going to the post office and using the post office’s scale.)

You’ll be surprised at the range of prices and choices, depending on how fast you need the package to travel, what type of goods are inside the package, and how thick & long the package is.

## Classified ads

**Craig’s List (Craigslist.org)**, which was started by Craig Newmark in San Francisco, is a list of classified ads that you can read — and you can create your own ad, free! The ads are highly organized, so you can find what you want fast!

Craig’s List is very popular. Each month, Craig’s List has:

80 million new classified ads (of which 1 million are job ads)  
over 60 million people reading the ads (making a total of 50 billion clicks)

To begin, look at the screen’s rightmost column, where you see a list of locations: click whatever country, state, or city interests you. (The menus let you choose from 700 locations in 88 countries.)

Then you see ads from that location, organized into 9 main categories —

community, personals, discussion forums, housing, for sale, services, jobs, gigs, résumés

and hundreds of subcategories. Click whichever subcategory you want. (Most subcategories are tame, but a few require you to be at least 18.)

For each ad in that subcategory, you see the ad’s headline. Click a headline to see its ad. When you finish looking at the ad, click the Back button (the left-arrow at the screen’s top-left corner), so you return to seeing the list of headlines.

While you’re looking at a list of headlines, you can create your own ad by clicking “post” (which is at the screen’s top-right corner). Posting your ad is free, except for ads in these categories:

therapeutic services (such as massage) in the USA

real-estate agents offering apartment rentals in or near New York City

dealers selling cars, furniture, and similar items in the USA & Vancouver BC

employers offering jobs in or near these 17 cities:

Atlanta, Boston, Chicago, Dallas, Denver, Houston, Los Angeles, Miami, New York, Philadelphia, Phoenix, Portland, Sacramento, San Diego, Seattle, San Francisco, Washington DC

Those few exceptions are how Craig’s List gets funded.

## Shopping

The computer can help you shop.

**Banks** To compare banks in your city, state, and across the nation and find out which offer the best rates, go to **BankRate.com**.

You see 9 categories:

mortgage, refinance, auto loans, home equity, student loans, CD rate, savings/checking, credit cards, personal loans

Each category has a circle next to it. Which category do you want? Click its circle.

Answer one or two more questions, then click the “NEXT” button. Then you see info about banks. But beware of these limitations:

When BankRate.com shows you just one bank, that might not be the best rate: it might be just an ad. To see the best rates, click “WE FOUND MORE”.

Bankrate.com doesn’t mention **promotional rates** (great temporary rates advertised to new customers for crazy-length terms, such as “7-month CD”) and **negotiated rates** (where a bank helps its old customers by matching rates from competitors), so ask your local bank about better deals!

**Cars** If you want to buy a car (new or used), visit these car sites to get smarter: **MSN Autos (autos.msn.com)**, **AutoByTel.com**, **Edmunds.com**, and **CarsDirect.com**. To find the best prices, visit **TrueCar.com**, which compares dealers near you and gets them to bid low prices.

**Housing** To buy, sell, or rent a home, use the classified ads at **Craig’s List (Craigslist.org)**, but also see the listings at **Zillow.com**, which gives you 2 menus. The top menu says:

Buy Rent Sell Mortgages Agent finder Advice Home design More

The lower menu says:

Buy Rent Sell Zestimate

To estimate what a house is worth, do this:

Click “Zestimate” then “Enter your home address”. Type the address that interests you and press Enter.

You see the estimated price for buying or selling the home. That estimate is based partly on the home’s assessed value and partly on what nearby homes have recently sold for. The estimate is close to what the home is worth if the home is normal (not weird or recently altered) and your town has kept accurate property records.

Below that, you see the estimated price to *rent* the home.

Above that, you see a map or photo of the neighborhood. Below all that, you see the home’s details: the number of bedrooms, bathrooms, square feet of floor space, heating & cooling methods, acres of land, year built, previous sales, assessed value, property tax, and similar homes for sale. If you click “More”, you see even more details. If you click “Neighborhood”, you see a map of the neighborhood, showing the value of many nearby homes.

The real-estate industry’s main Website is **Realtor.com**, which resembles Zillow.com but emphasizes its own agents.

**Books** To buy traditional books quickly & cheaply, you can visit **Amazon.com**; but to find the *best* books at *lower prices* you'll often have better luck at **Walmart.com**. (To buy *this* book quickly and cheaply, phone me at **603-666-6644** for better deals, or peek at my Website, **SecretFun.com**.)

**Eyeglasses** To buy eyeglasses cheaply, go to **ZenniOptical.com**.

You pay just \$6.95 for a complete set of glasses. That price includes high-index lenses with anti-scratch coating, UV protection, lens-edge polishing & beveling, frame, carrying case, and cleaning cloth. Add a shipping charge of just \$4.95 per order (regardless of how many glasses are in the order). If you want special lens treatments or special frames, you pay a surcharge, but it's small. Before ordering, you must find out what kind of glasses you want (by getting a prescription or making your own crude measurements). The glasses are custom-made for you in China and shipped by air from China to California to you.

**Jobs** To get a job, look at the ads at **Craig's List (Craigslist.org)** but also visit **Monster.com** and **CareerBuilder.com**. Each of those 3 sites has a million jobs (plus advice), so you see about 3 million jobs total.

**Buy a business** Have you ever dreamed of being the boss and running your own business? But are you too chicken to start your own? Would you rather buy a business that's already successful, and have the pleasure of running it? If so, go to the Web to find out what businesses are available for sale. A good place to start hunting is **BizBuySell.com**, which has 45,000 businesses for sale.

## Arts

The Internet has lots of info about arts.

**YouTube** One of the most popular Websites is **YouTube.com**. It lets you watch thousands of videos (movies). Most are short (usually between 2 and 8 minutes long), contributed by amateur movie makers (mostly students in their dorm rooms). Many are hilarious. They're much more interesting, per minute, than the stuff Hollywood churns out, and they're free!

To use that site, you need a fast (broadband) Internet connection (cable, DSL, FiOS, or cell phone).

The screen's middle shows many videos. Scroll down to see more. If you visited YouTube before, YouTube remembers what kinds of videos you liked, so it shows you videos that are similar. Click whichever video you want.

Most of the videos are tame. Some movies are raunchy but require you to register and confirm you're at least 18 years old. Once you register, you can copy videos that you've created to YouTube.com, free, so all your friends and the whole world can admire what you've created!

While a video plays, try moving the mouse pointer to the video's middle, but without clicking yet. Then you have these choices:

To make the video consume the whole screen, click the broken square at the video's bottom-right corner, then click "Okay". To return to normal viewing, press the Esc key (which is at the keyboard's top-left corner).

To pause the video, click its middle. To resume, click its middle again.

To increase the volume (or unmute it), drag the white circle (near the loudspeaker icon) toward the right.

Each video has an ID, which is 11 characters long. While you watch a video, its ID appears in the address box after "www.YouTube.com/watch?v=". If you know a video's ID, you can see the video by doing one of these activities:

type its ID after "www.YouTube.com/watch?v=" and press Enter  
 type its ID in YouTube's search box, press Enter, then click the sample frame  
 type its title in YouTube's search box, press Enter, click a sample frame, then verify the ID  
 go to my video site (www.AngelFire.com/nh/secret/videos.html) and find a link to the video

Here are my favorite amazing videos. Warning:

"l" is lower-case L "0" is the digit zero  
 "1" is the digit 1 "O" is capital O  
 "I" is capital I

Classical music (which I've listed in the order the music was composed):

ID	Title	Contents
JdxkVQy7QLM	Pachelbel Rant	funny rant about how pop music copies Pachelbel's Canon
PxxGz_LUKoo	Canon PAgagNINI	Pachelbel's Canon wrecked by comedy group PAgagNINI
JdcZCHAeYW0	Vanessa Devils Trill	sexy electric violinist Vanessa Mae plays baroque music
MNTYyuWILNE	Turca Igudesman Joo	play Mozart's Turkish march but keep changing the key
baI8V6S6yl4	Wang Turkish March Yuja Wang	plays jazzed-up version of Mozart's Turkish march
rRgXUFnfKIY	Beethoven 5	Beethoven's 5 <sup>th</sup> symphony, illustrated with colored blocks
MzXoVo16pTg	PDQ Bach Beethoven	Beethoven's 5 <sup>th</sup> symphony, played as a football game
hDXWK3W477w	Beethoven 5 <sup>th</sup> Piano	Beethoven's "Emperor" concerto, by Zimerman & Bernstein
eG10lvh7vcU	Chopin Ballade #1	pianist Horowitz plays Chopin ballade, while you see the score
eZm7OW3ufbc	Horowitz Interview	pianist Horowitz gets interviewed by 60 Minutes
yQ3kqNc-GJc	Borge and Hambro	pianists play both halves of Chopin's Minute Waltz simultaneously
Aajtw30-YG0	The Cat Concerto	cat & mouse play Liszt (but <a href="http://vimeo.com/161359411">vimeo.com/161359411</a> is better)
zaqddtuGNC8	Lang Lang Hungarian	Lang Lang (inspired by Cat Concerto) plays Liszt seriously
-562rqZ7sKI	Borge Listz Rhapsody	pianist Borge fights for a seat while playing Liszt
7ABZmE7ifdE	Borge Mulvey	pianist Borge fights a soprano singing Verdi's opera Rigoletto
eIQVmzhk2gA	Dvorak Piano Quintet	5 music teachers from 5 countries play Dvorak's 2 <sup>nd</sup> piano quintet
M_VCbnqbwWA	Rachmaninoff Piano	Rachmaninoff's 2 <sup>nd</sup> piano concerto, while you see the score
ifKklhYF53w	Rachmaninoff Hands	using wooden blocks to imitate Rachmaninoff's big hands
vMBGK-Rek2U	The Second Waltz	André Rieu joyously plays Shostakovich's second waltz
HP1WFiNCCZU	Argerich Shostakovich	frenzied musicians play Shostakovich's Piano Quintet

Popular music:

ID	Title	Contents
fYy2p_ODVMU	Hail Mary	song that made Pomplamoose a famous 2-person band
OvYZMqQffQE	My Favorite Things	Pomplamoose's creative version of "Sound of Music" song
vsMIuuV05uc	La Vie en Rose	Pomplamoose's creative version of Edith Piaf's French song
X2BEhk1fqZo	Je Suis Jalouse	French woman jealous when her boyfriend's ex-lover visits
qrO4YZeylOI	Bad Romance	Lady Gaga's song about destructive love (R rated)
I3WPKznFvfk	Lady Pasta	parody of Lady Gaga's "Bad Romance," sung by pasta
Ym0hZG-zNOK	Beat It	Michael Jackson's video about avoiding fights
ZcJjMnHoIBI	Eat It	Weird Al Yankovic's scene-by-scene parody of "Beat It"
tqDBB0no6dQ	Pancreas	Weird Al Yankovic's parody of Beach Boys style
lvt4b_qwC_Q	Cocktails For Two	Spike Jones & his gang celebrate the end of Prohibition
KlyXNRrsk4A	Last Friday Night	Katy Perry, as a teenage girl freaked out about her wild party
8UVNT4wvIGY	I Used To Know	while nude & getting painted, couple sings about breakup
9bZkp7q19f0	Psy Gangnam Style	Korean guy goes wild in super-stylish Gangnam district
8fgNibZKPwI	Christmas Dance	Korean troupe dances you "Merry Christmas" in 3 languages
nonVj7odbmU	Homecoming Queen	song from 1984, when "guns in school" were just fun fantasy
zqfFrCUrEbY	My Generation	the elderly reinterpret The Who's "My Generation"
Mg9APRGaU50	HappySlip Jingle	"Jingle Bells" sung by a split personality
1Lj_IUai3ZU	Children's Song	hey, kids, watch this fun video while mommy slits her throat
LbkNxYaULBw	What Song Is This?	national anthem backwards, so "brave" sounds like "vayrb"
DMGIQvPBQE0	Ed Roll'D Trololo	on censored Russian TV, singer hides cowboy song's words

Men trying to date women:

ID	Title	Contents
v6iE2j-e6m8	Free Lunch	tale of a man who gets free lunches by dating
0IGd_a5P7XI	How We Never Met	a boy & girl eye each other and hope to date but never talk
tSdELZxEnHY	Strangers Again	alas, a relationship goes through 6 stages then breaks up

Surviving hard times:

ID	Title	Contents
sak-EW81qiU	Na Ponta dos Pés	ballet through a Brazilian slum
ZIRHyzb5SI	My Name is Lisa	dealing with mom who's not quite right and going downhill
ZBR2G-II3-I	I Will Survive	Gloria Raynor sings about being ditched by a guy
t2667ogd5kw	I Will Survive (turkey)	a turkey imitates Gloria Raynor to survive Thanksgiving

Classic TV shows:

ID	Title	Contents
bfTyEtVIe84	Carol Burnett Dentist	new dentist gets nervous, so screws up (Carol Burnett Show)
A_set7Do_gg	Carol Burnett Lunch	rushed customer meets slow cook (Carol Burnett Show)
jfDyTUil8xs	Carol Burnett Funeral	Robin Williams attends funeral, twice (Carol Burnett Show)
1W9kJw26_NQ	Gracie Takes Spanish	why "gracias" means "sit down" (Burns & Allen Show)
AmKRnOPJOFU	Gracie Confuses Desk	you didn't know a secretary is a desk? (Burns & Allen Show)
XPpsI8mWKmg	Last F**kable Day	famous actresses get too old to fuck (rated R) (Amy Shumer)

Magic by spliced videos:

ID	Title	Contents
dNJdJIwCF_Y	Fresh Guacamole	turn a hand grenade into guacamole
xNV4KfQXyz4	Zach King Magic	jump into a moving car, and beyond, using Vines videos

**Movie database** To find out details about famous movies, go to the **Internet Movie Database (IMDb.com)** then do this:

Click in the white box that's next to "go". Type your favorite topic (for example, type the name of an actor, actress, director, or movie) then press Enter. The computer will show you a list of underlined topics similar to what you typed; click the topic you want.

You'll see lots of info about that topic.

For example, if the topic's a famous movie, you'll see info about its actors, actresses, director, writers, plot, quotable lines, and mistakes. You'll also get lots of opinions (from ordinary folks) about whether the movie was any good. Those man-in-the-street opinions are much more emotional and to-the-point than the blather published by most movie "critics". Different people notice different things about a movie: after you've watched a movie, read these reviews to find out what you didn't notice! You can also add your *own* comments about the movie (if you register, which is free), and you can get and give a list of similar movies that are recommended.

The Website is extremely well linked. For example, if you look up a movie, you see links to each member of the cast and staff who created the movie; each such link takes you to a biography of that person. So if you're watching a movie and wonder "Where have I seen him before?" just click on his link to find out! You can link back: each person's biography contains links to all the movies the person was in.

Because of the good links and content, this Website is on everybody's list of "the best Web sites ever created".

**Free music** To hear your favorite music, you can use 2 free methods:

**Method 1** Go to **YouTube.com**, which has videos, and see whether anybody made a video about your favorite music.

**Method 2** Go to **Pandora.com**. You see a white box saying "Enter an artist, song, or genre to create a station". Click in that box. Type the name of your favorite performer, song, composition, composer, or musical style (and press Enter). The computer will invent a radio station that plays music similar to what you requested. You'll hear the station's first song. If you want to skip to the next song, click "▶▶|", which is at the screen's top. Under each song's icon, you see a thumbs-down button and a thumbs-up button; click one of those buttons (or click "menu" then "I'm tired of this song") to tell the computer whether you liked the song, so the computer learns what kind of songs you like most and adjusts the radio station to please you more.

**Rap Dictionary** When you listen to rap music, do you understand all the slang? If not, go to **The Rap Dictionary (RapDict.org)**, which defines about 5000 slang words. If you want the definition of a specific word, click in the Search box (at the screen's top-right corner), type the word, and press Enter. If instead you want to browse through the dictionary, click either "Dictionary" (which starts showing you the main dictionary) or one of these dictionary categories —

nouns, verbs, adjectives, interjections, gangs, geography  
or "Artists" (which starts showing you the list of who's who in the rap biz) or one of these artist categories:

groups, labels, MCs, DJs, producers

**Classic books** Did you ever wish you could walk into a library and find the greatest classic books, all in one place? They're all together at **Great Books Online (bartleby.com)**.

You get the complete text of hundreds of famous classics: the Bible, Homer, Shakespeare, many more masterpieces from many countries, plus fairy tales (by Aesop & Andersen & Grimm), science classics (written by Darwin and Einstein), reference works (Bartlett's Quotations and the American Heritage Dictionary), and beyond. What a feast! Click one of the four tabs ("Fiction", "Nonfiction", "Verse", or "Reference") and browse! Nearly everything your literature teacher said you "ought" to read is here. Indulge! It's all yours, free. You don't even need a library card, and you don't need to "return it by next Tuesday".

## Math

To solve a math problem, go to **WolframAlpha.com**. You see a wide **orange search box**. Click in that box, then type a math problem. If you don't see the answer yet, press Enter.

For example, if you type—

2+3

the computer will immediately say:

2+3=5

If you enter instead —

3+x=10

the computer will solve that algebra equation and say:

x = 7

(To see that solution, scroll down.) Nearby, the computer will also show graphs about that equation.

If you enter a problem involving advanced algebra or advanced calculus, the computer will solve it, show you the exact answer using algebra & calculus symbols, calculate the answer as a decimal also, show you graphs of everything involved.

Then if you then click "Step by-step solution", the computer will start showing you how it figured out the answer; but to see *all* the steps, you must create a Pro account, by paying either \$6 monthly or \$57 annually. The Pro account is useful: by copying those steps onto your homework paper, you can trick your teacher into believing you figured out the whole thing yourself!

Besides knowing standard high-school and college math, the computer also knows the other important numbers in life. For example, if you enter —

How old was Queen Elizabeth II when Elvis Presley was born?

the computer will look up the birthdays of those famous people, realize the queen was about 8 years old when Elvis was born, and give the exact answer:

8 years 8 months 18 days

It can also convert units: inches & meters, quarts & liters, Fahrenheit & Celsius, dollars & euros (using today's exchange rates), and anything else you can dream of. For example, it can solve:

convert \$5 to euros

It understands many topics. At the screen's bottom (if the orange box has been empty) or when you click "Examples", you see 30 sample topics:

mathematics, step-by-step solutions, words (& linguistics), units (& measures), statistical (& data analysis), people (& history), dates (& times), chemistry, culture (& media), money (& finance), physics, art (& design), socioeconomic data, astronomy, music, health (& medicine), engineering, places (& geography), food (& nutrition), education, materials, earth sciences, life sciences, weather (& meteorology), technological world, sports (& games), computational sciences, transportation, Web (& computer systems), surprises

If you click one of those topics, you see several subtopics (in orange). If a subtopic has ">>" next to it, click that to see sub-subtopics. Along the way, you see lots of examples of what you can type in the orange search box, but those are just suggestions: in the orange search box, type anything you wish!. Type anything you wish in the orange search box; you're seeing just suggestions.

That Website is starting to change how math is taught. Instead of getting bogged down in the details of algebra & calculus computations, teachers are telling students to let WolframAlpha do those details; students should concentrate instead on learning what the problems and answers *mean* and how to interpret them.

## Humor

The world is funny, and the Internet reflects that.

**Trivia** For 3,000 strange but true facts about many topics, go to **Useless Facts (AngelFire.com/ca6/uselessfacts)**. The screen's left edge shows this list of 20 topics:

animals, bugs, celebrities, crimes, food&drink, geography, history, inventors, medical, music, myths, plants, science&technology, sports, strange laws, surveys&statistics, TV& movie words, words, world records, other

Click whichever topic you wish. Then you'll see lots of strange trivia about that topic. Scroll down to see more. At the Web page's bottom, click "next" to see even more.

**Political humor** The best movies making fun of politics are at **Jibjab.com**. Go there, then click "All" (at the screen's top) then "Originals". You'll see a list of some political satires. Click one of them, or click "All JibJab Originals" (at the bottom) to see 3 pages more. These are the most polished:

Title	Year	Message
This Land	2004	2004 Presidential campaign was goofy
Big Box Mart	2005	Walmart is scary
Nuckin' Futs!	2006	2006 was scary — fuckin' nuts!
What We Call the News	2007	TV news is just fluff
Star Spangled Banner	2007	Presidential speeches are goofy
Time for Some Campaignin'	2008	2008 Presidential campaign was goofy
He's Barack Obama	2009	We want Obama to be Superman

For other political humor, go to **Political Humor (politicalhumor.about.com)**.

**Darwin awards** Darwin believed in evolution, caused by "survival of the fittest". The Darwin awards are given each year to fools who proved Darwin's principle by accidentally killing themselves. To see how the fools killed themselves — and to be glad you're not as stupid as they — go to **DarwinAwards.com**. The Website says:

The Darwin Awards commemorate those who improve our gene pool by removing themselves from it.

## Computer industry

For questions about the computer industry's dominant company (Microsoft) and its products, go directly to Microsoft's own Web site, **Microsoft.com**. Click a menu item, photo, or ad, or click the white box (at the screen's top-right corner) then type the specific topic you're interested in (and press Enter).

For info about Apple's computers & products, go to **Apple.com**.

## Hassles

While you use the Internet, you'll experience several hassles.

### Delays

The computer might take a long time to switch from one page to another. Near the screen's bottom-left corner, the computer prints messages about the switch.

### How to stop

If the switch is taking a long time and you don't want to wait for it to finish, click the **Stop button**, which is near the screen's top *left* or *center*, not the top right!

**Edge&Chrome** The Stop button is an *X* that appears left of the address box.  
**IE** The Stop button is an *X* at the address box's end.

Clicking the Stop button makes the computer stop the switching. "Switching pages" is called **loading a new page**. When you click the Stop button, here's what happens:

If the computer has nearly finished loading the new page, the computer shows you most of the new page.

If the computer has *not* nearly finished loading the new page, the computer shows you the previous page.

### How to try again

When you try to view a new page, the computer might get stuck because of a transmission error. To try again, stop the current transmission attempt (by clicking the **Stop button**) and then see what happens.

If you find yourself back at the previous page, try again to switch to the new page.

On the other hand, if you find yourself with most, but not all, of the new page on the screen, and you insist on seeing the entire new page, tell your ISP to try again to transmit the current page, by doing this:

**Edge** Click the **Refresh button** (an arrow circling up & to the right).  
**IE** Click the **Refresh button** (an arrow circling to the right).  
**Chrome** Click the **Reload button** (an arrow circling to the right).

### Change the home page

When your computer gets IE or Chrome for the first time, here's what happens:

**Edge** The home page shows news.  
**IE 10&11** The home page is [www.msn.com](http://www.msn.com), adjusted to your computer.  
**IE 9** The home page is the computer manufacturer's website.  
**Chrome** The home page shows a list of pages you'd like.

But you can change the home page. Make it be anything you want! If there's no particular page you want to always start with, you can even make the home page be blank.

Here's how to change the home page.

**IE 10&11** If you want the home page to show a list of pages you've visited frequently, do this:

Click the Tools button (the bumpy-circle gear at the screen's right edge) then "Internet options" then "Use new tab" then "OK".

If instead you want a particular page to become the home page, do this:

Get that page onto your screen (so you can admire it). Click the Tools button (the bumpy-circle gear at the screen's right edge) then "Internet options" then "Use current" then "OK".

**IE 9** If you want the home page to be just a blank page (and it's not a blank page yet), do this:

Click the Tools button (the bumpy-circle gear at the screen's right edge) then "Internet options" then "Use blank" then "OK".

If instead you want a particular page to become the home page, do this:

Get that page onto your screen (so you can admire it). Click the Tools button (the bumpy-circle gear at the screen's right edge) then "Internet options" then "Use current" then "OK".

**Edge & Chrome** Don't bother changing the home page; it's already quite useful.

## Cache

Whenever you view a page, the computer secretly puts a copy of it onto your hard disk, in a folder called the **cache** (which is pronounced "cash" and is a French word that means "hiding place"). If you try to view that page again, the computer checks whether the page's copy is still in the cache. If it is, the computer puts that copy onto your screen, because using that copy is faster than making your ISP retransmit the page.

When the cache gets so full that no more pages fit in it, the computer discards the pages you haven't viewed recently. Also, the computer tends to **clear the cache** (erase the entire cache) when you exit from the browser (by clicking its X).

Whenever you tell the computer that you want to view a page, the page will come onto your screen fast if the computer uses the page's **cached copy**. If the computer can't find the page's cached copy (because the page was never viewed before or because the cached copy was discarded), the computer tells your ISP to transmit the page and you must wait awhile for the transmission to finish.

Problem: suppose you want to check the latest news (such as the news about a war or an election or stocks). If you view a page that shows you news, you might be reading *old* news, because the computer might be using an old cached copy of the page. **To make sure you're reading the latest news, click the Refresh button** (which Chrome calls the "Reload button"). That forces the computer to get a new version of the page from your ISP.

## Eat up your time

The Internet can eat up a lot of your time. You'll wait a long time for your modem, your ISP, and Web sites to transmit info to you. If you try search the Web for info about a particular topic, you'll spend lots of time visiting wrong Web sites before you finally find the site containing the gem of info you desire.

Along the way, you'll be distracted by ads and other seductive links to pages that are fun, fascinating, and educational. They don't directly relate to the question you wanted answered, but they broaden your mind and expand your horizon, o cybercitizen and student of the world! The Internet is the ultimate serendipity: it answers questions you didn't know you had.

## Trust

**Don't trust the info you read on the Internet.** Any jerk can create a Web page. The info displayed on a Web page might be misleading, dishonest, or lies.

Unlike the typical book, whose accuracy is checked by the book's editor and publisher, the typical Web page is unchecked. An individual with unconventional ideas can easily create a Web page expressing those ideas, even if no book-publishing company

would publish such a book.

Info on Web pages can be racist, hateful, sexist, libelous, treasonous, and deadly. Even though the Web page appears on your computer's screen, the info on the Web page might *not* have the good-natured accuracy that computers are known for.

**Freedom of speech** The United States Constitution's first amendment guarantees that Americans have freedom of speech and freedom of the press. The Internet makes that freedom possible, by letting anybody create a Web page that says anything to the whole world. The Internet is freedom unchained, uncensored. That's wonderful but frightening.

Dictators in many countries have tried to suppress the Internet, because the Internet lets people say and speak truths from around the world and band together to protest against dictatorship. Nice people in many countries have also tried to suppress the Internet when they see how many lies are printed on the Web.

**Fringe groups** The Web is an easy way for "fringe groups" to advertise themselves and make their voices heard. In a dictatorship, the "fringe groups" are those who want democracy; in a democracy, the "fringe groups" are often those who want to create their own little dictatorships.

**Unreliable advice** Use the Web as a way to broaden your mind to different ideas, but don't believe in them until you've thought about them and checked them against other sources. Some of the medical advice on the Web can kill you; some of the financial advice on the Web can bankrupt you; some of the career advice on the Web can land you in jail. About 90% of what's written on the Web is true, but beware of the other 10%.

**Who's the source?** When reading a Web page, consider its source. If the Web page is written by a person or company you trust, the info on that page is probably true. If the Web page is written by a total stranger, be cautious.

**Errors** If the Web page contains many spelling & grammar errors, its author might be a foreigner, an immigrant, a kid, or an idiot. Perhaps the ideas on the page are as inaccurate as the way they're expressed. When researching a topic on the Web, don't be surprised if one of the Web pages turns out to be just a copy of a term paper written by a kid whose teacher gave it an F because its info is all wrong.

**Ads** Even if a Web page is written by a reputable source, beware: it might include ads from other organizations whose motives are unsavory. When reading a traditional newspaper page printed on paper, you can usually tell which parts of the page are ads and which parts are articles, since the ads use different fonts; but when you're reading a Web page, it's not always clear which links are to "articles" and which links are to "ads", since the entire Web is a vast jumble of fonts.

**Parental controls** Many parents are afraid to expose their young kids to wild sex, wild violence, and wild hate groups. Many Internet pages contain lots of sex, violence, and hatred, either directly or through the ads they lead you to. Many parents don't want to expose their young kids to such Web pages. Many conservative religious people are afraid to expose *themselves* to such Satanic temptations.

You can get programs that censor the Internet. For example, you can get programs that stop your computer from displaying pages mentioning sexy words; but beware: a program stopping all references to "breast" will also stop you from researching "breast cancer" and "chicken breast recipes". You can get programs that limit kids to just pages that have been reviewed and approved by wise adults; but then the kids are restricted from reading any newer, better pages that haven't been reviewed yet.

# Email

This chapter explains how to use these popular email programs:

<b>Windows 10 Mail</b>	(an email tile, for Windows 10)
<b>Windows Live Mail</b>	(an email client, for Windows 7)
<b>Yahoo Mail</b>	(a webmail service)
<b>Gmail</b>	(a newer webmail service)

Here's another popular Internet activity: you can send **electronic mail (email)**, which is pronounced "ee mail" and was formerly written as "e-mail". An email message imitates a regular letter or postcard but is transmitted electronically so you don't have to lick a stamp, don't have to walk to the mailbox to send it, and don't have to wait for the letter to be processed by your country's postal system.

Email zips through the Internet at lightning speed, so a letter sent from Japan to the United States takes just minutes (sometimes even seconds) to reach its destination. Unlike regular mail, which the Post Office usually delivers just once a day, email can arrive anytime, day or night. If your friends try to send you email messages while your computer is turned off, your Internet service provider will hold their messages for you until you turn your computer back on and reconnect to the Internet.

Since sending email is so much faster than using the Post Office (which is about as slow as a snail), the Post Office's mail is nicknamed **snail mail**. Yes, email travels fast, takes just a few minutes to reach its destination, and is free; snail mail travels slowly, typically takes several *days* to reach its destination, and costs over 50¢ (for a stamp, an envelope, and paper to write on). So if your friend promises to send you a letter "soon", ask "Are you going to send it by email or snail mail?"

An "email message" is sometimes called just "**an email**". Instead of saying "I sent 3 email messages", an expert says "I sent 3 emails".

To use email, you need an **email program**.

The email program is called **an email client** if it's on your computer's hard disk. Here are the most popular email clients:

<b>Windows 10 Mail</b>	is part of Windows 10
<b>Windows Live Mail</b>	is a free add-on to Windows XP&Vista&7
<b>Outlook</b>	is by Microsoft and part of Microsoft Office
<b>Safari</b>	is by Apple and part of Mac OS X
<b>Thunderbird</b>	is by Mozilla.org, for use with Firefox

The email program is called **webmail service** if it's on a Website instead of your computer's hard disk. Here are the most popular webmail services for the general public:

<b>Yahoo Mail</b>	is at mail.yahoo.com, which is owned by Yahoo
<b>Gmail</b>	is at www.gmail.com, which is owned by Google
<b>Hotmail</b>	is at www.hotmail.com, which is owned by Microsoft

Some ISPs (such as AOL and Comcast) have invented special webmail services for use by just their own customers.

Which is better to use: an email client or a webmail service? An email client has 3 advantages over a webmail service:

An email client <b>runs faster</b> than webmail.
An email client <b>understands more commands</b> than webmail.
A webmail service puts ads on your screen and in your outgoing messages; an email client <b>doesn't force you to look at ads</b> .

But an email client has 2 *disadvantages*:

Before you use an email client the first time, <b>you must install it</b> .
If you've switch to a different computer (because you bought a new computer, or your building has several computers, or you're visiting a friend), you can't easily read your old messages: <b>your messages and email privileges are restricted to one computer</b> (unless you fiddle a lot).

## Simple email

Email can be simple!

### Start

Here's how to start using email.

**Windows 10 Mail** Make sure you've created an email account, using Gmail or Yahoo Mail or another popular webmail service. I recommend Gmail, so I'll assume you've created a Gmail account (by following my previous instructions for "Gmail").

Once you've created a Gmail account, do the following.

Tap the Mail tile (which is normally the Start menu's 2<sup>nd</sup> tile).

If the computer says "Welcome", do this:

Tap "Get started" then "Add account" then "Google" then "Enter your email". Type your email address (such as TrickyLiving@gmail.com) then press the Enter key.

Tap "Password". Type your Gmail password then press the Enter key.

Put your finger on "Windows would like to" and swipe up, so you see the blue Accept button. Tap that button then the gray "Done" button then "Ready to go".

You see the **Mail window**. Maximize it (by tapping its maximize button if not maximized yet).

**Windows Live Mail** Windows Live Mail is part of Windows Live Essentials.

If your computer doesn't have Windows Live Essentials yet, you can get it & install it by one of these methods:

**IE method** Using your Web browser (such as Internet Explorer), go to explore.live.com. Click the biggest "Windows Live Essentials" then "Download now". Then follow the screen's instructions.

**Update method** Click the Start button then "All Programs" then "Windows Update". Then follow the screen's instructions.

**Getting-started method** Click the Start button then "Getting Started" then "Get Windows Live Essentials" then "Download now". Then follow the screen's instructions.

**To start using Windows Live Mail** (after it's been installed), click Start then "All Programs" then "Windows Live Mail".

You'll see the **Windows Live Mail window**. If it doesn't consume the whole screen yet, **maximize it** (by clicking its maximize button, which is next to the X button).

If the computer says "Sign in to Windows Live Mail", do the following....

If you have a Windows Live ID already, do this:

Type your Windows Live ID password. Check the box marked “Remember me and sign me in automatically”. Click the “Sign in” button.

If you *don't* have a Windows Live ID yet, do this instead:

Click “Sign up”. Click in the “Use your email address” box. Type the **email address** that your ISP agreed to assign you (such as SecretGuide@comcast.net). Press the Tab key.

The computer asks for a **Windows Live ID password**. You can invent a password; but to avoid confusion, I recommend you use the password your ISP assigned you. Type it, press Tab, type it again, press Tab again.

Type your **first name** (or nickname) as you'd like it to appear in all email messages you send (such as “Russ”). Press Tab, type your **last name**, press Tab again.

Fill in the rest of the form. Click the “I accept” button (which you see when you scroll down).

Close all windows, so you can start fresh (and avoid Microsoft's ads about Hotmail).

Go back to the paragraph that begins, “To start using Windows Live Mail...”.

If the computer asks “Set Windows Live Mail as your default email program?”, click “Yes”.

If your ISP is Comcast, do this (if you haven't done so already):

Click “Accounts” (which is at the screen's top) then “Properties” then “Advanced”. Type 587. Remove the check mark from “Leave a copy of messages on server” (by clicking). Press Enter. Click “Home”.

If the computer says “Verify the email address”, do this (if you haven't done so already):

Click “Verify the email address”. Then click the line below “Use this link to verify your account”. Then follow the instructions. Then close the Web browser window, so you see the Windows Live Mail window again.

**Yahoo Mail** To use Yahoo Mail (which is a webmail service), use your Web browser (such as Internet Explorer) to go to mail.yahoo.com. The computer will say “Yahoo Mail”.

If you have a Yahoo ID already, do this:

Type your Yahoo address (such as SecretGuide@yahoo.com) or just the part that comes before “@” (such as SecretGuide). Press the Tab key. Type your Yahoo password. Click the yellow “Sign In” button.

If you *don't* have a Yahoo ID yet, do this instead:

Click “Create New Account”. Type your first name. Press the Tab key. Type your last name. Press the Tab key.

Invent your Yahoo ID. It must begin with a letter. It must have at least 3 more characters, which can include letters, digits, underlines, at most one period, no spaces, no special symbols. (For example, I invented SecretGuide.) Type what you invented. Press the Tab key twice. (If the computer says “This ID is not available”, click the Yahoo ID you typed, edit it, and try again.)

Invent a Yahoo password that's at least 6 characters long. Type it (in the “Pick a password” box), press Tab, then type it again.

Click the “Select month” down-arrow. Click the month you were born. Press Tab. Type the 2-digit date you were born. Press Tab. Type the 4-digit year you were born. Click the “My gender” down-arrow. Click your gender. Press Tab, 3 times. Type your ZIP code. Press Tab twice. Type your cell-phone number (just digits, without dashes or spaces). Press Tab. If you have another email address, type it.

Click “Create my account” (which you'll see when you scroll down).

You see another page of questions, for security. Answer them. At the end of that page, click “Done”.

If you did all that successfully, the computer will say “Thank you”. Click “Get Started” then press Enter.

**Gmail** To use Gmail (which is a webmail service), use your Web browser (such as Internet Explorer) to go to www.gmail.com. The computer will say “Gmail”.

If you have a Gmail username already and the computer says “Sign in”, do this:

Type your Gmail address (such as TrickyLiving@gmail.com) or just the part that comes before “@” (such as TrickyLiving). Press the Tab key, type your Gmail password, and press Enter.

If you *don't* have a Gmail username yet, do this instead:

Click “Create an account”. Click in the “First” box. Type your first name, press the Tab key, type your last name, and press the Tab key.

Invent your Gmail username. It must have at least 6 characters, which can include letters, digits, periods, no spaces, no special characters. (For example, I invented TrickyLiving.) Type what you invented. Press the Tab key. (If the computer says “Someone already has that username, click the username you typed, edit it, and try again to press the Tab key.)

Invent a Gmail password that's at least 8 characters long. Type it, press Tab, then type it again.

Finish filling the form. Click “Next step” (which you see when you scroll down).

The computer says “Your profile”. Click “Next step”.

The computer says “Welcome”. Click “Continue to Gmail”.

The computer says “Welcome!” For now, just click the X to the right of “Welcome”.

## Incoming mail

At the screen's left edge, you see “Inbox”. To handle incoming mail, click the “Inbox” that's at the screen's left edge.

Now most of the screen is divided into 3 big windowpanes, which I'll call “**left**”, “**list**”, and “**message**”.

**Windows 10 Mail** The left windowpane is black. The message windowpane is white and at the right. The list windowpane is white and in the middle.

**Windows Live Mail** All 3 windowpanes are white. The message windowpane is at the right. The list windowpane is in the middle.

**Yahoo Mail & Gmail** All 3 windowpanes are white. The list windowpane is at the top-right. The message windowpane is at the bottom-right

In addition to those big panes, you might see extras:

**Yahoo Mail** shows ads at the screen's right edge.

**Gmail** shows a one-line ad at the screen's top.

The list pane shows a list of all email messages that other people have sent you. (If Windows Mail 10 says “To get messages older than two weeks, go to Settings”, tap that notice then “The last 2 weeks” at the screen's right side then “Any time” then the left-arrow at the screen's top). For each message, the list shows whom the message is **from** (the sender's name), the message's **subject** (what the message is about), and the time when the message was **received**.

The first time Windows Live Mail is used on your computer, the list pane shows you've received a message from the Windows Live Team. That message asks you to “Verify the email address”.

The first time Yahoo Mail is used with your Yahoo ID, the list pane shows you've received a message from Yahoo.

The first time Gmail is used with your Gmail account, the list pane shows you've received 3 messages from the Gmail team and 1 message from the Google+ team.

After you've used the email program awhile, you'll probably receive additional messages, from your friends! If there are too many messages to fit in the pane, view the rest of the messages by pressing that pane's scroll-down arrow (the symbol ▼ or ∨ at the pane's bottom right corner).

Looking at a message makes it change:

**Windows 10 Mail** Each message is initially listed with a blue vertical line before it. The blue line disappears when you've finished looking at the message (and switched to looking at a different message).

**Windows Live Mail, Yahoo Mail, and Gmail** Each message is initially listed in bold type (and Windows Live Mail show a picture of a sealed envelope). If you look at a message's details awhile (at least 1 second in Windows Live Mail, 2 seconds in Yahoo Mail), that message becomes unbolded.

In what order do the messages appear?

**Windows 10 Mail, Windows Live Mail, Gmail** The computer puts similar messages together, to form a **conversation thread** of back-and-forth replies.

**Yahoo Mail** Normally, the newest message is listed first; older messages are listed afterwards. That's called "sort by date". If want to see the messages in a different order, click "SORT BY DATE" then click what you want instead, such as "Sender", which makes the messages be listed by the sender's name (in alphabetical order). To return to "sort by date", click "SORT BY" then "Date". The triangle next to "Date" normally points down, which means the newest message is listed first. (If you want to reverse the order, so the oldest message is listed first, click "SORT BY" then "Date", so the triangle next to date points up.)

**If you're using Yahoo Mail, do this:**

Click "Actions". Make sure there's a check mark before "Enable Preview Pane". (If no check mark is there yet, create one by clicking there, then click "OK".) That check mark makes the bottom pane work. (Ignore "Choose your favorite way to communicate.")

In the **list pane**, you see the list of messages you received. Decide which message you want to read, and click (or tap) the sender's name. Then you start seeing the complete message.

**Windows 10 Mail, Windows Live Mail** The message appears in the so-called "bottom" pane (which is actually to the *right* of the top pane instead of below).

**Yahoo Mail** The message appears in the bottom pane.

**Gmail** The top-right pane temporarily shows the message, and its right edge shows ads relating to the message's words. When you finish reading the message & ads, click the "←" button to make the top-right pane return to normal.

If the message is too long to fit in its pane, you can see the rest of the message by doing this:

**Windows 10 Mail** If you have a touch screen, put your finger in that pane's middle and flick your finger up. If you don't have a touch screen, move the mouse pointer to the screen's right edge, then press the pane's scroll-down arrow (the symbol ▼ at the screen's bottom-right corner).

**Yahoo Mail, Windows Live Mail, Gmail** Press that pane's scroll-down arrow (the symbol ▼ or ✓ at the pane's bottom right corner).

**Junk** If a message seems to be junk, here's what happens:

**Windows 10 Mail** puts the message in the **Spam folder** instead of the Inbox. To see what's in the Spam folder, tap "More" (which is in the left pane) then "Spam" (or "Junk"). To see what's in the Inbox again, tap "Inbox".

**Windows Live Mail** puts the message in the **Junk email folder** instead of the Inbox. To see what's in the Junk Email folder, click "Junk email". To see what's in the Inbox again, click Inbox.

**Yahoo Mail** puts the message in the **Spam folder** instead of the Inbox. To see what's in the Spam folder, click "Spam". To see what's in the Inbox again, click Inbox. Once a month, the computer erases the Spam folder's messages.

**Gmail** puts the message in the **Spam folder** instead of the Inbox. To see what's in the Spam folder, click the word "Spam" at the screen's left edge. (If you don't see the word "Spam" yet, make it appear by clicking "More".) To see what's in the Inbox again, click Inbox. If a message has been in the Spam folder for more than 30 days, the computer erases it.

## How to send mail

To write an email message, perform 5 steps.

**Step 1: get the window** Do this:

**Windows 10 Mail** Tap "New Mail" (which is near the screen's top-left corner). The message pane will say "To".

**Windows Live Mail** Click "Email message" (which is near the screen's top-left corner). You'll see the **New Message window**.

**Yahoo Mail** Click "Compose" (which is near the screen's top-left corner). The top-right pane will temporarily say "To".

**Gmail** Click "Compose" (which is near the screen's top-left corner). You'll see the **New Message window**.

**Step 2: choose a recipient** To whom do you want to

send the message? To send an email message to a person, you must find out that person's email address. For example, if you want to send an email message to me, you need to know that **my email address is "Russ@SecretFun.com"**.

For the Internet, **each email address contains the symbol "@", which is pronounced "at"**. For example, my Internet address, "Russ@SecretFun.com", is pronounced "russ at secret fun dot com".

To find out the email addresses of your friends and other people, ask them (by chatting with them in person or by phoning them or by sending them snail-mail postcards).

If you send email to the following celebrities and nuts, they'll probably read what you wrote. (But they might not have enough time to write back, and they prefer you use the feedback forms on their Websites instead.)

	<u>Comment</u>	<u>Email address</u>
<b>Actors</b>		
Tom Hanks	plays nice guy in trouble	NY122@aol.com
Brad Pitt	heartthrob	CiaoBox@msn.com
Adam Sandler	childish adult	Sandler@cris.com
<b>Politicians</b>		
Obama or Trump	President of USA	comments@WhiteHouse.gov
Biden or Pence	Vice-President of USA	Vice_President@WhiteHouse.gov
<b>Reporters &amp; commentators</b>		
Dave Barry	syndicated columnist	NoLowFlow@DaveBarry.com
Bill Nye	PBS's "Science Guy"	BillNye@nyelabs.com
<b>Fictions</b>		
Santa Claus	delivers presents	Santa@NorthPole.com
Scott Adams	draws Dilbert cartoons	ScottAdams@aol.com
<b>Computerists</b>		
Bill Gates	Microsoft's chairman	BillG@microsoft.com
Russ Walter	nut, wrote this book	Russ@SecretFun.com
<b>Pop singers</b>		
Britney Spears	young	Britney@BritneySpears.com
Madonna	sexual	Madonna@wbr.com

When you type an email address, you don't have to capitalize. The computer ignores capitalization.

Never put a blank space in the middle of an email address.

Warning: people often change their email addresses, so don't be surprised if your message comes back, marked undeliverable.

**Type the email address of the person to whom you want to send your message.** If you're a shy beginner who's nervous about bothering people, **try sending an email message to a close friend or me or yourself.** Sending an email message to yourself is called "doing a Fats Waller", since he was the first singer to popularize these lyrics:

Gonna sit right down and write myself a letter,  
And make believe it came from you!

If you send an email message to *me*, I'll read it and try to send a reply, but be patient (since I check my email just a few times per day) and avoid asking for advice (since I give extensive *advice* just by regular phone calls to 603-666-6644, not email).

At the end of the email address, do this:

**Windows 10 Mail** Tap "Subject".

**Windows Live Mail, Yahoo Mail** Press the Tab key, so you're at the line marked "Subject".

**Gmail** Press the Tab key twice, so you're at the line that was marked "Subject".

**Step 3: choose a subject** Type a phrase summarizing the subject (such as "let's lunch" or "I'm testing"). At the end of that typing, press the Tab key again.

**Step 4: type the message** Go ahead: type the message, such as "Let's have lunch together in Antarctica tomorrow!" or "I'm testing my email system, so please tell me whether you received this test message." Your message can be as long as you wish — many paragraphs! Type the message as if you were using a word processor. For example, press the Enter key just when you reach the end of a paragraph. (If you're using Windows Live Mail, you can maximize the window you're typing in by clicking the window's maximize button, which is next to the X button.)

**Step 5: send the message** When you finish typing the message, click the **Send button**.

**Windows 10 Mail** The Send button is near the screen's top-right corner. It shows a flying envelope.

**Windows Live Mail** The Send button is left of where you typed the email address. It shows an envelope with a right-arrow.

**Yahoo Mail** The Send button is above where you typed the email address.

**Gmail** The Send button is at the screen's bottom, below your typing.

The window (or pane) you typed in will close automatically.

## When do messages transmit?

When you try to send or receive a message, when does the transmission actually occur?

**Receiving a message from a friend** When a friend tries to send you a message, the message goes from your friend's computer to your friend's **email server** (such as Yahoo or your friend's Internet Service Provider), which passes the message on to *your* email server. The message is stored on your email server's hard disk.

Since your email server is always turned on (day and night, 24 hours), it's always ready to receive messages your friends try to send you, even while your own computer is turned off.

When you try to examine your Inbox, your computer ought to contact your email server and tell the email server to transmit any new messages to your computer; but if your computer is lazy, it might not contact your email server immediately to get the newest messages. Instead, your computer might decide to wait awhile before bothering your email server. For example, your computer might contact your email server just once every 30 minutes to check whether there are any new messages for you; or your computer might not contact your email server until the next time you start running the email program — which might be the next day.

Here's how to make your computer communicate with your email server *now*, so all the messages you're trying to receive get transmitted to your Inbox *now*:

**Windows 10 Mail** Tap the circling arrows, which are at the list box's top.

**Windows Live Mail** Click envelopes above "Send/Receive" (or press F5 key).

**Yahoo Mail** Click "Inbox".

**Gmail** Click the **Refresh button** (an arrow circling to the right).

If you want Windows Live Mail to check for messages more frequently (such as every 5 minutes), do this:

Click the **Windows Live Mail button** (which is left of "Home" and has a down-arrow) then "Options" then "Mail". Put a small number (such as 5) in the minutes box (by clicking the box's down-arrow). Press Enter.

**Sending a message to a friend** When you tell the computer to send a message to a friend, the computer typically transmits the message *immediately* to your email server (which passes it on to your friend's email server).

## Printing

To copy a message onto paper, get the message onto the screen then do this:

**Windows 10 Mail** Tap the "..." (which is at the screen's top-right corner) then "Print" then the Print button.

**Windows Live Mail** Click the Windows Live Mail button (which is left of "Home" and has a down-arrow) then "Print". Press Enter.

**Gmail** Click the "Print all" button (which looks like a printer and is far to the right of the message's subject). Press Enter. After the computer prints, close that window (by clicking the "X" on the "Gmail" tab).

**Yahoo Mail** Press the keyboard's P key (or click "Actions" then "Print Message"). If the computer says "Print Error", click "Try Again". You see the Print window. Click the "Print" above "Subject". Press Enter. After the message has printed, close the Print window (by clicking its X).

## Acronyms

People often use these expressions and abbreviations when writing email messages (and text messages on phones):

Expression	Abbreviation
I'm GRINNING!	<g>
I have a BIG GRIN!	<bg>
I have a VERY BIG GRIN!	<vbg>
Laughing out loud!	LOL
Lots of laughing out loud!	LOLOL
Lots & lots of laughing out loud!	LOLOLOL
Laughing my ass off!	LMAO
Laughing my ass off, on the floor!	LMAOOTF
Rolling on the floor, laughing!	ROTFL
Just kidding!	JK
Ha ha, only joking!	HHOJ
Tongue in cheek!	TIC
Shaking my head	SMH
Shaking my damn head	SMDH
Shaking my fucking head	SMFH
Shaking my head in despair	SMHID
Too much info	TMI
No problem!	NP
Way to go!	WTG
Too good to be true!	2GTBT
Good game!	GG
Great minds think alike.	GMTA
I love you.	ILY
Love you, miss you!	LYMY
Wish you were here!	WYWH
Hugs and kisses!	XOXO
Best friend forever!	BFF
Thinking about you!	TAU
Long time, no see!	LTNS
Oh my God!	OMG
before	B4
later	L8R
real soon now	RSN
See you later!	CUL8R
Talk to you later!	TTYL
Ta-ta for now!	TTFN

Parent over shoulder!	POS
People are watching!	PRW
Be back later!	BBL
Be right back!	BRB
Be back in a flash!	BBIAF
Just a minute!	JAM
Back at keyboard!	BAK
Welcome back!	WB
Thanks in advance.	TIA
No reply necessary.	NRN
in my opinion	IMO
in my humble opinion	IMHO
in my not-so-humble opinion	IMNSHO
off the top of my head	OTTOMH
I am not a lawyer.	IANAL
Trust me on this.	TMOT
Don't quote me on this.	DQMOT
for your information	FYI
in case you missed it	ICYMI
frequently asked question	FAQ
Do it yourself.	DIY
Read the manual.	RTM
Read the f***ing manual.	RTFM
Oh, I see.	OIC
Still in the dark!	SITD
Are you OK?	RUOK
Okay!	K
in real life	IRL
Been there, done that!	BTDT
Good luck!	GL
Good luck, have fun!	GL/HF
Shit out of luck!	SOL
by the way	BTW
as a matter of fact	AAMOF
for what it's worth	FWIW
before I forget	BIF
in any event	IAE
in other words	IOW
on the other hand	OTOH
Don't hold your breath.	DHYB
Laughing at your mamma!	L@YM
what the hell	WTH
what the fuck	WTF
Are you serious?	AYS
Oh, really?	O RLY
Yeah, really!	YARLY
No way!	NOWAI
You only live once.	YOLO
What do you think?	WDYT
Got to see you!	GTSY
On my way!	OMW

Those abbreviations are called **acronyms**.

Acronyms can be ambiguous. For example, "LOL" can mean "laughing out loud" or "lots of love". If you receive an email saying "LOL", you must guess whether the sender is laughing at you or laughing *with* you or loves you. Don't write an acronym unless you're sure the recipient will understand it.

### Smiley's pals

Here's a picture of a smiling face:



It's called a **smiley**. If you rotate that face 90°, it looks like this:

:-)

People writing email messages often type that symbol to mean "I'm smiling; I'm just kidding".

For example, suppose you want to tell the President that you disagree with his speech. If you communicate the old-fashioned way, with pencil and paper, you'll probably begin like this:

Dear Mr. President,  
I'm somewhat distressed at your recent policy announcement.

But people who communicate by email tend to be more blunt:

Hey, Prez!  
You really blew that speech. Jeez! Your policy stinks. You should be boiled in oil, or at least paddled with a floppy disk. :-)

The symbol ":-)" means "I'm just kidding". That symbol's important. Forgot to include it? Then the poor Prez, worried about getting boiled in oil, might have the Secret Service arrest you for plotting an assassination.

The smiley, ":-)", has many variations:

Symbol	Meaning
:-)	I'm smiling.
:-(	I'm frowning.
:-<	I'm real sad.
:-c	I'm bummed out.
:-C	I'm <i>really</i> bummed out!
:-I	I'm grim.
:-/	I'm skeptical.
:-7	I'm smirking at my own wry comment.
:->	I have a devilish grin.
:-D	I'm laughing.
:-o	I'm shouting.
:-O	I'm shouting really loud.
:-@	I'm screaming.
:-8	I talk from both sides of my mouth.
:-p	I'm sticking my tongue out at you.
:-P	I'm being tongue-in-cheek.
:-&	I'm tongue-tied.
:-9	I'm licking my lips.
:-*	My lips pucker — for a kiss or pickle.
:-x	My lips are sealed.
:-#	I wear braces.
:-?	I smoke a pipe.
:-}	I have a beard.
:-[	I'm a vampire.
:-{	I wear lipstick.
:-}	I have a mustache.
:-~	My nose runs.
:-)~	I'm drooling.
:-)-8	I have big breasts.
:-*)	I'm drunk.
:-~I	I'm smoking.
:-~j	I'm smoking and smiling.
:-'(-	I'm crying.
:-'(-)	I'm so happy, I'm crying.
;-)	I'm winking.
%-)	Dizzy from staring at screen too long!

8-)	I wear glasses.
B-)	I wear cool shades, man.
-O	I'm yawning.
X-(	I just died.
O:-)	I'm an angel.
+:-)	I'm a priest.
[:-)	I'm wearing a Walkman.
&:-)	I have curly hair.
@:-)	I have wavy hair.
8:-)	I have a bow in my hair.
B:-)	My sunglasses are on my forehead.
-:-)	I'm a punk rocker,
-:-(	but real punk rockers don't smile.
[:-]	I'm a robot.
3:]	I'm your pet,
3:[	but I growl.
};->	I'm being devilish,
>:->	and lewdly winking.
C=:-)	I'm a chef.

The symbol for "love" is —

<3

because if you rotate it 90° in the opposite direction, it looks like a heart. So to say "I love you" just write:

I <3 U

To say "Lots of love!" just write:

<333

Since those symbolic pictures (icons) help you emote, they're called **emoticons** (pronounced "ee MOTE ee cons"). Technically, just the first one in that list is called a **smiley**, but some folks call *all* emoticons "**smileys**."

To understand those American smileys easily, you must turn your head 90°.

**Japanese versions** The Japanese have invented these **straight-on smileys**, which don't require you to turn your head — you can look at them straight-on:

Symbol	Meaning
(^_^)	I'm smiling.
(@_@)	I'm dizzy and giddy.
(*^_^*)	I'm smiling and blushing.
(^,^)	Smiling with my cute little-girl mouth!
(-_-)	I'm angry but trying to force a smile.
(T_T)	I'm crying. Tears run down my cheeks.
QQ	I have tears in my eyes. I'm upset.
(>_<)	Ouch! That was a painful failure!
(>_<)(>_<)	I deny it strongly, shake my head!
(-_-)zzz	I'm going to sleep. Good-night!

The Japanese call their straight-on smileys "**facemarks**", since they're marks that represent faces simply, without rotation.

**Other body parts** Analysts of American culture invented these **assicons** to illustrate slang:

Symbol	Meaning
(!_)	regular ass
(!)	tight ass
(!_)	fat ass
[!_]	hard ass
(_)	half-assed
(_o_)	ass that's been around
(_O_)	ass that's been around even more
(*_)	sore-ass loser
(_o^o_)	wise ass
(_E=mc2_)	smart ass
(_?)	dumb ass
(_zzz_)	tired ass
(_13_)	unlucky ass
(_jack_)	jackass
(_Y_)	ass that can't say no
(_x_)	kiss my ass
(_X_)	get off my ass
(_\$_)	money coming out of his ass
(_#_)	take an ass pounding
(_~_)	Latin ass
(_/)	Asian ass

Analysts of the female form have invented these **titicons** (which are also called **boobiecons**):

Symbol	Meaning
(o)(o)	regular tits
(O)(O)	big tits
(@)(@)	big, hairy tits
(.)(.)	tiny tits
(,)(,)	droopy tits
(')(')	perky tits
(.Y.)	curvy tits
(\$)(\$)	silicone tits

## Leet

Youngsters sometimes write emails in a secret slang code called **Leet** (which stands for “élite”), so their parents won’t understand — and neither will out-of-touch school administrators, employers, censors, and email filters.

To translate English to Leet, change the letters to similar-looking digits (or other symbols):

English	Leet
the letter o or O	the digit 0
the letter i or I	the digit 1 or the symbol !
the letter s or S	the digit 5 or the symbol \$
the letter z or Z	the digit 2
the letter b or B	the digit 8
the letter l or L	the digit 1 or 7
the letter t or T	the digit 7 or the symbol +
the letter a or A	the digit 4 or the symbol @
the letter g or G	the digit 6
the letter e or E	the digit 3
the letter h or H	the symbol #
the letter x or X	the symbol % or >>
the letter v or V	the symbols √
the letter w or W	the symbols √√
the letter y or Y	the letter j

Examples:

English	Leet
boobs	80085
Leet	1337
shit	\$#!+
ass	@\$

Change to things that sound similar:

English	Leet
the letter f or F	the letters ph
the sound “ate”	the digit 8
the sound “are”	the letter R
the sound “you”	the letter U
the sound “and”	the symbol &
the sound “ant”	the symbol &

To avoid *too* much confusion, make just *some* of those changes — just enough to confuse your parents without confusing your friends. For example, keep the b and t:

English	Leet
banned	b&
newbie (beginner)	n00b
Hooray! We won!	w00t (we own other team)

To further confuse parents and be cool, some kids purposely type letters in the wrong order —

English	Cool Leet
the word “crap”	carp
laughing out loud	OLO (instead of LOL)
the word “porn”	pr0n or n0rp
the word “the”	t3h (instead of th3)
newbie (beginner)	b00n (instead of n00b)

or type a nearby letter on the keyboard:

English	Cool Leet
the letter “o”	p (which is next to o)
the word “own”	pwn
capital “O”	ZP (since Z is near Shift)
Oh, my God!	ZPMG

## What did you send?

To check which messages you sent, do this:

**Windows 10 Mail** In the left pane, tap “**Sent**” (or “**Sent Mail**” or “**Sent Items**”).

**Windows Live Mail** In the left pane, click “**Sent items**”.

**Yahoo Mail** In the left pane, click “**Sent**”.

**Gmail** In the left pane, click “**Sent Mail**”.

You’ll see a list of messages you sent. For each message, the list shows the address you sent it to, the message’s subject, and when you sent it.

When you finish admiring that list, make the screen become normal again by clicking “Inbox” (which is in the left pane).

## Reply

While you’re reading a message that somebody’s sent you, here’s how to reply.

**Windows 10 Mail, Windows Live Mail, Gmail** Click “**Reply**”.

**Yahoo Mail** Press the keyboard’s R key (or click **Reply to sender** button, which is above “SORT BY DATE” and shows a single arrow curving back toward the left).

Then type your reply.

While you type, the computer shows a copy of the message you’re replying to.

If you want to abridge that copy (so it doesn’t clutter your screen), use your mouse (except in Gmail): drag across the part you want to delete, then press the Delete key.

When you finish typing your reply, click (or tap) the Send button. (If Yahoo Mail says “Verification”, type the characters you see then click “Continue”.) The computer will send your reply, along with your abridged copy of the message you’re replying to.

## Delete old messages

The list of received messages — and the list of sent messages — can become long and hard to manage. To reduce the clutter, delete any messages that no longer interest you.

To delete a message you received (or a copy of a message you sent), make the message’s name appear in the list pane, then do this:

**Windows 10 Mail** Tap the name (so it turns blue) then “Delete” (at the screen’s top-right corner).

**Windows Live Mail** Click the name so it turns blue. Then press the Delete key.

**Yahoo Mail** Click the name so it turns blue. Then press the Delete key.

**Gmail** Click the box that’s left of the name, so you see a check mark. Then click the trash can.

That tells the computer you want to delete the message. The computer moves the message into a **Trash** folder (which Windows Live Mail calls the **Deleted items** folder). It resembles the Windows Recycle Bin.

To find out what’s in that folder, do this:

**Windows 10 Mail** Tap “More” (which is in the left pane) then “Trash”.

**Windows Live Mail** Click “Deleted items”.

**Yahoo Mail** Click “Trash”.

**Gmail** If you don’t see “Trash” yet, make it appear by clicking “More”. Click “Trash”.

You’ll see what’s in that folder: a list of the messages you said to delete.

Are you *sure* you want to delete all those messages?

If you change your mind, here's how to keep one of those messages:

**Windows 10 Mail** In the list pane, right-click the message's name. Tap "Move". Tap where you want the message moved ("Inbox" or "Sent Mail").

**Windows Live Mail** In the list pane, click the message's name then "Move to". You see the Move window. In that window, double-click where you want the message moved ("Inbox" or "Sent items").

**Yahoo Mail** Find the message's name (in the list pane) and drag that name to where you want the message moved (the left pane's Inbox or "Sent").

**Gmail** In the list pane, click the message's name then the "Move to" button (which looks like a black file folder). You see a menu under the "Move to" button. In that menu, click "Inbox".

When you're *sure* you want to eliminate *all* messages in the Trash folder, do this:

**Windows Mail 10** While you're looking at the list of messages in the Trash, tap the first message's name. Hold down the keyboard's Delete key, until all the Trash messages disappear.

**Windows Live Mail** Right-click "Deleted items" (using the mouse's right-hand button). Click "Empty 'Deleted items' folder" then "Yes".

**Yahoo Mail** Click the trash can that's next to "Trash". Click "OK".

**Gmail** While you're looking at the list of messages in the Trash, click "Empty Trash now". Click "OK".

Handle the Junk Email folder (or Spam folder) the same way as the Trash Items folder.

## Signature

While you're writing an email message, you can add a few lines at the bottom, to identify who you are. Those lines are called your **signature** (or **sig**).

For example, your sig can include your full name, address, and phone number. You can mention your *office's* address & phone number, but be cautious about revealing your *home* address & phone number, since email messages are often viewed by strangers.

If you're employed, you might also wish to give your company's name, your title, and a disclaimer, such as "The opinions I expressed aren't necessarily my employer's." You might also wish to reveal your personality, by including your favorite saying (such as "Be creative" or "May the Lord bless you" or "Turned on by Twinkies"). But keep your sig short: any sig containing more than 7 lines of text is considered an impolite waste of your reader's time.

Don't bother putting your email address in your sig, since your email address appears automatically at the top of your message.

Here's how to put the same sig on all your email messages easily. For Windows 10 Mail, do this:

Tap the gear (which is at the left pane's bottom).  
Look at the screen's right edge. If you see "Signature", tap it; otherwise, tap "Options".

Below "Use an email signature" you see "On" or "Off". If you want a signature, make sure that says "On". (If it says "Off", tap the "Off" to make it become "On".)

Windows 10 Mail normally makes the signature be "Sent from Mail for Windows 10". That signature is in the big white box below that "On". To change that signature, tap it then edit it.

When you finish editing, make the screen return to normal by tapping the gear again.

For Windows Live Mail, do this:

Click the **Windows Live Mail button** (which is left of "Home" and has a down-arrow) then "Options" then "Mail" then "Signatures" then "New".

Press Enter (so your sig's top line will be blank). Then type whatever words and numbers you want to be in your sig; press the Enter key at the end of each line.

Click "Add signatures to all outgoing messages". Click "OK". Then the computer will automatically put that sig at the bottom of each new message you write.

For Yahoo Mail, do this:

Click the **Yahoo Options button**, which is a gear (bumpy circle) next to your name (near the screen's top-right corner). Click "Mail Options" then "Signature" (which is at the screen's left edge) then the down-arrow then "Show a rich text signature". Click in the white box below "Sans Serif 1".

Then type whatever words and numbers and numbers you want to be in your sig. Press Enter at the end of each line.

Click "Save". Then the computer will automatically put that sig at the bottom of each new message you write.

Click "INBOX" (which is at the screen's left edge).

For Gmail, do this:

At the screen's left edge, find the word "Gmail". To the far right of "Gmail", at the screen's right edge, find Gmail's **Settings button**, which is a gear (bumpy circle). Click it then click the word "Settings".

Scroll down until you see "Signature". Click in the white box under "No signature".

Then type whatever words and numbers and numbers you want to be in your sig. Press Enter at the end of each line.

Click the "Save Changes" button (which you'll see when you scroll down). Then the computer will automatically put that sig at the bottom of each new message you write.

While you edit a message, edit its sig! Customize its sig to match the rest of the message.

## Finish

When you finish using email, do this:

**Windows 10 Mail, Windows Live Mail** Close the window (by clicking the X at the screen's top-right corner).

**Yahoo Mail** Click your name (near the screen's top-right corner) then "Sign Out".

**Gmail** Click your name (near the screen's top-right corner) then "Sign out".

## Attachments

An email message can have a file attached to it.

### Send a file attachment

While you're writing a message, here's how to insert a file (such as a picture you drew in Paint, or a document composed in WordPad or Microsoft Word).

Click the **Attach button**, by doing this:

**Windows 10 Mail** Tap "Insert" (which is at the message pane's top) then "Attach".

**Windows Live Mail** Click the button that says "Attach file" and looks like a paper clip.

**Yahoo Mail, Gmail** Click the button that looks like a paper clip.

Which file do you want to insert? Make its icon appear on the screen. If its icon is not on the screen because the computer is showing a different folder, do this:

**Windows 10 Mail** Tap the folder that the file is in.

**Windows Live Mail, Yahoo Mail, Gmail** At the screen's left edge, you see a list of folders. (To see the whole list, scroll it up or down). Click or double-click the folder that the file is in.

When the file's icon is finally on the screen, double-click the file's icon.

Near the message you were writing, you can see your file's name.

**Windows 10 Mail** The file's name is below the word "Attachments" (which is below the Subject box).

**Windows Live Mail** The file's name is next to the paper clip, below the Subject box.

**Yahoo Mail** Click the "▶" below the paper clip. Then you see the file's name.

**Gmail** The file's name is below the message.

Make sure the message and the file's name are correct.

Then click (or tap) the Send button. That makes the computer send the message and attached file.

## Receive a file attachment

If a friend sends you a message that includes an attached file, here's what happens:

**Windows 10 Mail** While you're reading the message (in the message pane), tap the attachment's name (which is in a gray box).

**Windows Live Mail** While you're reading the message (in the message pane), click the attachment's name. (The name is near the pane's top-left corner, below the paper clip.)

**Yahoo Mail** While you're reading the message (in the message pane), click the attachment's name. (The name is at the pane's top, next to a paper clip. The name is blue.) Click "Download Attachment".

**Gmail** While you're reading the message, click "Download" (which is below the message).

If the computer asks "Do you want to open or save this file?", click "Open". (If the computer instead asks "What would you like to do with this file?", click "Open it" then "OK".)

If the computer says "A website wants to open web content", click "Allow".

The computer will try to show you the pictures and words that are in the attached file, by running the program that created the file. For example, if the file is a picture created by Paint, the computer will try to run Paint; if the file is a document created by Microsoft Word, the computer will try to run Microsoft Word. (If the file was created by software that your computer doesn't own and your computer doesn't know how to handle the file, your computer will gripe by saying "Open With".)

When you finish looking at the pictures and words that are in the attached file, close whatever program showed it (such as Paint or Windows Photo Gallery or Microsoft Word), such as by clicking that program's X button. You'll return to seeing your email program's screen.

## Multiple people

An email message can be sent to many people. Here's how...

### Multiple addresses

If you want to send a message to several people, do this:

**Windows 10 Mail** Press the Enter key between their addresses.

**Windows Live Mail** Put semicolons between their addresses. For example, if you want to send a message to the President of the United States (whose address is [President@WhiteHouse.gov](mailto:President@WhiteHouse.gov)) and also to me ([Russ@SecretFun.com](mailto:Russ@SecretFun.com)), address the mail to:

[President@WhiteHouse.gov](mailto:President@WhiteHouse.gov); [Russ@SecretFun.com](mailto:Russ@SecretFun.com)

The space after the semicolon is optional. If you accidentally type a comma instead of a semicolon, the computer will eventually turn the comma into a semicolon for you.

**Yahoo Mail & Gmail** Put spaces between their addresses. For example, if you want to send a message to the President of the United States (whose address is [President@WhiteHouse.gov](mailto:President@WhiteHouse.gov)) and also to me ([Russ@SecretFun.com](mailto:Russ@SecretFun.com)), address the mail to:

[President@WhiteHouse.gov](mailto:President@WhiteHouse.gov) [Russ@SecretFun.com](mailto:Russ@SecretFun.com)

That little list of addresses is called the **mailing list**.

### Carbon copies

Here's how to send a message *mainly* to the President of the United States but also send me a copy:

In the main address box (called "To"), type the address of the main person you want to send the letter to (which is [President@WhiteHouse.gov](mailto:President@WhiteHouse.gov)).

In a box marked "**Cc**" (which stands for "Carbon copy"), type the address of the person you want to send a secret copy to (which is [Russ@SecretFun.com](mailto:Russ@SecretFun.com)). Here's how to make that box appear:

**Windows 10 Mail** Tap "Cc & Bcc".

**Windows Live Mail** Click "Show Cc & Bcc".

**Yahoo Mail** Click the "CC" button.

**Gmail** Click "Cc".

Here's how to send a message *mainly* to the President of the United States but also send me a copy, and make the copy be secret, so the President of the United States doesn't know the copy was sent to me:

In the main address box (called "To"), type the address of the main person you want to send the letter to (which is [President@WhiteHouse.gov](mailto:President@WhiteHouse.gov)).

Make sure you see a **Bcc box**. ("Bcc" stands for "Blind carbon copy".) If you don't see a Bcc box yet, create it by doing this

**Windows 10 Mail** Tap "Cc & Bcc".

**Windows Live Mail** Click "Show Cc & Bcc".

**Yahoo Mail** Click the "BCC" button.

**Gmail** Click "Bcc".

In the Bcc box, write the address of the person you want to send a secret copy to (which is [Russ@SecretFun.com](mailto:Russ@SecretFun.com)).

## Replies

While you're reading a message you received, here's how to send a reply: click either "**Reply**" or "**Reply All**".

If you click "**Reply**", your reply will be sent to just the person who sent you the message. (Yahoo Mail permits this shortcut: instead of clicking "Reply", you can just tap the keyboard's R key.)

If instead you say "**Reply All**", your reply will be sent to the person who sent you the message and also to everybody else on that person's mailing list. Here's how to say "Reply All":

**Windows 10 Mail, Windows Live Mail** Click "Reply all".

**Yahoo Mail** Press the keyboard's A key (or click the **Reply to all** button, which shows a pair of arrows curving back toward the left).

**Gmail** Click "Reply to all".

For example, if Bob sends a message addressed to a list of three people (you, Sue, and Jill) and you want to reply, click either "**Reply**" (which will send your reply just to Bob) or "**Reply All**" (which will send your reply to Bob and also to the other people on Bob's mailing list: Sue and Jill).

Type your reply, such as "Thanks for your email; you made me laugh" or "I love what you wrote and want to marry you" or "I think you're nuts and should be locked up".

While you type, the computer shows a copy of the message you're replying to. If you want to abridge that copy (so it doesn't clutter your screen), use your mouse (except in Gmail): drag across the part you want to delete, then press the Delete key.

Click the Send button. The computer will send what you typed, along with a copy of the undeleted part of the message you're replying to.

## Forward

While you're reading a message you received, here's how to send a copy of it to a friend.

**Windows 10 Mail, Live Mail, Gmail** Click "Forward".

**Yahoo Mail** Press the keyboard's F key (or click the Forward button, which shows an arrow pointing to the right).

Type your friend's email address.

Press the Tab key several times, until you're in the big white box where you can type a message. Type a comment to your friend, such as "Here's a joke Mary sent me." Below your typing, the computer automatically shows a copy of the message you're forwarding.

Click (or tap) the Send button.

# Security

These tips will help keep your computer secure, so you'll have fewer problems and need fewer repairs.

## Back up your work

When you're typing lots of info into a word-processing program (or any similar program), the stuff you've typed is in the computer's RAM. Every 10 minutes, copy that info onto the hard disk, by giving the Save command. (To learn how to give the Save command, read my word-processing chapter.)

That way, if the computer breaks down (or you make a boo-boo), the hard disk will contain a copy of most of your work, and you'll need to retype at most 10 minutes' worth.

### Don't trust automatic backups

If your word-processor is modern, it has a feature called "automatic timed backup", which can make the computer automatically save your document every 10 minutes. Don't trust that automatic feature! It might be saving your latest error instead of what you want.

For example, if you accidentally wreck part of your document and then automatic timed backup kicks in, you've just replaced your good, saved document by a wrecked one, and the good one is gone forever. Give the Save command *manually*, so that *you*, not the computer, decide when and what to save.

### Split into chapters

If you're using a word-processing program to type a long book, split the book into chapters. Make each chapter be a separate file. That way, if something goes wrong with the file, you've lost just one chapter instead of the whole book.

### Make extra backups

Besides saving your work in the hard disk's main folder (which is typically called "My Documents"), make extra copies of your work also, in case you or colleagues wreck what's in My Documents accidentally — or an enemy or virus wrecks it maliciously.

**While writing this book, I made several copies of it, to make sure I wouldn't lose what I wrote:**

I copied it **onto paper** (by telling the computer to "print" the document).

I copied it **onto USB flash drive** (by doing the "Send to USB flash drive" procedure on page 94).

I copied it **onto a CD** (by doing the "Send to optical drive" procedure on page 94).

I copied it **onto a floppy disk** (by right-clicking the document's icon, then clicking "Send To" then "3½ Floppy").

I copied it **into a folder called Safety** (by creating that new folder and then dragging the document's icon into that folder while holding down the Ctrl key).

I **saved the document under a second name** (by doing this procedure: while viewing the words in the document, click "File" then "Save As", invent a second name and type it, then press the Enter key).

I did that copying each time I was at a good "resting point" (when I was confident of what I'd written so far but less confident of what I'd be writing next).

The easy forms of copying I did frequently (at many "resting points"). The harder forms I did less frequently (just at the "major resting points").

## Copying is important

Computers work as you expect, 99.9% of the time. They're so reliable that you start to believe they work always, and you think backups aren't necessary. Then you don't bother making backups anymore. But someday, your document will eventually get wrecked (by a hardware failure or software error or your stupidity or a virus or other maliciousness). Then you'll feel devastated and swear you'll never forget to make backups again... but you *will* forget, and you'll be sorry again! It's human nature.

## Protect your hardware

Here's how to protect your hardware.

### Temperature

If possible, avoid using the computer in hot weather.

When the room's temperature rises above 93 degrees, the fan inside the computer has trouble cooling the computer sufficiently. Wait until the weather is cooler (such as late at night), or buy an air conditioner, or buy a window fan to put on your desk and aim at the computer, or use the computer for just an hour at a time (so that the computer doesn't have a chance to overheat).

Another problem in the summer is electrical brownouts, where air conditioners in your house or community consume so much electricity that not enough voltage gets to your computer.

### Moving your computer

Some parts inside the computer are delicate. Don't bang or shake the computer! If you need to move the computer to a different location, be gentle!

Before moving the computer, make backups: copy everything important from the computer's hard disk onto floppy disks. For example, copy all the documents, spreadsheets, and database files you created.

**Moving by hand** If you must move the computer to a different desk or building, be *very gentle* when you pick up the computer, carry it, and plop it down. Be especially gentle when walking on stairs and through doorways.

**Moving by car** If you're transporting your computer by car, put the computer in the *front* seat, put a blanket underneath the computer, and drive slowly (especially around curves and over bumps).

Do *not* put the computer in the trunk, since the trunk has the least protection against bumps. If you have the original padded box that the computer came in, put the computer in it, since the box's padding is professionally designed to protect against bumps.

**Moving by air** If you're transporting your computer by air, avoid checking the computer through the baggage department.

The baggage handlers will treat the computer as if it were a football, and their "forward pass" will make you pissed.

Instead, try to carry the computer with you on the plane, if the computer's small enough to fit under your seat or in the overhead bin. If the whole computer won't fit, carry as much of the computer as *will* fit (the keyboard, monitor, or system unit?) and check the rest as baggage. If you *must* check the computer as baggage, use the original padded box that the computer came in, or else find a giant box and put a *lot* of padding material in it.

When going through airport security, it's okay to let the security guards X-ray your computer and disks. Do *not* carry the

computer and floppy disks in your hands as you go through the metal detector, since the magnetic field might erase your disks.

For best results, just tell the guards you have a computer and disks, Instead of running the computer and disks through detection equipment, the guards will inspect your stuff personally.

To make sure your computer doesn't contain a bomb, the guards might ask you to unscrew the computer or prove that it actually works. If your computer's a laptop and you need to prove it works, make sure you brought your batteries — and make sure the batteries are fully charged!

Since airport rules about baggage and security continually change, ask your airport for details before taking a trip.

Beware of theft. Crooks have used this trick:

A crook waits for you to put your laptop on the X-ray conveyor belt. Then the crook cuts in front of you and purposely gives himself trouble going through the metal detector (by having keys in his pocket). While he delays you and distracts security guards, his partner grabs your laptop off the conveyor belt and walks away with it.

**Moving by mail** Computer companies have discovered that FedEx handles computers more carefully — and causes less damage — than the post office and UPS.

## Send email cautiously

Remember this poem:

Beware what messages you send.  
They may reach eyes you don't intend.

For example, suppose you send an email message to Bob. Your message might be read by people other than Bob, for one of these reasons:

Maybe Bob shares his email address with his wife, kids, parents, and friends.  
Maybe Bob works for a department that shares just one Internet address.  
Maybe Bob's secretary reads all Bob's mail, to discard junk.  
While Bob shows a friend how to use email, the friend can see Bob's email.  
While Bob goes to the bathroom, a passerby can peek at Bob's screen.  
Whenever Bob receives interesting email, maybe he forwards it to friends.  
Maybe you meant to reply to Bob but accidentally sent the reply to "All".  
Maybe your email reaches a different guy named "Bob".

According to U.S. law, if you're an employee who writes an email message by using the company's computer, the message becomes the company's property, and **your boss is allowed to look at it. Your message has no privacy.** Moreover, if your company is sued (by a competitor or customer), United States law can require your company to reveal all email messages about the lawsuit's topic and about all the people involved in it: the cute joke you wrote can embarrass you when the judge makes you read it to the courtroom.

So **be especially careful about writing emails that contain sexual references** (such as "I love your body, so let's go out on a date and have sex!") **or anger** (such as "The boss is an ass and should be assassinated!"), since your email might fall into the hands of the one person to whom you don't want to show that message. Here's the most important rule about email messages:

If you want to send a sexual or angry email,  
wait an hour (to cool down) then read your draft and think again!

## No "Undo"

When you tell the computer to send an email message (by clicking the Send button, Reply button, or Reply All), the computer tries to transmit the message immediately. You *cannot* cancel the transmission easily, since there's no "Undo button".

If you try to wreck the transmission (by unplugging your modem or turning off your computer's power), your computer

will detect sabotage and overcome it: the next time you run your email program, the computer will try again to transmit the wrecked message (by using a copy of the message that the computer keeps in your computer's **Outbox** folder).

Since email transmissions can't be easily canceled, remember:

Before you click **Send** or **Reply** or **Reply All**,  
check your **spelling** and **emotions**, or you'll all be appalled!

## Beware of evil email

You'll receive several kinds of email messages. Some of those messages will help you (because they're written to you by your friends or business acquaintances, or because they're weekly or daily news bulletins that you requested from companies whose Web sites you visited).

But most of the email messages you receive will be bad email that's "a waste of your time to read" or "dangerous".

## Get-rich-quick schemes

You'll get emails promising you'll get rich quick — if you pay the sender first. If you're stupid, you'll pay the sender — then realize you've become poorer, not richer, since the sender gives you nothing worthwhile in return.

For example, in what's called **multilevel marketing (MLM)**, you'll be told you can get rich by selling products (such as pills or emailed reports) if you buy them first from the seller.

After you stupidly buy the products, you realize you can't easily find other stupid people to buy them from you. That's because the products themselves are junk.

The classic MLM scheme tries to get you to send \$10 each to 5 people (for worthless "email reports"), while you hope many people, in return, will be stupid enough to send \$10 each to you. You'll soon discover that most people are *not* stupider than you, and just *you* are stupid enough to lose \$50. Such a scheme is called a **chain letter** or **pyramid scheme**. The post office has ruled all such chain-letter pyramid schemes are illegal and constitute mail fraud, since the only way to get rich in such a scheme is to make hundreds of stupid people become poor. Most such schemes claim to be legal but aren't.

Another false road to riches is the **Nigerian scam**:

You'll receive a letter begging your help in moving \$30,000,000 out of Nigeria (because the money was secretly acquired by a slightly corrupt Nigerian official), and you'll be allowed to keep 30% of the money for yourself. The "catch" is that before the money is transferred to you, a "small" fee must be paid to lawyers, etc., to transfer the money. If you're stupid enough to believe the tale, you pay the fee (a few thousand dollars) — then find out you have to pay *another* fee, then another, then another, to get around "unexpected difficulties". You never receive a penny. All fees wind up in the pocket of the scammer (who pretends to be a lawyer).

Thousands of Americans were stupid enough to fall for that Nigerian scam. The typical victim lost \$50,000; the stupidest victims lost \$300,000 per person. Several victims were stupid enough to go to Nigeria to get their money — and got murdered.

The Nigerian scam is a more lucrative crime than anything the Mafia ever did. It brings in over \$1,000,000 per day from all the victims. It's been imitated by other African countries and other constituencies. Example: "I'm a sinner who acquired \$30,000,000 but I've mended my ways, and now I'd like to donate it all to your church, if you could please help me move it out of Sierra Leone." Some churches went broke believing that tale!

For a different scam, you'll be told you won \$3,000,000 in the **Netherlands lottery** (though common sense should tell you that you can't win a lottery you didn't enter and never even heard of), and you just need to pay a "transfer fee" to get your winnings transferred to you.

In a real lottery, there's no transfer fee; in this faked lottery, there's a transfer fee but no jackpot, except for the scammers who keep your transfer fee. At first, you'll be told the transfer fee is \$5,000; after you've stupidly paid it, you'll be told that because of "difficulties" with the transfer, more fees will be necessary... and then more... and then more... until your bank account is empty.

The Nigerian scam and the Netherlands-lottery scam are both examples of **advance-fee scams**, where you're told you'll get rich if you pay a fee first.

## Freebies

You'll receive email offering you something for free (such as a free digital camera, or a free screensaver, or a free pornographic look at nude women, or free access to not-quite-legally downloaded music). You say to yourself, "What can it lose? It's free!" so you click yes.

That launches a barrage of ads upon you — through Web sites and through emails — trying to convince you to buy more. Many of the ads come in the form of **adware** and **spyware**. Page 144 explains how to cure them.

Oh yeah, about that "free" digital camera: you discover it's terrible, and it will be "free" just after you buy lots of other stuff first. Misleading, huh?

Some of the emails pretend to be surveys, such as "Who should the next President be?" The survey doesn't really care about your political opinion: it's just collecting (**harvesting**) your email address and other personal data about you, to sell to advertisers.

## Pornography

Most emails hawking **pornography** try to make you to visit a sexy Web site, full of nude women who try to get you to reveal your credit-card number and become a paying member. Other pornographic emails try to make you phone a sexy girl whose area code just happens to be in the Caribbean or Asia or Hong Kong or some other island that will give you a huge phone bill, whose profits go to a foreign phone company that secretly gives the scheme's manager a cut.

## Phishing

You might receive an email saying that the security department (of your bank, credit-card company, or employer) wants you to reenter your personal information (credit-card number, PIN number, social-security number, mother's maiden name, etc.) to protect against fraud. At the bottom of the email is a button to click to go to the Web site, where you enter the info.

But that Web site's a fake: it's really run by a crook who's waiting for you to enter your personal info so he can steal your identity and credit-card info and buy things billed to you, then disappear before you realize you've been robbed and your credit history has been ruined.

**Banks NEVER send emails asking you to reenter your account info. Such emails are always frauds.**

Those fake emails and fake Web sites are called **phishing**, because they're created by crooks who are "fishing" for suckers who'll tell the crooks all personal secrets. **Phishing expeditions** were first launched against customers of Australia and New Zealand banks then spread to U.S. banks (such as Citibank) and beyond.

## Spam

Unsolicited and unwanted email is called **junk email**. It's mass-produced and sent to millions of folks all over the world, using a technique called **bulk email**. Junk email is also called **spam** (because it spreads all over the Internet, just like Spam luncheon meat spread all over Europe during World War II). The person who sends it is called a **spammer** and said to be **spamming**.

The typical spammer uses bulk email to send spam to 3,000,000 email addresses, all at once! 99.99% of the people who receive it will ignore it, but the other .01% keep the spammer in business: .01% of 3,000,000 people is 300 customers — and sending bulk email costs nearly nothing!

In the USA, **90% of all email is spam**.

Internet service providers (such as Earthlink and AOL) complain that most of their equipment is now just handling spam. They've sued spammers for "trespassing", and they've gotten some laws passed against spam. Remember:

If you're a spammer,  
You'll wind up in the slammer.

If you're trying to advertise a business, you'll be tempted to send bulk email (spam). It costs you nearly nothing, since Internet email is free (unlike traditional mail, which costs 44¢ each, plus the cost of paper, plus the cost of putting labels onto all the envelopes). But since spam is associated with dishonest hucksters, sending spam can do your business's reputation more harm than good.

To avoid wasting time reading spam, some people (and their employers and Internet providers) use **spam filters**, which automatically erase spam (or dump it into a "Spam" folder or put the word "SPAM" in the subject line). To decide which emails are spam, spam filters use 3 techniques: **blacklists** (lists of known spammers), **whitelists** (lists of friends who are *not* spammers), and **Bayesian filters** (lists of characteristics of spam).

But spammers evade the filters and get their spam to you anyway, by using these tricks:

Spammers keep changing their email addresses (to addresses that aren't blacklisted yet).

Spammers purposely misspell (they offer you "poorn" or "pOrn" or "p0rn" or "pron" instead of "porn") and add **word salad** (irrelevant words & sentences, often printed in white on a white background), so most of the email doesn't seem to be about porn or Viagra or other spam topics.

Alas, spam filters reject valid mail that just *looks* like spam.

If you sent an email to a friend, but your friend never saw it, that's probably because your email looked too much like spam (you used too many spam-like words or fonts or graphics), so a spam filter hid your mail.

## Hoaxes

A **hoax** is just an email message that contains a scary incorrect rumor and warns you to "pass the message to all your friends".

The hoax is *not* a program; it's just a document. Though it theoretically does "no harm", actually it's as harmful as traditional viruses, since it wastes your time, waste your friends' time, embarrasses you (when you later discover the rumor is a lie and should be retracted), and creates a worldwide clogging of email systems forced to transmit the rumor and retractions to millions of people.

**Good Times** In May 1994, people began sending each other emails spreading a **rumor that if you receive a file called "Good Times", don't download it**, because downloading it will erase your hard disk. The rumor was false: there's no "Good Times" virus.

The person who started the rumor knew it was false and started it as a prank. The rumor traveled fast and clogged email systems all across the country, so the rumor *itself* became as annoying as a traditional virus.

The rumor gradually got wilder: it said "Good Times" was an email message, and just reading the message would erase your hard disk.

The rumor eventually became even more bizarre. Here's an abridgement of the rumor's current version:

“The FCC released a warning, last Wednesday, of major importance to any regular user of the Internet. A new computer virus has been engineered that’s unparalleled in its destructive capability. Other viruses pale in comparison to this newest creation by a warped mentality.

“What makes this virus so terrifying, said the FCC, is that no disk need be inserted to infect a computer. The virus can be spread through Internet email. Once a computer is infected, its hard drive will most likely be destroyed. If the program is not stopped, it will create a loop that can severely damage the processor if left running too long. Unfortunately, most novice users will not realize what’s happening until far too late.

“Luckily, there’s a way to detect what’s now know as the ‘Good Times’ virus: the virus always travels to new computers in an email message whose subject line says ‘Good Times’. Avoiding infection is easy once the file has been received: don’t read it.

“The program is highly intelligent: it will send copies of itself to everyone whose email address is in a received-mail file or a sent-mail file. It will then trash the computer it is running on.

“So if you receive a file with the subject line ‘Good Times’, delete it immediately! Do not read it!

“Warn your friends of this newest threat to the Internet! It could save them a lot of time and money.”

Again, there’s no Good Times virus, but the *rumor* of the virus is itself a kind of virus!

**Bad Times** In December 1997, inspired by the Good Times virus hoax, Joe Garrick (and later others) published a rumor about a “Bad Times” virus. Here’s the rumor’s newest version (abridged):

“If you receive an email entitled ‘Badtimes’, delete it immediately. Don’t open it.

“This one is pretty nasty. It will erase everything on your hard drive, delete anything on disks within 20 feet of your computer, demagnetize the stripes on all your credit cards, reprogram your ATM access code, screw up the tracking on your VCR, and scratch any CD you try to play.

“It will recalibrate your refrigerator so your ice cream melts and milk curdles, give your ex-lover your new phone number, mix antifreeze into your fish tank, drink all your beer, and leave dirty socks on the coffee table when company’s coming over.

“It will hide your car keys, move your car randomly around parking lots so you can’t find it, make you fall in love with a hardened pedophile, give you nightmares about circus midgets, and make you run with scissors.

“It will give you Dutch Elm Disease and Psittacosis. It will rewrite your backup files, changing all active verbs to passive and incorporating misspellings that grossly change the meaning.

“It will leave the toilet seat up and your hair dryer plugged in dangerously close to a full bathtub. It will molecularly rearrange your cologne, making it smell like dill pickles.

“It is insidious, subtle, dangerous, terrifying to behold, and an interesting shade of mauve.

“Please forward this message to everyone you know!!! Everyone deserves a good laugh.”

**Email tax** In April 1999, a rumor swept across Canada, by email, saying the Canadian government would start charging 5¢ for each email ever sent, to reimburse the Canadian postal service, which was losing money because people were sending emails instead of regular letters. The rumor was false, a prank.

The next month, a U.S. variant began, which said “U.S.” instead of “Canada”.

Here’s an abridgement of the rumor. [Brackets show where the Canadian and US versions differ.]

“Please read the following carefully if you intend to stay online and continue using email.

“The Government of [Canada, the United States] is attempting to quietly push through legislation that will affect your use of the Internet. Under proposed legislation, [Canada Post, the U.S. Postal Service] will bill email users.

“Bill 602P will permit the government to charge a 5-cent surcharge on every email, by billing Internet Service Providers. The consumer would be billed in turn by the ISP. [Toronto, Washington DC] lawyer Richard Stepp is working to prevent this legislation from becoming law.

“The [Canada Post Corporation, US Postal Service] says email proliferation costs nearly [\$23,000,000, \$230,000,000] in lost revenue per year. Since the average citizen receives about 10 emails per day, the cost to the typical individual would be an extra 50 cents per day, or over \$180 dollars

per year, beyond regular Internet costs.

“Note that this money would be paid directly to [Canada Post, the US Postal Service] for a service they don’t even provide. The whole point of the Internet is democracy and non-interference.

“One [back-bencher, congressman], Tony Schnell, has even suggested a ‘20-to-40-dollar-per-month surcharge on all Internet service’ beyond the government’s proposed email charges. Most major newspapers have ignored the story, the only exception being the [Toronto Star, Washingtonian], which called the idea of email surcharge ‘a useful concept whose time has come’.

“Don’t sit by and watch your freedoms erode away! Send this email to all [Canadians, Americans] on your list. Tell your friends and relatives to write to their [MP, congressman] and say ‘No!’ to Bill 602P. — Kate Turner, Assistant to Richard Stepp”

That rumor is entirely fiction. There is no “Bill 602P”, no “Tony Schnell”, no “Richard Stepp”, and no desire by postal authorities or newspapers for a surcharge.

## Viruses

A **computer virus** is a program that purposely does mischief and manages to copy itself to other computers, so the mischief spreads. Since computer viruses are **malicious malevolent software**, they’re called **malware**.

People create viruses for several reasons.

**Some people think it’s funny** to create mischief, by creating viruses. They’re the same kind of people who like to play “practical jokes” and, as kids, pulled fire alarms.

**Some people are angry** (at dictatorships, at the military, at big impersonal corporations, at clients who don’t pay bills, at lovers who rejected them, and at homosexuals). To get revenge, they create viruses to destroy their enemy’s computers.

**Some people are intellectuals who want the challenge** of trying to create a program that replicates itself. Too often, the program replicates itself too well and too fast and accidentally does more harm than the programmer intended.

**Some people want to become famous** (or infamous or influential) by inventing viruses. They’re the same kinds of people who, as kids, wrote graffiti on school walls and in bathrooms.

People who create viruses tend to be immature. Many are teenagers or disgruntled college students.

Different viruses perform different kinds of mischief.

Some viruses **print nasty messages**, containing four-letter words or threats or warnings, to make you worry and waste lots of your time and prevent you from getting work done.

Some viruses **erase some files**, or even your entire hard disk.

Some viruses **screw up your computer** so it prints wrong answers or stops functioning.

Some viruses **clog your computer**, by giving the computer more commands than the computer can handle, so the computer has no time left to handle other tasks, and all useful computer tasks remain undone.

The damage done by a virus is called the virus’s **payload**. Some viruses are “benign”: they do very little damage; their payload is small. Other viruses do big damage; they have a **big payload**. If a virus destroys your files, it’s said to have a **destructive payload**.

## Email viruses

10% of all email contains viruses. Even if the email claims to come from a friend you know, the email can contain a virus (because your friend doesn’t know it contains a virus, or because the virus lied when it said it was from your friend — the virus could have just stolen your friend’s name and email address).

Many viruses come in email attachments.

## Programs to protect you

To protect yourself against viruses, the first step is to make sure your Windows is up-to-date. Microsoft distributes updates often, especially on the afternoon of each special Tuesday (called **Patch Tuesday**, which is usually the 2<sup>nd</sup> Tuesday of each month). To make your computer check for updates and download them from the Internet, do this often (every few days): click **Start** then **All Programs** then **Windows Update**.

After making sure your Windows is up-to-date (so it includes the newest antivirus features), the next step is to supplement Windows by getting an antivirus program.

**Norton** The best easy-to-use antivirus program is **Norton AntiVirus**. The basic version costs \$20; the standard version costs \$40. Those prices get you a license for just one year, after which you must pay a yearly fee for updates.

**McAfee** Another common antivirus program is **McAfee AntiVirus**, which comes in several versions. McAfee used to be an independent company but is now owned by **Intel**.

**Freebies** If your Internet Service Provider is Comcast, you can download Norton AntiVirus and other security software free, from <http://security.comcast.net>.

Windows Vista, 7, 8, 8.1, and 10 each include Microsoft's **Windows Defender**, which is free.

Instead of using Windows Defender, some folks use other free protection, such as the free version of **AVG Anti-Virus** (downloadable from <http://free.avg.com>) and the free version of **Malwarebytes Anti-Malware** (downloadable from [www.malwarebytes.org/mbam-download.php](http://www.malwarebytes.org/mbam-download.php)). But Microsoft Security Essentials has the advantage of being complete (no add-ons needed) and unobtrusive (no annoying messages).

**Don't relax** Even if you get an antivirus program, you can't completely relax, since new viruses keep getting invented. You must keep your antivirus program up-to-date, to make sure it can detect the newest viruses.

Some viruses are so powerful that they destroy antivirus programs. Some viruses even print their own fake messages saying "no virus found". Some viruses even pretend they are antivirus programs that found viruses on your computer — and they ask you to send money to complete the "cure" — and they block you from installing or updating true antivirus programs. Don't send money: it's wasted and goes to an international group of crooks.

## Who gets viruses

### The traditional place to find viruses is: schools!

That's partly because most viruses were invented at schools (by bright, mischievous students) but mainly **because many students share the school's computers**. If one student has an infected floppy disk (purposely or accidentally) and puts it into one of the school's computers, that computer's hard disk will probably get infected. Then it will infect all the other students who use that computer. As disks are passed from that computer to the school's other computers, the rest of the school's computers become infected.

Then the school's **students, unaware of the infection, take the disks home** with them and infect their families' home computers. Then the **parents bring infected disks to their offices** (so they can transfer work between home and office) and infect their companies. Then company employees take infected disks home and infect their home computers, which infect any disks used by the kids, who, unaware of the infection, then take infected disks to school and start the cycle all over again.

Anybody who shares programs with other people can get a virus. Most programs are copyrighted and illegal to share. People who share programs illegally are called **pirates**. Pirates spread viruses. For example, many kids spread viruses when they try to share their games with their friends.

Don't open an email attachment unless it comes with a cover letter that convinces you the attachment is really about something specific that you were expecting and that's specifically about you. For example, don't open an email attachment that comes with a generic body saying just "open the attachment" or "look at these pictures" or "I'm shocked at what the attachment says about you" or some other depersonalized enticement. On the other hand, it's okay to open an attachment that says "Here are the pictures from the party I had with you and Sarah last Friday at 9PM", if you really *did* have a party with *that* person and Sarah last Friday at 9PM!

If the attachment's name ends in **.scr** or **.vbs**, the attachment is almost certainly a virus, since normal attachments don't have such names.

If the attachment's name ends in **.zip**, the attachment is *probably* a virus but might be innocent. Be *extremely* cautious.

If the attachment's name ends in **.doc**, the attachment is probably just an innocent Microsoft Word document; if the attachment's name ends in **.eml**, the attachment is probably just an innocent forwarded email. But you can't be sure (since some viruses *pretend* to be ".doc" or ".eml"), so still keep your guard up. If you wish, phone or email the sender and ask whether the sender really intended to send the attachment.

## Propagation tricks

To propagate, viruses use two main tricks.

**Trojan horse** Homer's epic poem, *The Iliad*, describes how the Greeks destroyed Troy by a trick: they persuaded the Trojans to accept a "gift" — a gigantic wooden horse that secretly contained Greek warriors, who then destroyed Troy.

Some computer viruses use that trick: they look like a pleasant gift program, but the program secretly contains destructive warriors that destroy your computer. A pleasant-seeming program that secretly contains a virus is called a **Trojan horse**.

**Time bomb** If a virus damages your computer immediately (as soon as you receive it), you'll easily figure out who sent the virus, and you can stop the perpetrator. To prevent such detection, clever viruses are **time bombs**: they purposely delay damaging your computer until you've accidentally transmitted the virus to other computers; then, several weeks or months after you've been secretly infected and have secretly infected others, they suddenly destroy your computer system, and you don't know why. You don't know whom to blame.

## How viruses arose

The first computer virus was invented in 1983 by Fred Cohen as an innocent experiment in computer security. He didn't harm anybody: his virus stayed in his lab.

In 1986, a different person invented the first virus that ran on a PC. That virus was called **Brain**. Unfortunately, it accidentally escaped from its lab; it was found next year at the University of Delaware. (A virus that escapes from its lab is said to be found **in the wild**.)

Most early viruses harmed nobody, but eventually bad kids started inventing destructive viruses. The first destructive virus that spread fast was called the **Jerusalem virus** because it was first noticed at the Hebrew University of Israel in 1987. It's believed to have been invented by a programmer in Tel Aviv or Italy.

Most people still thought "computer viruses" were myths; but in 1988, magazines ran articles saying computer viruses really exist. Researchers began to invent **antivirus programs** to protect against viruses and destroy them. In 1989, antivirus programs started being distributed to the general public, to protect against the 30 viruses that had been invented so far. But then the nasty programmers writing viruses began protecting their viruses against the antivirus programs. Now there are over 50,000 viruses, though many are just **copycat viruses** that are slight variants of others.

Companies writing antivirus software are working as hard as the villains writing the viruses. Most antivirus companies release updates weekly.

## Another source of viruses is computer stores, in their computer-repair departments.

While trying to analyze and fix broken computers, the repair staff often shoves diagnostic disks into the computers, to find out what's wrong. If one of the broken computers has a virus, the diagnostic disks accidentally get viruses from the broken computers and then pass the viruses on to other computers. So if you bring your computer to a store for repairs, don't be surprised if your computer gets fixed but also gets a virus.

Occasionally, a major software company will screw up, accidentally get infected by a virus, and unknowingly distribute it to all folks buying the software. Even companies as big as Microsoft have accidentally distributed viruses.

**The newest viruses are spread by Internet communications, such as email,** instead of by floppy disks. Internet-oriented viruses spread quickly all over the world: they're an international disaster!

## Virus categories

Viruses fall into 6 categories: you can get infected by a **file virus**, a **boot-sector virus**, a **multipartite virus**, a **macro virus**, an **email worm**, or a **denial-of-service attack**.

Here are the details....

## File viruses

A **file virus** (also called a **parasitic virus**) secretly attaches itself to an innocent program, so the innocent program becomes infected. Whenever you run the infected innocent program, you're running the virus too!

Here are the file viruses that have been most common. For each virus, I begin by showing its name and the year & month it was first discovered in the wild. Let's start with the oldest....

### Yankee Doodle (September 1989, from Bulgaria)

plays part of the song Yankee Doodle on the computer's built-in speaker, at 5 PM every day. It infects .COM & .EXE files, so they become 2899 bytes longer.

### Die Hard 2 (July 1994, from South Africa)

makes .COM & .EXE files become exactly 4000 bytes bigger. It also wrecks .ASM files (programs written in assembler).

### Chernobyl (June 1998, from Taiwan)

erases your hard disk on April 26 every year. That's to commemorate April 26, 1986, when radioactive gas escaped from a nuclear reactor in Chernobyl in the Soviet Union. A variant, called version 1.4, erases your hard disk on the 26<sup>th</sup> of every month.

If you get infected, you won't notice until the 26<sup>th</sup>, when your hard disk suddenly gets erased — and so do the hard disks of all your friends to whom you accidentally sent the virus!

History:

The virus was written by a 24-year old guy named Chen Ing-Hau, whose initials are CIH, so the virus is also called the **CIH virus**.

The virus was invented in June 1998. At the end of 1998, three big companies (IBM, Yamaha, and Activision) got infected and accidentally spread the virus on disks distributed to their customers. The virus did its first damage on April 26, 1999. Computers all over the world lost their data that day. Most American corporations were forearmed with antivirus programs; but in Korea a million computers lost their data, at a cost of 250 million dollars, because Koreans didn't use antivirus programs but did use lots of pirated software.

To erase your hard disk, the virus starts at the disk's beginning and writes random info onto every sector, until your computer stops working. The data that was previously on those overwritten sectors is gone forever and can't be recovered.

The virus also tries to attack your computer's flash BIOS chips, by writing wrong info into them. If the virus succeeds, your computer will be permanently unable to display anything on the screen and also have trouble communicating with the keyboard and other devices, unless you bring your computer to a repair shop.

Here's how the virus spreads:

Whenever you run an infected program, the virus in the program copies itself into RAM memory chips and infects every other program you try to run or copy. To infect a program, the virus looks for unused spaces in the program's file, then breaks itself up and puts pieces of itself into unused spaces, so the file's total length is the same as before and the virus is undetected.

Before you use an antivirus program to delete the virus, you must boot by using an uninfected floppy. If instead you just boot normally from your hard disk, your hard disk's infected files copy the virus into RAM; then when you tell the antivirus program to "scan all programs to remove the virus", the antivirus program accidentally *copies* the virus onto all your programs and infects them all. Yes, the virus tricks your antivirus program into becoming a *pro-virus* program!

## Boot-sector viruses

On a hard disk or floppy disk, the first sector is called the disk's **boot sector** or, more longwindedly, the disk's **master boot record (MBR)**. A virus hiding in the boot sector is called a **boot-sector virus**. Whenever the computer tries to boot from an infected disk, the virus copies itself into RAM memory chips.

The typical boot-sector virus makes the computer eventually **hang** (stop reacting to your keystrokes and mouse strokes).

The following boot-sector viruses have been most common....

### Stoned (December 1987, from New Zealand)

was invented by a student at the University of Wellington. If you boot from a disk (floppy or hard) infected with this virus, there's a 1-in-8 chance your computer will beep and display this message:

```
Your PC is now Stoned
```

It was intended to be harmless, but on high-capacity floppy disks (such as 1.44M disks) it accidentally erases important parts of the directory. It also makes your computer run slower — as if your computer were stoned.

### Form (June 1990, from Switzerland)

is supposed to just play this harmless prank: on the 18<sup>th</sup> day of each month, the computer beeps whenever a key is pressed.

But this virus is badly written and accidentally causes problems. For example, if your hard disk becomes full, the virus makes the hard disk become unbootable.

The virus's second sector contains this message, which never gets displayed:

```
The FORM-virus send greetings to everyone who's reading this text. FORM doesn't destroy data! Don't panic! Fuckings go to Corinne.
```

### Michelangelo (April 1991, from Sweden)

sits quietly on your hard disk until Michelangelo's birthday, March 6<sup>th</sup>. Each year, on March 6<sup>th</sup>, the virus tries to destroy all data on your hard drive, by writing **garbage** (random meaningless bytes) everywhere. The overwritten data cannot be recovered.

To avoid damage from this virus, folks tried playing this trick: on March 5<sup>th</sup>, before turning off their computers, they changed the computer's date to March 7<sup>th</sup>, skipping March 6<sup>th</sup>.

### Monkey (October 1992, from U.S.)

encrypts the hard drive's partition table, so the hard drive is accessible just while the virus is in memory. If you boot the system from a clean (uninfected) floppy disk, the hard drive is unusable. This virus is tough to remove successfully, since removing the virus will also remove your ability to access the data.

**Ripper (November 1993, from Norway)** randomly corrupts data written to disk.

The chance of a particular write being corrupted is just 1 out of 1024, so the corruption occurs just occasionally and to just a few bytes at a time. You normally don't notice the problem until several weeks have gone by and the infection has spread to many files and your backups, too! Then it's too late to recover your data! That's why it's successful virus: its effects are so subtle you don't notice until you've infected your hard disk, your backups, and your friends! Then ya wanna die!

**Anti-EXE (December 1993, from Russia)** picks one of your .EXE files and waits for you to run that file. When you do, the virus corrupts the copy that's in the RAM (but not the copy that's on disk). While you run that corrupted copy, errors occur, and the computer usually hangs.

**Anti-CMOS (February 1994, from U.S.)** changes your CMOS settings, as follows:

Your hard drive becomes "not installed".  
Your 1.44M floppy drive becomes "1.2M".  
A 1.2M floppy drive becomes "not installed".  
A 360K floppy drive becomes "720K", and vice-versa.

To evade detection and give itself time to spread to other computers, it waits before doing that damage: it waits until you've accessed the floppy drive many times.

## Multipartite viruses

You've learned that some viruses (called **boot-sector viruses**) infect the disk's boot sector, while other viruses (called **file viruses**) infect the disk's file system. If a virus is smart enough to infect the disk's boot sector and file system simultaneously, it's called a **multipartite virus**.

Yes, a multipartite virus hides in *two* places: the boot sector and also the file system. If you remove the virus from just the boot sector (or from just files), you still haven't completely removed the virus, which can regenerate itself from the place you missed.

If a virus is *very* smart, it's called a **stealth polymorphic armored multipartite virus (SPAM virus)**:

A **stealth virus** makes special efforts to hide itself from antivirus software. For example, it tricks antivirus software into inspecting a clean copy of a file instead of letting it read the actual (infected) file.

A **polymorphic virus** changes its own appearance each time it infects a file, so no two copies of the virus look alike to antivirus programs.

An **armored virus** protects itself against antivirus disassembly.

A **multipartite virus** hides in *two* places: the boot sector and also the file system.

**One Half (October 1994, from Austria)** slowly encrypts the hard drive. Each time you turn on the computer, the virus encrypts 2 more tracks. The encrypting is done by using a random code. You can use the encrypted tracks while the virus remains in memory. When about half the hard drive's tracks are encrypted, the computer says:

Dis is one half  
Press any key to continue.....

This virus is tough to remove successfully, since removing the virus the virus will also remove your ability to access the data. It's hard to detect, since it's polymorphic and uses stealth.

## Macro viruses

A **macro virus** hides in **macros**, which are little programs embedded in Microsoft Word documents and Excel spreadsheets. The virus spreads to another computer when you give somebody an infected document (on a floppy disk or through a network or as an email attachment).

**Concept (July 1995)** infects Microsoft Word documents & templates. The first time you load an infected document, you see a dialog box that says "1", with an OK button. Once you click OK, the virus takes over. It forces all documents to be saved as templates, which in turn affect new documents.

It consists of 5 macros: **AutoOpen**, **PayLoad**, **FileSaveAs**, **AAAZAO**, and **AAAZFS**. You can see those macros in an infected Word document by choosing "Macro" from the Tools menu.

Invented in 1995, it was historic:

It was the first macro virus. It was the first virus that infects documents instead of programs or boot sectors. It was the first virus that can infect *both* kinds of computers: IBM and Mac!

It was intended to be just a harmless prank demonstrating what a macro virus could do (so it's also called the **Prank Macro virus**), but it spread fast.

In 1995, it became more prevalent than any other virus. Microsoft Word 97 was the first version of Microsoft Word to protect itself against the virus.

**Wazzu (June 1996)** is a macro called **AutoOpen** that forces Microsoft Word documents to be saved as templates. Whenever you open a document, the virus also rearranges up to 3 words and inserts the word "Wazzu" at random.

**Laroux (July 1996)** was the first macro virus that infected Excel spreadsheets (instead of Word documents). It does no harm except copy itself. It was first noticed in Africa & Alaska.

**Tristate (March 1998)** is called "Tristate" because it's smart enough to infect 3 things: Microsoft Word documents, Excel spreadsheets, and PowerPoint slides.

**Class (October 1998)** infects Microsoft Word documents. It just displays a stupid message:

The original version (called **Class.A**) says "This is Class" on your screen, on the 31<sup>st</sup> day of each month.

The most prevalent version (called **Class.D**) displays this message on the 14<sup>th</sup> day of each month after May: "I think", then your name, then "is a big stupid jerk!"

The craziest version (called **Class.E**) says "Monica Blows Clinton! -=News@11=-" occasionally (at random, 1% of the time). On the 17<sup>th</sup> day of each month after August, it says "Today is Clinton & Monica Fuck-Fest Day!"

**Ethan (January 1999)** honors *Ethan Frome*, a novel written by Edith Wharton in 1911, about a frustrated man — the kind of man who'd write viruses now.

Microsoft Word has this feature: if you click "File" then "Properties" then "Summary", you see a box where you can type a document's title, author, and keywords. When you close a document infected by the Ethan virus, this virus has a 30% chance of changing the document's title to "Ethan Frome", the author to "EW/LN/CB", and the keywords to "Ethan".

**Melissa (March 1999 from U.S.)** infects Microsoft Word documents. When you look at (open) an infected document, the virus tries to email copies of the infected document to the first 50 people mentioned in Microsoft Outlook's address book (which is called the **Contacts folder**), unless the virus emailed to those people previously. Yes, your document gets secretly emailed to 50 people, without your knowing!

Each of those 50 people get an email from you. The email's subject says "Important message from" and your name. (A later variant of the virus has a blank subject line instead, to make the virus harder to notice.) The email's body says:

Here is that document you asked for ... don't show anyone else ;-)

Attached to that email is your infected document.

In a typical large corporation, each computer has Microsoft Outlook (which is part of Microsoft Office), so the virus emails itself to 50 people automatically, and each of those people passes the virus on to 50 other people, etc., making the virus spread fast.

“The Simpsons” (a popular cartoon show on TV) has an episode called “The Genius”, where Bart Simpson abruptly ends a Scrabble game by claiming he won with the word “Kwyjibo”. The virus can put into your document this quote from him:

Twenty-two points, plus triple-word-score, plus fifty points for using all my letters. Game’s over. I’m outta here.

The virus inserts that quote just if you open or close the document at the precise minute when, on the computer’s clock, the number of minutes equals the date. For example, on May 27<sup>th</sup> it will insert that quotation if the time is 1:27, 2:27, 3:27, 4:27, 5:27, 6:27, 7:27, 8:27, 9:27, 10:27, 11:27, or 12:27.

History:

The virus successfully infected Microsoft Word 97 and 2000. Those versions of Microsoft Word were supposed to protect against macro viruses, but the Melissa virus is smart enough to disable that protection.

The virus was invented by David L. Smith in New Jersey. He called it “Melissa” to honor a Florida topless dancer. Her name is hidden in the virus program. The virus spread all over the world suddenly, on March 26, 1999, when he put it in a message in the alt.sex newsgroup. His infected document, called LIST.DOC, contained a list of porno Web sites. In just a few days, 10% of all computers connected to the Internet contained the virus. It spread faster than any other virus ever invented. Since it created so much email (from infected documents and from confused people denying they meant to send the email), many Internet computers handling email had to be shut down.

The FBI decided the virus did over 80 million dollars of damage to business processes. David tried to hide his authorship, but the FBI did a thorough job of sleuthing and arrested him on April 2, 1999. At first, he denied distributing the virus but finally pleaded guilty and apologized. He was fined \$5000 and sentenced to 20 months in prison plus 100 hours of community service plus 3 years of supervised release. He cooperated and helped the FBI find perpetrators of other viruses.

**Marker (April 1999)** infects Microsoft Word documents. On the first day of each month, it invades your privacy by copying your name (and your company’s name & your address) to an Internet site run by CodeBreakers.org. It copies the name & address you gave when you installed Microsoft Word.

**Thus (August 1999)** infects Microsoft Word documents. It lurks there until December 13<sup>th</sup>, when it erases drive C. It’s called “Thus” because its macro program begins with the word “thus”.

**Prilissa (November 1999)** imitates Melissa but displays different words:

The email’s subject says “Message from” and your name. The email’s body says “This document is very Important and you’ve GOT to read this !!!” Instead of quoting Bart Simpson, the virus waits until Christmas then does this:

1. It says “©1999 - CyberNET Vine...Vide...Vice...Moslem Power Never End... You Dare Rise Against Me... The Human Era is Over, The CyberNET Era Has Come!”

2. It draws several colored shapes onto the currently opened document.

3. It changes your AUTOEXEC.BAT file so that the next time you boot, the entire C drive will be erased (by reformatting) and you’ll see this message: “Vine...Vide...Vice...Moslem Power Never End... Your Computer Have Just Been Terminated By -= CyberNET -= Virus !!!”.

## **Email worms**

An **email worm** is a malicious program that comes as an email attachment and pretends to be innocent fun.

**Happy 99 (January 1999)** comes as an email attachment called **HAPPY99.EXE**. If you open it, you see a window titled “Happy New Year 1999 !!” In that window, you see a pretty firework display. But while you enjoy watching the fireworks, the HAPPY99.EXE program secretly makes 3 changes to your **SYSTEM folder** (which is in your WINDOWS folder):

In that folder, it puts a copy of itself and calls the copy **SKA.EXE** (which is why the Happy 99 worm is also called the **SKA worm**).

In that folder, it puts a file called **SKA.DLL** (by extracting SKA.DLL from HAPPY99.EXE).

It modifies that folder’s **WSOCK32.DLL** file, after saving that file’s original version as WSOCK32.SKA.

The modified WSOCK32.DLL file makes your computer attach the Happy 99 worm to *every* email you sent.

In the future, whenever you send an email, the person who receives your email will also receive an attachment called HAPPY99.EXE. When the person double-clicks the attachment, the person will see the pretty firework display, think you sent it on purpose, and not realize you sent an email worm virus.

To brag about itself, the virus keeps a list of everybody you sent the virus to. That list of email addresses is in your SYSTEM folder and called LISTE.SKA.

A later version, called **Happy 00**, comes as a file called HAPPY00.EXE. It says “Happy New Year 2000!!” instead of “Happy New Year 1999 !!”.

**Pretty Park (May 1999 from France)** comes in an email. The email’s subject line, instead of saying “Important message”, says just “C:\CoolPrograms\Pretty Park.exe”. The email’s body, instead of containing sentences, says just “Test: Pretty Park.exe :)” and shows a drawing of a boy wearing a hat. The boy is Kyle, from the “South Park” TV cartoon show. The drawing is labeled “Pretty Park.exe”. If you double-click it, you’ll be opening an attachment called PrettyPark.exe, which is a virus.

Then you might see the 3D Pipes screensaver (which is part of Windows 98). But secretly, every 30 minutes, the virus peeks in Microsoft Outlook’s address book and sends copies of itself to everybody listed there. Every 30 seconds, it also tries to connect your computer to an Internet Relay Chat server computer, so the virus can invade your privacy by sending info about you and your computer to the virus’s author or distributor.

**Explore ZIP (June 1999)** destroys all your Microsoft Word documents (ending in.doc), all your Excel spreadsheets (ending in .xls), all your PowerPoint presentations (ending in .ppt), all your assembly-language programs (ending in .asm), and all files that end in .h, .c, or .cpp. It replaces them with files that have 0 length. Since the file names still exist, you won’t immediately notice that their contents are destroyed, and backup software won’t notice which files are gone. It destroys those files on drives C, D, E, etc. For example, if your computer is part of a network, the virus destroys those files on your hard drive and also on the network server’s hard drive.

It also looks in your email’s Inbox (created by Outlook Express or Outlook or Exchange), notices any messages you haven’t replied to yet, and replies to them itself!

For example, if an email from Joan with a subject line saying “Buy soap” hasn’t been replied to yet, the virus sends a reply whose subject is “Re: Buy soap” and whose body says:

Hi Joan! I received your email and I shall send you a reply ASAP. Till then, take a look at the attached zipped docs. Bye.

The reply comes with an attachment called zipped\_files.exe. If the recipient opens that attachment, zipped\_files.exe starts running. To fool the victim, it displays a fake error message (which begins by saying “Cannot open file”). Then it puts a copy of itself into the SYSTEM folder (which is in the WINDOWS folder); the copy is called “Explore.exe” or “setup.exe”. It also modifies the “run” line in your computer’s WIN.INI file so the program will run each time Windows starts.

**Free Link (July 1999)** finds people in Microsoft Outlook's address book and sends them an email whose subject line says "Check this" and whose body says "Have fun with these links. Bye."

Clicking the email's attachment makes the virus infect the computer and say, "This will add a shortcut to free XXX links on your desktop. Do you want to continue?"

If the recipient clicks "Yes", the virus creates a shortcut icon pointing to an adult-sex Web site. But even if the recipient clicks "No", the virus has already infected the computer and will use that computer to send emails, which will embarrass the computer's owner when those emails reach the owner's friends.

**Kak (December 1999 from France)** infects every email you send by using Microsoft Outlook Express. The virus infects by acting as an email signature instead of an attachment, so everybody reading your email will get infected, even if the recipients don't look at any attachments.

If your computer's infected, it will do this at 5PM on the first day of each month: it will protest against Microsoft by saying "Kagou-Anti-Kro\$oft says not today!" and then the computer will shut itself down (as if you clicked "Start" then "Shut Down" then "OK").

The virus is called **Kagou-Anti-Krosoft**, which is abbreviated as **Kak**. It puts its main file (KAK.HTM) into your Windows folder. It puts another file (KAK.HTA) into your Startup folder temporarily but erases that file when you reboot.

**Love Bug (May 2000 from Philippines)** comes in an email whose subject line says "ILOVEYOU". The email's body says "kindly check the attached LOVELETTER coming from me." and comes with an attachment called LOVE-LETTER-FOR-YOU.TXT.vbs. That attachment is the virus. When you activate it (by clicking the attachment), the virus infects your computer and does 3 dastardly deeds:

**It sends a copy of itself to everybody in your Microsoft Outlook address book.** This will embarrass you, when everybody in your address book gets an email saying "ILOVEYOU". Your boss, assistant, colleagues, customers, friends, and ex-friends will all be surprised to get an email saying you love them and sent a love letter. (They'll be upset later when they discover the "love letter" is a virus you gave them!)

**It wrecks graphics files and some programs.** Specifically, it wrecks all files whose names end in .jpg, .jpeg, .vbs, .vbe, .js, .jse, .css, .wsh, .sct, and .hta. It wrecks them by renaming the files and inserting copies of itself into the files. Also, it hides music files (all files that end in .mp3 or .mp2), so you can't use those files until you "unhide" them. When looking for files to wreck or hide, it looks at your computer's hard drive and also the hard drives of any network server computers you're attached to.

It tries makes your computer download, from an Internet Web site in the Philippines, a program misleadingly called WIN-BUGSFIX.EXE. That program **tries to steal your passwords** by emailing them to a Philippines email address called MAILME@SUPER.NET.PH. To that address, it tries to secretly send your Internet passwords, network passwords, your name, your computer's name, and your Internet settings, so the virus inventor's computer can imitate yours and have all your Internet and network privileges.

### **This virus spread faster than all other viruses.**

It began in the Philippines on May 4, 2000, and spread across the whole world in one day (traveling from Hong Kong to Europe to the United States), infecting 10% of all computers connected to the Internet and causing about 7 billion dollars in damage. Most of the "damage" was the labor of getting rid of the virus and explaining to recipients that the sender didn't mean to say "I love you". The Pentagon, CIA, and British Parliament all had to shut down their email systems to get rid of the virus — and so did most big corporations. It did less damage in India (where employees are conservative and don't believe "I love you" messages) and the Philippines (where few people used the Internet because it's expensive).

An international manhunt for the perpetrator finally led to a 23-year-old computer student in Manila.

On May 11<sup>th</sup> (one week after the virus spread), he held a news conference. Accompanied by his lawyer and sister, he said his name was Onel de Guzman and didn't mean to do so much harm.

In the Philippines that year, Internet access normally cost 100 pesos (\$2.41) per hour, and 100 pesos is a half day's wages! For his graduation thesis in computer science, he created a program to help low-income Filipinos get free access to the Internet by stealing passwords from rich people. The university rejected his thesis because it was illegal, so he couldn't graduate. Helped by a group of friends called the Grammersoft Group (which was in the business of illegally selling theses to other students), he made his virus be fancy and distributed it the day before the school held its graduation ceremony.

The middle of the virus's program says the virus is copyright by "Grammersoft Group, Manila, Philippines" and mentions his college. The authorities found him by checking (and shutting down) the Philippine Web sites and email addresses where the virus sent passwords, chatting with the college's computer-science department, looking for the Grammersoft Group in Manila, and comparing the virus with earlier viruses written by his friends.

But charges against him were finally dropped, since the Philippines had no laws yet against creating viruses.

It's called the **Love Bug** because it's a virus (bug) transmitted by a love letter. It's also called the **Killer from Manila**.

Copycats have edited the virus's program and created 28 variants. The original version is called **version A**. Here are examples of other versions:

**Version A (the original version)** says "ILOVEYOU" then "kindly check the attached LOVELETTER coming from me." It attaches "LOVE-LETTER-FOR-YOU.TXT.vbs".

**Version C ("Very Funny")** says "fwd: Joke" then has a blank body. It attaches "Very Funny.vbs".

**Version E ("Mother's Day")** says "Mothers Day Order Confirmation" then "We have proceeded to charge your credit card for the amount of \$326.92 for the mothers day diamond special. We have attached a detailed invoice to this email. Please print out the attachment and keep it in a safe place. Thanks Again and Have a Happy Mothers Day! mothersday@subdimension.com". It attaches mothersday.vbs.

**Version M ("Arab Air")** says "Thank You For Flying With Arab Airlines" then "Please check if the bill is correct, by opening the attached file". It attaches ArabAir.TXT.vbs.

**Version Q ("LOOK!")** says "LOOK!" then "hehe...check this out." It attaches LOOK.vbs.

**The following variants pretend to cure the virus but actually are viruses themselves:**

**Version F** says "Dangerous Virus Warning" then "There is a dangerous virus circulating. Please click attached picture to view it and learn to avoid it." It attaches virus\_warning.jpg.vbs.

**Version G** says "Virus Alert!!!" then a long message. This version also wrecks .bat and .com files.

**Version K** says "How to protect yourself from the ILOVEYOU bug!" then "Here's the easy way to fix the love virus." It attaches Virus-Protection-Instructions.vbs.

**Version T** says "Recent Virus Attacks — Fix" then "Attached is a copy of a script that will reverse the effects of the LOVE-LETTER-TO-YOU.TXT.vbs as well as the FW:JOKE, Mother's Day and Lithuanian siblings." It attaches BAND-AID.DOC.VBS. It also wrecks many other files and totally deletes .mp3 and .mp2 files.

**Version W** says "IMPORTANT: Official virus and bug fix" then "This is an official virus and bug fix. I got it from our system admin. It may take a short while to update your system files after you run the attachment." It attaches "Bug and virus fix.vbs".

**Version AC** says "New Variation on LOVEBUG Update Antivirus!!" then "There is now a newer variant of love bug. It was released at 8:37 PM Saturday Night. Please Download the following patch. We are trying to isolate the virus. Thanks Symantec." It attaches antivirusupdate.vbs.

Life Stages (May 2000) tries to email this comment about life stages:

**The male stages of life:**

**Age Seduction line**

17 "My parents are away for the weekend."  
25 "My girlfriend is away for the weekend."  
35 "My fiancée is away for the weekend."  
48 "My wife is away for the weekend."  
66 "My second wife is dead."

**Age Favorite sport**

17 sex  
25 sex  
35 sex  
48 sex  
66 napping

**Age Definition of a successful date**

17 "Tongue!"  
25 "Breakfast!"  
35 "She didn't set back my therapy."  
48 "I didn't have to meet her kids."  
66 "Got home alive!"

**The female stages of life:**

**Age Favorite fantasy**

17 tall, dark, and handsome  
25 tall, dark, and handsome, with money  
35 tall, dark, and handsome, with money and a brain  
48 a man with hair  
66 a man

**Age Ideal date**

17 He offers to pay.  
25 He pays.  
35 He cooks breakfast next morning.  
48 He cooks breakfast next morning for the kids.  
66 He can chew his breakfast.

But the transmission is imperfect: the virus misspells "handsome" as "hansome" and makes other errors in spelling and punctuation.

**The email's subject** is "Life stages" or "Funny" or "Jokes", with sometimes the word "text" afterwards, and sometimes "Fw:" beforehand.

So there are 12 possible subjects, such as this: "Fw: Life stages text". (The computer chooses among the 12 at random.) By having 12 possible subjects instead of 1, the virus is harder for antivirus programs to stop.

**The email's body** says "The male and female stages of life". Attached to it is a file that pretends to be just a simple text document called LIFE\_STAGES.TXT but is actually a virus program called LIFE\_STAGES.TXT.SHS.

The **.SHS** means it's a **SHell Scrap** object program. When you open it, you see a Notepad window containing the comment about the stages of life. While you read that comment, the virus secretly makes the computer transmit the virus to 100 randomly chosen people in your Outlook address book and Internet chat groups. Then the virus erases those emails from your Sent folder, so you don't know the emails were sent. To stop you from deleting the virus by editing the registry, the virus changes the name of the computer's REGEDIT.EXE program to "RECYCLED.VXD" then moves it to the Recycle Bin and makes it a hidden file so you can't see it.

Snow White (September 2000) offers to tell you a naughty story about Snow White.

It comes in an email whose subject line tries to say "Snow White and the Seven Dwarfs — the REAL story!" and claims to be from hahahaha@sexyfun.net. The email's body tries to send this message:

Today, Snow White was turning 18. The 7 dwarfs always were very educated and polite with Snow White. When they went out to work in the morning, they promised a HUGE surprise. Snow White was anxious. Suddenly, the door opens, and the Seven Dwarfs enter....

It sends that subject and message in slightly flawed English (for example, it says "Snowwhite" instead of "Snow White") or in

French, Spanish, or Portuguese: the virus is smart enough to analyze your computer to find out which language you prefer!

To find out the rest of the sexy story, you're encouraged to open the attachment (which the English version calls sexyvirgin.scr, midgets.scr, dwarf4you.exe, or joke.exe).

If you click the attachment, you'll launch the virus, which will infect your WSOCK32.DLL file and watch you forevermore! Whenever you send or receive an email (or view a Web site that mentions an email address), the virus will notice and, after a delay, send itself to that email address; so if you try to send an email to a friend, your friend will get *two* emails from you; the second is the Snow White story with virus.

The virus tries to communicate with a newsgroup called alt.comp.virus so it can send and receive new fancier versions of itself by swapping intelligence with copies on other computers.

For example, one of the new fancy features **puts a spinning spiral onto your computer screen** once an hour (whenever your computer's clock says the number of minutes is 59). To drive you extra crazy, the spiral also appears all day on September 16 & 24.

Another fancy feature copies the virus into all your .EXE files, which will still run but be infected, making the virus hard to remove.

The virus is also called **Hybris**, since the attachment includes a copyright notice saying the virus is called "HYBRIS (c) Vecna".

Magistrate (March 2001 from Sweden) targets magistrates, judges, and lawyers. (It's also called "**Magistr**".)

After infecting a file, it spreads to your colleagues by email and networks then waits.

After 2 months have passed, **your desktop's icons will run away from the mouse pointer** whenever you try to click them on odd-numbered days.

When 3 months have passed, the virus deletes the infected file.

If you're a judge or lawyer, this virus is especially dangerous, because of this rule: if at least 1 month has passed and at least 100 colleagues were infected and at least 3 of your files contain at least 3 legal phrases (in English, French, or Spanish), it wrecks your computer thoroughly, by doing all this:

It deletes the infected file.  
It erases your CMOS & flash BIOS chip (so you can't restart your computer).  
It wrecks every 25<sup>th</sup> file (by changing it to repeatedly say "YOUARESHIT").  
It deletes every other file.

It makes the screen say this:  
Another haughty bloodsucker...  
YOU THINK YOU ARE GOD,  
BUT YOU ARE ONLY A CHUNK OF SHIT

It wrecks a sector on drive C (by putting different info there).

For example, here are the English legal phrases it looks for:

sentences you, sentence you to, sentences him to, ordered to prison convict, found guilty, find him guilty, guilty plea, against the accused affirmed, sufficiency of proof, sufficiency of the evidence verdict, judgment of conviction, proceedings, habeas corpus circuit judge, trial judge, trial court, trial chamber, ", judge"

The virus comes in a strange email:

The email's body is an excerpt from a .DOC or .TXT document that was on the sender's disk. The email's attachment is an infected copy of an .EXE or .SCR program that was on the sender's disk. In the email's return address ("From:"), the virus usually alters the second character, to prevent the recipient from replying to the sender and complaining about receiving a virus.

Sircam (July 2001) grabs a document you wrote and secretly sends it to somebody you never intended!

This virus can get very embarrassing. For example, if you wrote a private note, to a friend, about how much you hate your boss, the virus might secretly send that note to your boss!

It sends email to every email address mentioned in your address book or your Web cache.

Each email it sends has a 3-line body. The top line says:

Hi! How are you?

The middle line is one of these:

I send you this file in order to have your advice  
I hope you can help me with this file that I send  
I hope you like the file that I sendo you  
This is the file with the information that you ask for

The bottom line says:

See you later. Thanks

Exception: if your computer uses Spanish instead of English, the 3-line message is sent in Spanish.

Attached to the email is a document you created using Microsoft Word or WordPad or Excel or Winzip, and which the virus copied from your “My Documents” folder. The attached copy is infected with the virus. The document’s name is used as the email’s subject.

If you’re on a local-area network, the virus tries to spread itself to the rest of the network. The virus is supposed to also destroy some files; but the virus’s inventor made a programming error, so the destruction never gets done.

***Nimda (September 2001)*** spreads by email and through networks. Its name is “admin” spelled backwards. It attacks a network’s security by making every “guest” user get “administrator” privileges, so a hacker can log in as a guest and take over the whole network.

Details:

When transmitted by email, the virus comes as an email attachment (called README.EXE) in an email that has a blank body and usually a blank subject. When you receive the email, you get infected even if you don’t open the attached README.EXE file: just staring at the email’s blank body will infect you, since this virus uses a trick called “Automatic Execution of Embedded MIME type”. That trick makes the virus spread fast.

To confuse you, the virus sends out the emails, then goes dormant for 10 days, the sends out emails again, then goes dormant again, alternating forever. During each dormancy period, you think you’ve been “cured”; you get annoyed and confused when 10 days later the virus acts again.

To make sure you don’t erase the virus, it hides copies of itself throughout your computer’s .EXE files and some .TMP files.

A variant called **Nimda.E** comes in an attachment called SAMPLE.EXE instead of README.EXE.

***Klez (October 2001, from China)*** comes in 9 versions (Klez.A, Klez.B, Klez.C, Klez.D, Klez.E, Klez.F, Klez.G, Klez.H, and Klez.I). The most common is Klez.H. Here’s how Klez.H works....

When your computer gets infected, the virus looks all over your computer’s hard disk for email addresses then makes the computer send an email to each address.

The virus uses a trick called **address spoofing**:

The virus makes each email message pretend to be from an **innocent bystander** instead of from you. In the email’s “From” field, instead of *your* return email address, the virus inserts the email address of an innocent bystander — an innocent uninfected person whose email address happened to be on your computer’s hard disk (such as your Inbox or Outbox).

When the email you sent reaches its victim, if the victim is using an antivirus program and notices the virus, the victim will blame the innocent bystander instead of you. You’ll never be warned that you’re spreading the virus, so you’ll keep infecting more people, without you or your friends knowing you’re the spreader.

Another trick: Klez.H often comes in an email that **pretends to be protection** against Klez.E but actually contains Klez.H. The email’s subject is “Worm Klez.E immunity” and the body says the following (I’ve edited out bad grammar):

Klez.E is the most common worldwide spreading worm. It’s very dangerous by corrupting your files. Because of its very smart stealth and anti-antivirus technique, most common antivirus software can’t detect or clean it. We developed this free immunity tool to defeat the malicious virus. You only need to run this tool once, and then Klez will never come into your PC. Note: because this tool acts as a fake Klez to fool the real worm, some antivirus programs might complain when

you run it. If so, ignore the warning and select “continue”. If you have any question, please mail to me.

That email is a lie: the email itself contains the Klez.H virus.

Klez.H often comes instead in an email containing an attached innocent document copied from the sender’s computer. Klez.H borrowed that technique from Sircam.

Klez.H can also come in an email pretending to be from your ISP’s postmaster, saying you sent an email that bounced and to look at the attached file.

Like Nimda, Klez.H can infect you even if you don’t open the attachments. Klez.H contains routines to disable and destroy antivirus programs. Klez.H gives you a present: a second virus, called **Elkern**. Klez.H and Elkern try to corrupt all your computer’s programs by inserting themselves into each program.

The virus is called “Klez” because it contains this message, which is not displayed:

Win323 Klez V2.01 & Win32 Foroux V1.0  
Copyright 2002,made in Asia

***Beagle (January 2004 from Germany)*** began as a program named **bbeagle.exe**, so it’s called “Beagle”, but some reporters made an error and **accidentally called it “Bagle”**. If you hear about a “Bagle” virus, it has nothing to do with bagels you eat for breakfast! As a joke, many virus experts now call it the “Bagle” virus.

The virus’s first version, Beagle.A, was polite: it was invented on January 18, 2004 but was programmed to stop spreading itself on January 28, 2004. So after January 28, 2004, no more people would get infected by Beagle!

Beagle.A did no harm except spread itself. Its main symptom was that it automatically turned on the Windows Calculator program, calc.exe (which you’d otherwise run manually by clicking Start then Programs then Accessories then Calculator).

Unfortunately, many other versions of Beagle were invented afterwards: Beagle.B, Beagle.C, etc., up through Beagle.X. They’re nastier and compete against the Netsky virus, described below.

***Netsky (February 2004 from Germany)*** was written by a 17-year-old high school student, Sven Jaschan, who called himself **SkyNet**. Later he wrote 27 more versions of it, plus a more powerful virus, called **Sasser**.

Those viruses, especially Sasser, screwed up millions of computers around the world and made people distrust the security of Windows XP. Microsoft offered a reward of \$250,000 to discover who wrote those viruses.

In May 2004, Sven’s friends turned him in and collected the reward. He confessed.

Since he distributed the virus on his 18<sup>th</sup> birthday, the German courts decided he was *under* 18 when he invented the virus, so he was tried as a minor and got off easy: no jail time and no fine! He just had to perform 30 hours of community service in a retirement home and pay about \$3000 in damages to organizations that sued him.

His mom, Veronika, runs a computer consulting company called “PC Help” from her basement. Cynics think Sven wrote the viruses there to create more business for her, but probably his main goal was just to compete against the writer of Beagle. Newspapers call him the “world’s most annoying teenager”.

Here’s how Netsky works.

Netsky’s first version, called Netsky.A, came in this email:

Subject: Auction successful!  
Congratulations! You were successful in the auction. A detailed description about the product and the bill are attached to this mail. Please contact the seller immediately. Thank you!

The attachment contains the virus. To further imply the email is real, the email’s body includes an Auction ID number and a Product ID number (both fake), and the email’s address is

spoofed (so it pretends to be from “EBay Auctions” or “Yahoo Auctions” or one of their competitors).

That’s Netsky.A. Later came more powerful variants, called Netsky.B, Netsky.C, etc., up through Netsky.Z, then Netsky.AA, Netsky.AB, and Netsky.AC.

The most widely distributed version of Netsky is **Netsky.P**, which is smart: it can generate many kinds of email subjects and email bodies, by choosing them from a long list inside the virus. For example, here are some of the subjects and bodies it can send you:

Subject	Body
Re: Your document	Your document is attached.
Re: Is that your document?	Can you confirm it?
Re: Question	I have corrected your document.
You cannot do that!	I am shocked about your document!
Sample	I have attached the sample.
Thank you!	Your bill is attached to this mail.
I cannot forget you!	Your big love, ;-)
Re: Old photos	Greetings from France, Your friend
Your day	Congratulations! Your best friend
Sex pictures	Here is the website. ;-)
Does it matter?	Your photo, uahhh... you are naked!
Protected Mail System	Protected message is attached.
Stolen document	I found this document about you.
Fwd: Warning again	You have downloaded these illegal cracks?
Administrator	Your mail account has been closed.
Hello	I hope the patch works.
Re: Hi	Please answer quickly!
Mail Delivery (failure)	Message has been sent as a binary attachment.
Re: Hi	I have attached your file. Your password is jk144563.
Re: Order	Thank you for your request. Your details are attached!
Spam	I have visited this website and I found you in the spammer list. Is that true?
Illegal Website	See the name in the list! You have visited illegal websites. I have a big list of the websites you surfed.
Re: Submit a Virus Sample	The sample file you sent contains a new virus version of Mydoom.j. Please clean your system with the attached signature. Sincerely, Robert Ferrew
Re: Virus Sample	The sample file you sent contains a new virus version of Buppa.k. Please update your virus scanner with the attached dat file. Best Regards, Keria Reynolds

At least one of those emails will make you curious enough to open the attachment, which contains the virus.

To encourage you to open the attachment, Netsky.P pretends the attachment was approved by an antivirus program, so the body ends with a comment such as —

+++ Attachment: No Virus found  
+++ McAfee AntiVirus — www.mcafee.com

or a similar comment mentioning one of 7 other antivirus companies. The comment is a lie, written by the virus itself! Even if you don’t open the attachment, you can get the virus just by reading the body.

Netsky.P erases some other viruses, to make Netsky.P be the remaining, dominant virus on your machine and SkyNet be acknowledged as the master of evil. (But Netsky.P will *not* erase the Sasser virus, which was created by SkyNet also! Netsky.AB pretends to erase the Sasser virus but doesn’t.)

To taunt the competitor who wrote the Beagle virus (which is also called “Bagle”), Netsky.P contains this message (which is not displayed):

Bagle, do not delete SkyNet. You fucked bitch! Wanna go into a prison? We are the only AntiVirus, not Bagle. Shut up and take your butterfly!  
— Message from SkyNet AV Team  
Let’s join an alliance, Bagle!

## DoS attacks

Your computer can attack an Internet Web-site server computer (called the **target**) by sending so many strange requests to the target that the target can’t figure out how to respond to them all. The target gets confused and becomes so preoccupied worrying about your requests that it ignores all other work it’s supposed to be doing, so nobody else can access it. Everybody who tries to access it is denied service because it’s too busy. That’s called a **denial-of-service attack (DoS attack)**.

In the attack, the “strange request” asks the target to reply to a message; but when the target computer tries to reply, it gets flummoxed because the return address is a **spoof** (a fake address that doesn’t exist). The target tries to transmit to the fake address and waits hopelessly for acknowledgement that the reply was received. While the target waits for the acknowledgement, the attacking computer keeps sending more such requests, until the target gets overloaded, gives up, and dies.

Denial-of-service attacks were invented in 1997. In March 1998, denial-of-service attacks successfully shut down Internet computers run by the Navy, the US space agency (NASA), and many universities.

**Distributed DoS attacks** In the summer of 1999, an extra-powerful denial-of-service attack was invented. It’s called a **distributed denial-of-service attack (DDoS attack)**. Here’s how it works:

A virus spreads by email to thousands of innocent computers and turns them into **zombie agents**. The virus waits in those zombies until a preset moment, then forces all those zombies to simultaneously attack a single Internet target by sending strange requests to the target, to overload the target and make it deny service to other customers.

The first DDoS attack viruses were **Trin00** and **Tribe Flood Network (TFN)**. Soon after came versions that were more sophisticated: **Tribe Flood Network 2000 (TFN 2K)** and **Stacheldraht** (which is the German word for “barbed wire”).

Those viruses are flexible: you can teach them to attack any target. Though the inventors of those viruses said they were just “experiments”, other folks used those viruses to attack Yahoo and many other Web sites in February 2000. The attacks succeeded: they shut down Yahoo, CNN.com, Amazon.com, eBay.com, eTrade.com, Buy.com, Datek.com, and the FBI’s Web site.

**Blaster (August 2003)** tries to launch a DDoS attack against Microsoft, specifically against microsoft.WindowsUpdate.com. After Blaster was unleashed, Microsoft quickly reorganized its Web site (by stopping www.WindowsUpdate.com from redirecting people to microsoft.WindowsUpdate.com), so no lasting damage was done to Microsoft. But Blaster has a nasty side effect:

While Blaster makes your computer try to attack Microsoft’s Web site — and also send copies of Blaster to every other address on the Internet (by generating random Internet address numbers) — it makes your computer reboot every 60 seconds.

Blaster can spread through *any* Internet connection, not just through email. Whenever your computer is connected to your Internet Service Provider (ISP), you can get infected, even if you’re not using email and not using the Web.

The virus is called **MsBlast.exe** and puts itself in your Windows folder.

Blaster led to **Sasser**:

**Sasser (April 2004)** is a Blaster variant invented by Sven Jaschan (the same kid who wrote the Netsky virus). Like Blaster, Sasser spreads to other computers by any ISP connection and makes computers reboot.

Sasser comes in 3 versions: Sasser.A is called AvServe.exe; Sasser.B & Sasser.C are called AvServe2.exe.

Blaster creates a DDoS attack (on Microsoft), but Sasser does *not* create any DDoS attack: it just spreads itself rapidly to computers all over the world.

# Maintenance

These tips will help keep your computer in good shape, so you'll have fewer problems and need fewer repairs.

## Clean your hardware

Eventually, your computer will get covered with dust, dirt, cigarette smoke, pollen, spilled drink, spilled food, dead insects, dandruff, and other unmentionable body parts.

Once a month, clean the computer, to increase the happiness of the computer and the people who see it (you, colleagues, customers, and visitors). To make cleaning easier, many companies prohibit employees from smoking, drinking, or eating near the computer.

### Easy cleaning

Before cleaning the computer, turn its power off.

Just take a paper towel, dampen it with plain water, and wipe grime off the keyboard, the monitor's screen, the monitor's case, and the system unit's case. It's important to wet the towel and wipe gently, to avoid scratching the screen.

Don't dribble water into the electronics. That would cause a short circuit and corrosion. Put water just onto the paper towel, *not* directly onto the hardware.

Don't use the computer until the water has dried. Don't open the monitor, since it contains high voltages even when "off".

If the computer's a desktop or all-in-one, clean the keyboard by doing this also:

Lift the keyboard off your desk. While the keyboard's still in the air, flip the keyboard upside down, then shake it vigorously. You'll be surprised at how much dust falls out of the keyboard and onto your desk! The "dust" includes many tiny pieces of food, skin, snot, and whatever other disgusting organic & inorganic materials you've been accidentally dropping into the keyboard. Then wipe that "dust" off your desk, and put the keyboard back down.

If the computer's a laptop, do the same thing, but shake the laptop less vigorously, to avoid cracking the laptop's electronics.

### Inside the system unit

If the computer's a traditional desktop or tower, occasionally remove dust from inside the system unit. To do that, open the system unit's case (by removing the screws at the case's back corners & edges, then jiggling the case until it pops). Cautions:

Remove screws at the case's corners & edges but *not* other screws. Don't try to open a laptop or all-in-one computer: they require a special screwdriver.

When opening the system unit, be careful not to give your computer a shock of static electricity. The computer's chips are delicate and can get destroyed by even the smallest spark. To avoid shocks, do this:

Avoid opening the computer in the winter, when the air is cold and the humidity is low. Wait until summer, when the air is warm and the humidity is high.

Avoid shuffling across the carpet in rubber-soled shoes. Remove your shoes and socks (so you look like a beach bum or hippie). Remove the carpet, or cover it with a plastic mat (or newspaper), or put anti-static spray on the carpet, or move to an uncarpeted room.

While fiddling inside the computer, keep it turned off but still plugged into a 3-prong grounded socket. Keep touching the outside of the computer's case, which will be grounded. You can also keep touching other big metal objects in the room — so you'll shock them instead of your computer.

Avoid directly touching the chips.

When fiddling inside the computer's case, don't loosen any of the cables inside, since if a cable gets loose you might forget which socket it belongs in and which direction it should be twisted in.

To remove dust, wipe it off — or just take a deep breath and blow, but try to avoid blowing spit.

## Professional cleaning

That's how to clean your computer for free. Professional repair shops usually spend extra money:

Instead of using water, they use **isopropyl alcohol**, which dries faster. But **don't use alcohol or traditional "glass cleaners" on the SCREEN**, since they can harm the screen's antiglare coating.

Instead of using a paper towel, they use a **soft lint-free cloth**.

Instead of blowing from their mouths, they blow from a **can of compressed air**.

Instead of touching objects to dissipate static electricity, they wear an **electrostatic-discharge wrist strap (ESD wrist strap)**, which is a wrist strap that comes with a wire you can run from your wrist to a grounded metal object (such as the outside of a grounded computer case).

## Clean your mouse

Here's how to clean a traditional mouse (which contains a ball instead of shining a light).

Turn the mouse upside down. Using your fingernail, scrape off any gunk you see. (Gunk tends to accumulate on the mouse's rubber strips or rubber feet.)

In the mouse's belly, you typically see a rubber ball, whose purpose is to roll on your desktop (or on your mouse pad). Remove the ball's circular cover (by turning the cover counterclockwise or sliding it toward you). Remove the ball.

On the ball, you'll probably see a little dust, dirt, hair, or food. Clean the ball by rubbing it against your clothes. (Ooooh! That felt Gooood!) If you prefer, you can clean the ball by using water, but do *not* use alcohol, which can shrink the ball and make it lopsided.

Look inside the mouse, in the hole where the ball was. On the sides of that hole, you'll see two rollers (looking like rolling pins) that the ball is supposed to rub against. One of those rollers is for motion in the X direction (horizontal); the other roller is for motion in the Y direction (vertical). Dust and dirt are probably caked onto the middle of each roller. Scrape the dust and dirt off, by using your fingernail.

Then put the ball back into the mouse and put its cover back on (by turning the cover clockwise or sliding it away from you).

# Clean your software

For over 40 years, I've given free help to folks whose computers got messed up. That extensive experience taught me most computer problems can be solved by **software cleaning**: just remove any software routines that distract the computer from what you want to accomplish! If you remove those distractions, the computer can concentrate on accomplishing your goal. The computer's headaches — and yours — will disappear. The computer will run reliably — and faster.

Here's how to clean your software. To get free help using these methods and my other tricks (which are more bizarre), call me anytime (day or night, 24 hours) on my cell phone: **603-666-6644**.

## Turn off

Turn the computer off, then turn it back on. That procedure can solve several problems:

It can stop confused software from giving you a hard time.

It cleans out the computer's RAM, so it's not occupied by programs you wanted to close but which accidentally kept pieces of themselves still running.

It gives the computer a chance to reanalyze itself, search for updates, and install improvements.

It simplifies the question of what your computer is doing, so you stand a better chance of repairing it.

To do that effectively, make sure you turn the computer off *completely*.

Give the Windows command for "Shut down", then wait a minute, until the computer shuts down, the screen goes black, all activity lights go off, and the computer gets completely quiet. Then unplug the computer from the wall (or from a power strip or turn the power strip off). Then turn the computer back on.

Yes, do that procedure *completely*:

Say "Shut down", not "Restart". Don't trust the "Restart" command, whose effects may seem similar but whose details are unpredictable.

Give the Windows "Shut down" command (by clicking or tapping the words "Shut down"); don't just press a power-off button, which might put the computer into a "sleep" mode instead of fully shutting down.

If you can't do that procedure completely (because the computer refuses to let you click or tap "Shut down" or the computer's lights refuse to go off), do the next best thing: pull out the plug. If pulling out the plug doesn't make the lights go off, and the computer's a laptop, do the next best thing: **remove the laptop's battery** (by flipping the laptop upside down and sliding open the battery door's latch), then (as an experiment) try turning the laptop back on but without the battery in, then again with the battery in, to check whether your shut-down difficulty was caused by a battery defect or just a temporary hiccup.

## Do disk cleanup

Once a week, give the computer permission to delete files the computer thinks are useless.

To start the process, do this:

**Windows 10** In the Windows Search box (which is next to the Windows Start button), type "disk". You see a list of things that contain the word "disk". Tap "Disk Cleanup: Desktop app" then "OK". The computer will say "Disk Cleanup is calculating".

**Windows 8.1** Go to the Start screen. Type "CleanMgr". Tap the blue "CleanMgr" box. The computer will say "Calculating".

**Windows 8** Right-click the Start button. Click "Search". In the white Search box, type "Disk Cleanup". Click "Free up disk space" then "C:" then "OK". The computer will say "Calculating".

**Windows 7** Click "Start" then "Computer" then the "C:" icon then "Properties" then the Disk Cleanup button. The computer will say "Calculating".

Then you see a column of boxes. Put checkmarks in all the boxes, by clicking them. Scroll down to see *all* the boxes and make sure you put checkmarks in *all* of them.

Press the Enter key twice. The computer will delete the files.

## Windows 7 issues

Windows 7 has these extra issues.

**Stop the HP Advisor dock** If the screen's top shows the **HP Advisor dock** (ribbon bar that begins with the words "HP Advisor") because you bought an HP or Compaq computer, stop it (because it's distracting) by doing this:

Click "HP Advisor" then "PC Dashboard" then "Settings" (which is at the window's bottom-left corner). Remove the check mark from "Launch Advisor PC Dock at every boot" (by clicking it). Click "Apply". Close the HP Advisor window by clicking its X. Close the HP Advisor dock by clicking the faint-or-white X that's to the right of the dock's top-right corner.

(Here's how to see the HP Advisor dock in the future: click Start then "All Programs" then "HP Advisor".)

**Stop the wallpaper** When you're not in the middle of running a program, the computer's screen might show you **wallpaper** (a photo, or rays of colored lights, or your computer manufacturer's name & logo, peeking from behind all the icons). Though that wallpaper might cheer you up at first, after a month or two you'll find it distracting, and it makes the icons harder to see.

Here's how to get rid of the wallpaper and change to a plain background:

Right-click in the screen's middle, where there's no icon. Click "Personalize" then "Desktop Background". Near the screen's top, you see a box labeled "Picture location" (and it probably says "Windows Desktop Backgrounds" in it); click that box's down-arrow then "Solid Colors". Maximize the window. You see 33 big colored squares. Click the dark-blue square at the top of the 6<sup>th</sup> column (because that's the traditional restful color) or click whatever other color you prefer. Press Enter. Close the window (by clicking its X button).

If you want to change back and see wallpaper again, do this:

Right-click in the screen's middle where there's no icon. Click "Personalize" then "Desktop Background" then the Picture location box's down-arrow then "Windows Desktop Backgrounds". Scroll down to see all the icons. Click the last icon (which is in the Windows category). Press Enter. Close the window by clicking its X.

# Repairs

Someday, your computer will break down — or disappoint you. Here's how to fix the problem.

## Strategies for repair

To repair a computer, follow these general principles....

### Ask

**Ask for help.** Instead of wasting many hours scratching your head about a computer problem, get help from your dealer, your computer's manufacturer, your software's publisher, your colleagues, your teachers, your friends, and me. You can call my cell phone day or night, 24 hours, at 603-666-6644; I'm almost always available, and I sleep just lightly.

Most computers come with a 1-year warranty.

If your computer gives you trouble during that first year, make use of the warranty: get the free help you're entitled to from your dealer.

If your "dealer" is a general-purpose department store that doesn't specialize in computers, the store might tell you to phone the computer's manufacturer. For tough software questions, the dealer might tell you to phone the software's publisher.

Although the hardware's warranty is usually for 1 year, the software's warranty is usually for just 30 days, so your dealer might try to blame the problem on software and say "Sorry, I can't help you now, unless you pay me for tech support."

Most computers come with a 30-day money-back guarantee. If the computer is giving you lots of headaches during the first 30 days, just return it! Unfortunately, some dealers' money-back guarantee is just 15 days, and some dealers charge a 15% restocking fee.

### Clean

**Many repair problems can be solved by cleaning your software** (as I explained on page 172). Many other repair problems can be solved by cleaning your hardware (as I explained on page 171) or by getting rid of viruses (as I explained on page 163).

### Check the batteries

**Batteries eventually fail.**

If your **mouse or keyboard** is wireless, it contains an AA or AAA battery (or pair of them), which must be replaced when they die.

In a **laptop computer**, a long battery hides under the keyboard. That battery is rechargeable: it tries to recharge itself whenever the laptop is plugged in. But after a few years, the battery becomes unreliable and confuses the computer.

Remove the battery by flipping the laptop upside-down and sliding the battery's latch open.

Try running the laptop with the battery removed. If the laptop runs fine with the battery removed but badly with the battery in, the problem is indeed the battery.

Try to recharge the battery by leaving it in the laptop while plugged in. If you still have bad luck, you'll be tempted to buy a replacement battery; but the list price is about \$100, so you should seriously consider either buying a new laptop instead or always running your laptop plugged in, without a battery.

### Chuck

**If the broken part is cheap, don't fix it: chuck it!** For example, if one of the keys on your keyboard stops working, don't bother trying to fix that key; instead, buy a new keyboard.

A new keyboard costs about \$25. Fixing one key on a keyboard costs many hours of labor and is silly.

If a 40-gigabyte hard disk stops working, and you can't fix the problem in an hour or so, just give up and buy a new hard disk, since 40-gigabyte hard disks are obsolete anyway.

Today, 40 gigabytes aren't worth much. The price difference between a 40-gigabyte drive and a 500-gigabyte or 1-terabyte drive is tiny, though you must also deal with the labor of switching the hardware, transferring the software, and maybe buying new copies of the operating system and other programs.

### Observe

**Read the screen.** Often, the screen will display an error message that tells you what the problem is.

If the message flashes on the screen too briefly for you to read, try pressing the computer's Pause key as soon as the message appears. The Pause key makes the message stay on the screen for you to read. When you finish reading the message, press the Enter key.

If you're having trouble with your printer, and your printer is modern enough to have a built-in screen, read the messages on that screen too.

**Check the lights.** Look at the blinking lights on the front of the computer and the front of the printer; see if the correct ones are glowing. Also notice whether the monitor's Power light is glowing.

**Check the switches.** Check the On-Off switches for the computer, monitor, and printer: make sure they're all flipped on. If your computer equipment is plugged into a power strip, make sure the strip's On-Off switch is turned on.

Check the monitor's brightness and contrast knobs, to make sure they're turned to the normal (middle) position.

If you have a dot-matrix printer, make sure the paper is feeding correctly, and make sure you've put into the correct position the lever that lets you choose between tractor feed and friction feed.

**Check the cables that run out of the computer.** They run to the monitor, printer, keyboard, mouse, and wall. Make sure they're all plugged tightly into their sockets. To make *sure* they're plugged in tight, unplug them and then plug them back in again. (To be safe, turn the computer equipment off before fiddling with the cables.) Many monitor and printer problems are caused just by loose cables — or a cable that was chewed by a pet cat or dog.

### Strip

**When analyzing a hardware problem, run no software except the operating system and diagnostics.** For example, if you're experiencing a problem while using a word-processing program, spreadsheet, database, game, or some other software, exit from whatever software you're in. Turn off your printer, computer, and all your other equipment, so the RAM chips inside each device get erased and forget that software.

Then turn the computer back on.

If writing appears on your screen and you can read it, your screen is working fine.

If you can make the hard disk show you what's on it (by double-clicking "My Computer" then "C:" in modern Windows, or by typing "dir" in DOS), your hard disk is working fine.

If you can print something simple on paper (by typing "I love you" in WordPad and then printing that 3-word document), your printer is working fine. (On some laser printers, such as the Hewlett-Packard Laserjet 2, you need to manually eject the paper: press the printer's On Line button, then the Form Feed button, then the On Line button again.)

If your computer, monitor, hard drive, and printer pass all those tests, your hardware is basically fine; and so the problem you were having was probably caused by software rather than hardware. For example, maybe you forgot to tell your software what kind of printer and monitor you bought.

## Relax

Don't get upset! Just relax. Stay, calm, cool, and collected while you analyze the problem. Have the attitude of Sherlock Holmes!

Perhaps you'd react to error messages more calmly if they were written as meditative poetry. In February 1998, an online magazine called **Salon.com** held a contest to turn each error message into a **haiku** (a Japanese meditative poem that has 5 syllables on the first line, 7 syllables on the second line, and 5 syllables on the third line). Here are the winning entries (as edited by me):

### Missing Web pages

The Web site you seek  
**Cannot be located**, but  
Countless more exist.

You step in the stream,  
But the water has moved on.  
This **page is not here**.

**Site moved**, now secret.  
We'd tell you where, but then we'd  
Have to delete you.

### Crashing

A **crash** reduces  
Your expensive computer  
To a simple stone.

Serious error.  
All shortcuts have disappeared.  
Screen. Mind. Both are **blank**.

Yesterday it worked.  
Today it is **not working**.  
Windows is like that.

The ten thousand things,  
How long do any persist?  
**Windows, too, has gone**.

Stay the patient course.  
Of little worth is your ire.  
The **network is down**.

Windows NT crashed.  
I am the **Blue Screen of Death**.  
No one hears your screams.

### Lost data

Three things are certain:  
Death, taxes, and **lost data**.  
Guess which has occurred.

With searching comes loss  
And the presence of absence:  
"My Novel" **not found**.

Rather than a beep  
Or a rude error message,  
These words: "**File not found**."

Having been **erased**,  
The document you're seeking  
Must now be retyped.

A file that's so big?  
It might be very useful.  
But now it is **gone**.

### Everything is gone

Your life's work has been destroyed.  
Squeeze trigger (yes/no)?

### Starting over

Chaos reigns within.  
Reflect, repent, and **reboot**.  
Order shall return.

Seeing my great fault  
Through darkening blue windows,  
**I begin again**.

Aborted effort.  
**Close all** that you have worked on.  
You ask far too much.

Login incorrect.  
Only perfect spellers may  
Enter this system.

Server's poor response  
Not quick enough for browser.  
**Timed out**, plum blossom.

**Errors have occurred**.  
We won't tell you where or why.  
Lazy programmers.

To have no **errors**  
Would be life without meaning:  
No struggle, no joy.

### Inadequate hardware

**Printer not ready**.  
Could be a fatal error.  
Have a pen handy?

The Tao that is seen  
Is not the true Tao — until  
You bring fresh **toner**.

No **keyboard** present.  
Hit F1 to continue.  
Zen engineering?

First snow, then silence.  
This thousand-dollar **screen dies**  
So beautifully.

**Out of memory**.  
We wish to hold the whole sky,  
But we never will.

I'm sorry, there's...um...  
**Insufficient**...what's-it-called?  
The term eludes me.

The code was willing.  
It considered your request.  
But the **chips** were weak.

You've reached a chasm  
Of carbon and **silicon**  
No software can bridge.

Here's who wrote them:

Missing Web pages:	Joy Rothke, Cass Whittington, Charles Matthews
Crashing:	James Lopez, Ian Hughes, Margaret Segall, Jason Willoughby, David Ansel, Peter Rothman
Lost data:	David Dixon, Howard Korder, Len Dvorkin, Judy Birmingham, David Liszewski, David Carlson
Starting over:	Suzie Wagner, Chirs Walsh, Mike Hagler, Jason Axley, Rik Jespersen, Charlie Gibbs, Brian Porter
Inadequate hardware:	Pat Davis, Bill Torcaso, Jim Griffith, Simon Firth, Francis Heaney, Owen Mathews, Barry Brumitt, Rahul Sonnad

## Booting problems

Turning the computer on is called **booting**. When you turn the computer on, you might immediately experience one of these problems....

### Unusual beeping

When you turn the computer on, you're supposed to hear a single short beep. If **you hear unusual beeping** (such as *several* short beeps or a long beep), your computer's fundamental circuitry isn't working right.

If you hear *many* short beeps or a *very long* beep, your computer is having an electrical problem, so do this:

Turn the computer off immediately. Perhaps the electrical problem was caused by a loose power cord: make sure the power cord is plugged in tight to the back of the computer and to the wall's outlet (or surge protector), not dangling loose. If the computer got damp recently (from a rainstorm or a spilled drink or dew caused by bringing the computer in from the cold), wait for the computer to dry thoroughly before turning it back on. If you moved the computer recently, perhaps a part got loose in shipment; if you wish, open the computer and make sure nothing major is loose; for example, make sure the PC cards and chips are firmly in their sockets (but before you touch any chips, reduce any static electricity in your fingers by grounding yourself, such as by touching a big metal object or the computer's power supply while it's still plugged into a grounded wall socket).

If you hear just a *few* short beeps or *several* long beeps or a *mix* of short and long beeps, your computer is complaining about a defective part. By listening to the computer's beeps, you can tell which part of the computer is ill. Lists of beep codes are on page 115 of the 30<sup>th</sup> edition.

### Signal missing

If the **screen says "signal missing" or "no signal"**, the monitor is not receiving any electrical signal from the computer. The monitor is complaining.

Look at the two cables coming out of the monitor's rear. One of those cables is a power cord that plugs into the wall (or into a surge protector). The other cable is the **video cable**, which is supposed to plug into the back of the computer, so the computer can send signals to the monitor. Probably, that video cable is loose. Tighten it. To make sure it's tight, unplug it from the back of the computer and then shove it into the computer's backside again, firmly.

If tightening the video cable doesn't solve the problem, maybe the computer is turned off. Make sure the computer is turned on:

If the computer is turned on, lights should be glowing on the front of the computer and on the keyboard, and you should hear the fan inside the computer whir. If you don't see and hear those things, the computer is turned off. Try turning the computer on, by pressing its On switch or by turning on the surge protector that the computer's plugged into.

Another possibility is that the video card (which is inside the computer) is loose (because you recently moved the computer) or got fried (from a power surge caused by a thunderstorm) or got damaged (because you were fiddling with the computer's innards and you caused a shock or short or break). Make sure the video card is in tight; if a tight video card doesn't solve the problem, borrow a video card from a friend; if that still doesn't give you any video, maybe your whole motherboard is damaged, so give up and take your computer to a repair shop.

## No video

When you turn the computer on, the screen is supposed to show you words, pictures, marks, or at least a cursor (little line). If the **screen stays completely black**, probably your monitor is getting no electricity or no electrical signals.

Make sure the monitor is turned on. Make sure its two cables (to the power and to the computer's video card) are both plugged in tight (since they can easily come loose.) Make sure the monitor's contrast and brightness are turned up (by fiddling with the knobs or buttons on the monitor's front, back, or sides).

If the monitor has a power-on light, check whether that light is glowing. (If the monitor doesn't have a power-on light, peek through the monitor's air vents and check whether anything inside glows). If you don't see any glow, the monitor isn't getting any power (because the on-off button is in the wrong position, or the power cable is loose, or the monitor is broken). If the monitor is indeed broken, do *not* open the monitor, which contains high voltages even when turned off; instead, return the monitor to your dealer.

If you've fiddled with the knobs and cables, and the power-on light (or inside light) is glowing but the screen is still blank, boot up the computer again, and look at the screen carefully: maybe a message *did* flash on the screen quickly?

**If a message did appear**, fix whatever problem the message talks about. (If the message was too fast for you to read, boot up again and quickly hit the Pause key as soon as the message appears, then press Enter when you finish reading the message.) If the message appears but does not mention a problem, you're in the middle of a program that has crashed (stopped working), so the fault lies in software mentioned in CONFIG.SYS or AUTOEXEC.BAT or COMMAND.COM or some other software involved in booting.; to explore further, put into the CD drive your Windows emergency recovery start-up boot disk (if you have one) and reboot.

**If absolutely no message appears on the screen during the booting process**, so that the screen is entirely blank, check the lights on the computer (maybe the computer is turned off or broken) and recheck the cables that go to the monitor. If you still have no luck, the fault is probably in the video card inside the computer, though it might be on the motherboard or in the middle of the video cable that goes from the video card to the monitor. At this point, before you run out and buy new hardware, try swapping with a friend whose computer has the same kind of video as yours: try swapping monitors, then video cables, then video cards, while making notes about which combinations work, until you finally discover which piece of hardware is causing the failure. Then replace that hardware, and you're done!

## SETUP

Each modern computer (286, 386, 486, or Pentium) contains CMOS RAM, which tries to remember the date, time, how many megabytes of RAM you've bought, how you want the RAM used, what kind of video you bought, and what kind of disk drives you bought. A battery feeds power to the CMOS RAM, so that the CMOS RAM keeps remembering the answers even while the main power switch is off. If the **computer says "Invalid configuration specification: run SETUP"** (or a similar error message), your computer's CMOS RAM contains wrong info — probably because the battery died and needs to be replaced or recharged. In most computers, the battery is rechargeable; it recharges itself automatically if you leave the computer turned on

for several hours.

To react to the error message, try running the CMOS Setup program, which asks you questions and then stores your answers to the CMOS RAM.

The CMOS Setup program hides in a ROM chip inside your computer and is run when you hit a "special key" during the bootup's RAM test. That "special key" is usually either the Delete key or the Esc key or the F1 key; to find out what the "special key" is on *your* computer, read your computer's manual or ask your dealer.

Once the CMOS Setup program starts running, it asks you lots of questions. For each question, it also shows you what it guesses the answer is. (The computer's guesses are based on what information the computer was fed before.)

On a sheet of paper, jot down what the computer's guesses are. That sheet of paper will turn out to be *very* useful!

Some of those questions are easy to answer (such as the date and time).

A harder question is when the computer asks you to input your **hard-drive-type number**. You can make the computer automatically figure out the hard-drive-type number: just choose "auto-detect hard drive" from a menu.

If you don't know how to answer a question and can't reach your dealer for help, just move ahead to the next question. Leave intact the answer that the computer guessed.

After you've finished the questionnaire, the computer will automatically reboot. If the computer gripes again, either you answered the questions wrong or else the battery ran out — so that the computer forgot your answers!

In fact, the most popular reason why the computer asks you to run the CMOS Setup program is that the battery ran out. (The battery usually lasts 1-4 years.)

To solve the problem, first make sure you've jotted down the computer's guesses, then replace the battery, which is usually just to the left of the big power supply inside the computer. If you're lucky, the "battery" is actually a bunch of four AA flashlight batteries that you can buy in any hardware store. If you're unlucky, the battery is a round silver disk, made of lithium, like the battery in a digital watch: to get a replacement, see your dealer.

After replacing the battery, run the CMOS Setup program again, and feed it the data that you jotted down.

That's the procedure. If you're ambitious, try it. If you're a beginner, save yourself the agony by just taking the whole computer to your dealer: let the dealer diddle with the CMOS Setup program and batteries for you.

Whenever you upgrade your computer with a better disk drive or video card or extra RAM, you must run the CMOS Setup program again to tell the computer what you bought.

In many computers, the ROM BIOS chip is designed by **American Megatrends Inc. (AMI)**. AMI's design is called the **AMI BIOS** (pronounced "Amy buy us"). Here's how to use the 4/4/93 version of AMI BIOS. (Other versions are similar.)

When you turn the computer on, the screen briefly shows this message:

```
AMIBIOS (C)1993 American Megatrends Inc.
000000 KB OK
Hit <DEL> if you want to run SETUP
```

Then the number "000000 KB" increases, as the computer checks your RAM chips. While that number increases, try pressing your keyboard's Del or Delete key.

That makes the computer run the AMIBIOS CMOS Setup program. The screen's top will say:

```
AMIBIOS SETUP PROGRAM - BIOS SETUP UTILITIES
```

Underneath, you'll see this **main menu**:

```
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
AUTO DETECT HARD DISK
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
```

The first and most popular choice, "STANDARD CMOS SETUP", is highlighted. Choose it (by pressing Enter).

The computer will warn you by saying:

Improper use of Setup may cause problems!!!

Press Enter again.

The computer will show you the info stored in the CMOS about the date, time, base memory, extended memory, hard drives, floppy drives, video card, and keyboard.

If that stored info is wrong, fix it! Here's how:

By using the arrow keys on the keyboard, move the white box to the info that you want to fix. (Exception: you can't move the white box to the "base memory" or "extended memory".) Then change that info, by pressing the keyboard's Page Up or Page Down key several times, until the info is what you wish.

When you've finished examining and fixing that info, press the Esc key. You'll see the main menu again.

If you're having trouble with a modern (IDE) hard drive, choose "AUTO DETECT HARD DISK" from the main menu (by pressing the down-arrow key 6 times, then pressing Enter). The computer will try to detect what kind of drive C you have, then it will say:

Accept Parameters for C: (Y/N) ?

Press the Y key then Enter. Then the computer will try to detect what kind of drive D you have and say:

Accept Parameters for D: (Y/N) ?

Press Y again then Enter. You'll see the main menu again.

When you've finished using the main menu, you have 2 choices:

If you're *unsure* of yourself and wish you hadn't fiddled with the SETUP program, just turn off the computer's power! All your fiddling will be ignored, and the computer will act the same as before you fiddled.

On the other hand, if you're *sure* of yourself and want the computer to take your fiddling seriously, press the F10 key then Y then Enter. The computer will copy your desires to the CMOS and reboot.

## Non-system disk

If the **computer says "Non-system disk or disk error"**, the computer is having trouble finding the hidden system bootup files, which are supposed to be on your hard disk. You can get that error message if those hidden system bootup files are missing from your hard disk — because you accidentally erased those files, or a virus erased them, or your hard disk is new and not yet formatted, or when you formatted the disk you forgot to put a check mark in Windows format's "Copy system files" box).

Another for getting that error message is: you accidentally put a floppy disk into drive A! When the computer boots, it looks at that floppy disk instead of your hard disk and gripes because it can't find those system files on your floppy disk.

Cure:

Remove any disk from drive A. Turn the computer off, wait until the computer quiets down, then turn the computer back on. If the computer still says "Non-system disk or disk error", find the CD-ROM disk that Windows came on and try again to install Windows onto your hard disk.

## Slow

If the **computer acts slower than before**, it's clogged with too many programs or too much data. Here are 6 possible reasons:

1. The hard disk is nearly full.
2. You have too many programs running in the RAM simultaneously.
3. Your computer is clogged with adware, spyware, or viruses.
4. You've left the computer on for too many hours, so fragments of programs you ran and abandoned are still in the RAM (because Windows is imperfect at erasing them from RAM).
5. The computer is in the middle of updating itself (by automatically running Windows Update and other updating software).
6. The computer is waiting for you to reply to a question, but the question is invisible because it's hiding behind a window.

Cure:

Walk away from the computer awhile (in case the cause is #5), then come back and try again. If you're still having a problem, shut down the computer, then turn it back on; that eliminates cause #6 and usually makes the computer faster (since you've eliminated cause #4). If the computer is still too slow and you're using Windows 7, do the software-cleaning procedure (on page 172), which helps eliminate causes #1 and #2. Get programs that protect you (on page 163) to eliminate cause #3.

## Windows problems

If you're using Windows, you might experience the following problems....

### Illegal operation

If the **computer says "This program has performed an illegal operation and will be shut down"**, a program is trying to use a RAM section it's not allowed to. That RAM section is being used by a different program, with which your program is having a memory conflict. Cure for Windows 7:

Press Enter. Then do the software-cleaning procedure (on page 172), which makes memory conflicts less likely to occur.

### Start button in wrong corner

The Start button is supposed to be in the screen's bottom left corner. If **your Start button is in a different corner**, you accidentally moved the Start button.

To move the Start button back, just "drag the taskbar to where you want it." Here's how:

One corner of your screen contains the Start button. Another corner contains the time. Running from the Start button to the time is a bar called the **taskbar** (which is blue in Windows 7).

Point at the taskbar's middle, in a blank area where there are no buttons. While pressing the mouse's left button, drag to where you want the taskbar's middle to go: the middle of the screen's bottom. When you start dragging, you won't see the taskbar move yet; but if you drag the mouse pointer far enough, eventually the taskbar will hop. Then take your finger off the mouse's button.

### Start button missing

If the **Start button is missing and so is the time** (although the rest of the screen looks normal), you accidentally shrunk them.

The Start button and time are part of a bar, called the **taskbar** (which is blue in Windows 7). The taskbar is supposed to stretch across the bottom of the screen and be about half an inch tall. You accidentally shrunk the taskbar.

To solve the problem, first close all windows (by clicking their X buttons).

If doing that makes the taskbar reappear, your problem is just that you accidentally set your taskbar to “Auto hide”. Stop hiding the taskbar, by doing this in Windows 7:

Right-click “Start”, then click “Properties” then “Taskbar”. Remove any check mark from “Auto hide” (by clicking). Click “OK”.

If closing all windows does *not* make the taskbar reappear, look at the screen’s bottom.

If you see a gray (or light blue) line running across the screen’s bottom, that line is your shrunken taskbar; make it taller by doing this:

Point at that line’s top edge, so the mouse pointer becomes a black arrow (which has white edges and points upward). When pressing the mouse’s left button, drag up about half an inch. Suddenly there, you’ll see a gray (or red or yellow) line (or blue bar) stretch across the screen. Then take your finger off the mouse’s button.

## Icons missing

If **some icons are missing from the Desktop screen** (the main screen), they’re probably just hiding behind other icons or past the screen’s edge. To see them again, do this:

While looking at the Desktop screen, close any windows (by clicking their X buttons). Right-click in the screen’s middle, where there is nothing. Click “Sort by” then “Name”.

If that doesn’t make the icons reappear, the icons might be in the Recycle Bin, so do this:

Double-click the “Recycle Bin” icon. If the Recycle Bin window shows one of the missing icons, right-click that icon then click “Restore”.

## Dialog box too big

For the screen’s resolution, you can choose “800 by 600” or “1024 by 768”, by using a settings dialog box. If the **settings dialog box is too big to fit on the screen** (so the box’s “OK” button hides below the screen’s bottom), the computer is confused about what resolution you want. Instead of trying to click “OK”, press Enter. If pressing Enter doesn’t work, do this:

Close the dialog box (by clicking its X button), then recreate the dialog box again, then choose a resolution again, then try pressing Enter again.

## Resolution refuses to increase

If the computer refuses to let you choose more than “800 by 600” resolution, it’s because the computer thinks your video card doesn’t have enough RAM to handle such a high resolution.

Yes, the computer thinks your video card is inadequate or damaged!

But if your video card was working fine yesterday, the most likely “damage” is just that the video-driver *software* got corrupted. Here’s the cure....

Click Start then “Computer” then “System properties” then “Device Manager”. Click the triangle that’s left of “Display adapters”.

Indented underneath “Display adapters” you see the name of the video card that the computer thinks you have. Click that name. Press the Delete key.

The computer will warn you that you’re going to uninstall that video-driver software. Though that warning looks scary, be brave and press Enter (because your computer secretly has an extra copy of that video-driver software).

Then just follow the instructions on the screen. The computer will recommend rebooting; let it. While the computer is rebooting, it will begin by thinking you have no video card, but then it will get surprised when it finds video-card hardware, and it will reinstall that video card, using a copy of the video-driver software that’s still hiding on the computer. (When the computer asks where the video-driver software is, tell the computer to look just on the hard disk, not on a CD.)

The computer will find the video-driver software and finish booting. The screen’s colors will look slightly better. To make the screen look exactly the way you wish, go to the display-settings dialog box again doing this:

Right-click any blank space in the screen’s middle. For Windows Vista, click “Personalize” then “Display Settings”.

Then choose as many colors and as high a resolution as you wish. This time, your request will be obeyed!

# Mouse problems

Mice can cause problems.

## Mouse pointer lurches

When you move the mouse, the mouse pointer (on the screen) is supposed to move also. **If the mouse pointer lurches erratically** (sometimes going fast, sometimes going too slow or not at all) **or moves in just one direction** (just horizontally, or just vertically, but not both), the mouse is dirty. Clean it by using the procedure on page 171; then the mouse will probably work well.

If the mouse doesn’t work well yet, try this experiment:

Take the ball out again. Rub your finger against the X and Y mouse rollers, and see if the mouse pointer moves also. If the mouse pointer works fine using your fingers but not by using the ball, the ball isn’t touching the rollers, probably because the ball’s cover isn’t locking the ball into the proper position. Reposition the ball and its cover.

If the mouse *still* doesn’t work well, just buy a new mouse. You can buy a plain mouse for about \$10.

## Mouse pointer hard to see

While moving the mouse fast, you might have **difficulty seeing where the mouse pointer went**, because the mouse pointer seems to become temporarily invisible.

That means your screen, video card, or eyes are too slow to keep up with you. That’s probably because you’re using a notebook computer that has the slowest kind of screen (passive-matrix). It could also be because your eyesight is poor or you’re a beginner who feels lost. Like a magician, your hand is quicker than the eye or your screen.

To make the mouse pointer easier to see, create long “pointer trails” (by following the Windows 8/8.1 procedure on page 120 or the Windows 7 procedure on page 133) or buy a bigger monitor or a better laptop computer (having an active-matrix screen, which is faster than a passive screen).

## Dead mouse

If nothing happens on screen when you move the mouse, try these strategies....:

Perhaps you’re just in the middle of a routine that doesn’t use the mouse. Try these ways to get out of a routine:

Press the Esc key twice (which might exit from a routine).  
If the mouse doesn’t work yet, press Ctrl with C.  
If the mouse doesn’t work yet, press the Alt key.  
If the mouse doesn’t work yet, press the Alt key again.

If the mouse still doesn't work yet, maybe the task you've been performing has crashed, so end that task by doing this:

While holding down the Ctrl and Alt keys, tap the Delete key. Then press Enter (unless you see "Lock screen", in which case try to choose Task Manager by using your touchscreen or touchpad or arrow keys, and end the task you were working on).

If the mouse still doesn't work, maybe the mouse's cord is loose (tighten it!) or the mouse is dirty (clean it by following the procedure for "mouse pointer lurches") or it's a wireless mouse whose battery died (open the mouse and replace the battery) or the computer forgot what kind of mouse you have (reinstall the mouse-driver software that came with your mouse, or reinstall Windows) or just buy a new mouse.

## Keyboard problems

Your keyboard might seem broken. Here's what to do.

### Wet keyboard

If **your keyboard got wet** (because you spilled water, coffee, soda, or some other drink), turn the computer off immediately (because water can cause a short circuit that can shock & burn the keyboard and computer and you). Unplug the keyboard from the computer.

Turn the keyboard upside-down for a few minutes, in the hope that some of the liquid drips out. Then let the keyboard rest a few hours, until the remaining liquid in it dries.

Try again to use the keyboard. It will probably work fine. If the keyboard doesn't work yet, do this:

Unplug the keyboard again. Submerge and wash the keyboard in warm water (you can even put the keyboard into a dishwasher!) but use no soap. Dry off the keyboard. Wait a day for the keyboard to dry thoroughly. If still no luck, the keyboard has been permanently damaged, so buy another.

### Dead keyboard

If **pressing the keyboard's letters has no effect**, either the keyboard is improperly hooked up or the keyboard is wireless with a dead battery the computer is overheating or you're running a frustrated program (which is ignoring what you type or waiting until a special event happens). For example, the program might be waiting for the printer to print, or the disk drive to manipulate a file, or the CPU to finish a computation, or your finger to hit a special key or give a special command.

Try getting out of any program you've been running. Here's how:

Press the Esc key (which might let you escape from the program) or the F1 key (which might display a helpful message) or Enter (which might move on to the next screenful of info) or Ctrl with C (which might abort the program) or Ctrl with Break. If the screen is unchanged and the computer still ignores your typing, reboot the computer; then watch the screen for error messages such as "301" (which means a defective keyboard), "201" (which means defective RAM chips), or "1701" (which means a defective hard drive).

If the keyboard seems to be "defective", it might just be unplugged from the computer. Make sure the cable from the keyboard is plugged *tightly* into the computer. To make sure it's tight, unplug it and then plug it back in again.

If fiddling with the cable doesn't solve your problem, reboot the computer and see what happens. Maybe you'll get lucky.

Maybe some part of the computer is overheating. Here's how to find out:

Turn the computer off. Leave it off for at least an hour, so it cools down.

Then turn the computer back on. Try to get to a word-processing program (such as WordPad or Microsoft Word or Notepad) or a Windows search box or a command prompt (such as "C:\>"). Then type a letter (such as x) and notice whether the x appears on the screen.

If the x appears, don't bother pressing the Enter key afterwards. Instead, walk away from the computer for two hours — leave the computer turned on — then return 2 hours later and try typing another letter (such as y). If the y doesn't appear, you know the computer "died" sometime after you typed x but before you typed y. Since during that time the computer was just sitting there doing nothing except being turned on and getting warmer, you know the problem was caused by overheating: some part inside the computer is failing as the internal temperature rises. That part could be a RAM chip, BIOS chip, or otherwise.

Since that part isn't tolerant enough of heat, it must be replaced: take the computer in for repair.

That kind of test — where you leave the computer on for several hours to see what happens as the computer warms up — is called **letting the computer cook**.

During the cooking, if smoke comes out of one of the computer's parts, that part is said to have **fried**. That same applies to humans: when a programmer's been working hard on a project for many hours and become too exhausted to think straight, the programmer says, "I'm **burnt out**. My brain is **fried**." Common solutions are sleep and pizza ("getting some z's & 'za").

When computers are manufactured, the last step in the assembly line is to leave the computer turned on a long time, to let the computer cook and make sure it still works when hot. A top-notch manufacturer leaves the computer on for 2 days (48 hours) or even 3 days (72 hours), while continually testing the computer to make sure no parts fail. That part of the assembly line is called **burning in** the computer; many top-notch manufacturers do **72-hour burn in**.

### Sluggish key

After pressing one a keys, if the **key doesn't pop back up fast enough**, probably there's dirt under the key. The "dirt" is probably dust or coagulated drinks (such as Coke or coffee).

If *many* keys are sluggish, don't bother trying to fix them all. Just buy a new keyboard (for about \$20).

If just one or two keys are sluggish, here's how to try fixing a sluggish key:

Take a paper clip, partly unravel it so it becomes a hook, then use that hook to pry up the key, until the keycap pops off. Clean the part of the keyboard that was under that keycap: blow away the dust, and wipe away grime (such as coagulated drinks). With the keycap still off, turn on the computer, and try pressing the plunger that was under the keycap. If the plunger is still sluggish, you haven't cleaned it enough. (Don't try too hard: remember that a new keyboard costs just about \$20.) When the plunger works fine, turn off the computer, put the keycap back on, and the key should work fine.

### Caps

While you're typing, **if each capital letter unexpectedly becomes small, and each small letter becomes capitalized**, the Shift key or Caps Lock key is activated.

The culprit is usually the Caps Lock key. Probably you pressed it accidentally when you meant to press a nearby key instead. The Caps Lock key stays activated until you deactivate it by pressing it again. Cure:

Press the Caps Lock key (again), then try typing some more, to see whether the problem has gone away.

If your keyboard is modern, its top right corner has a Caps Lock light. That light glows when the Caps Lock key is activated; the light stops glowing when the Caps Lock key is deactivated.

If pressing the Caps Lock key doesn't solve the problem, try jiggling the left and right Shift keys. (Maybe one of those Shift keys was accidentally stuck in the down position, because you spilled some soda that got into the keyboard and coagulated and made the Shift key too sticky to pop all the way back up.)

If playing with the Caps Lock and Shift keys doesn't immediately solve your problem, try typing a comma and notice what happens. If the screen shows the symbol "<" instead of a comma, your Shift key is activated. (The Caps Lock key has no effect on the comma key, since the Caps Lock key affects just letters, not punctuation.) If pressing the comma key makes the screen show a comma, your Shift key is *not* activated, and any problems you have must therefore be caused by the Caps Lock key instead.

Maybe the Caps Lock key is being activated automatically by the program you're using. (For example, some programs automatically activate the Caps Lock key because they want your input to be capitalized.) To find out, exit from the program, reboot the computer, get to a C prompt (in DOS) or WordPad (in modern Windows), and try again to type. If the typing is displayed fine, the "problem" was probably caused by just the program you were using — perhaps on purpose.

## Internet problems

If you've been communicating with the Internet well but suddenly have difficulty, try these ways to resume communication:

Try to communicate with a different Website. For example, try Yahoo.com. If just one Website doesn't work, maybe that site is just having a bad day, because it's overloaded (too many people using it simultaneously) or it's temporarily disconnected from the rest of the Internet. Try that site again tomorrow; maybe you'll have better luck.

Maybe your computer's in a bad mood. Turn the computer off completely, then back on again, to see if you get better luck.

Maybe your laptop's too far from the Internet router in your house or business. Move your laptop closer to the router, to see if you have better luck.

Do you share the same router as your housemates or business associates? If so, do they have the same difficulty? If they're not having any difficulty, the difficulty's just in your computer or its ability to connect to the router.

Maybe the router got confused, because of a hardware hiccup or because too many of your housemates or associates tried to access it simultaneously. Turn the router off (after warning your housemates or associates) and also turn off your computer. Wait 3 minutes, then turn the router back on. Wait 3 more minutes, for all the router's lights to stabilize, then turn the computer back on. See whether you have better luck.

Maybe your Internet service provider (to whom you pay a monthly fee) is having a bad day because a storm broke a cable. To find out, phone the Internet service provider's tech-support number. (For example, Comcast's tech-support number is 800-COMCAST.)

Maybe your computer's too busy, because it's in the middle of updating Windows. Try being patient.

When all else fails, reset the network driver inside your computer. Here's how in Windows 10. Tap the Windows Start button then the Settings icon then "Network & Internet" then "**Network reset**" (which you'll see when you scroll down) then "Reset now" then "Yes". 5 minutes later, the computer will shut itself down then restart. After you return to the desktop screen, click the Network icon (sound waves with "\*" ) then your router's name then "Connect"; type the router's password (which is printed on the router's bottom) then tap "Next".

## Printer problems

If you have trouble printing, try the following experiment. Shut down the computer and the printer (so you can start fresh). When the computer's become quiet, turn it back on; then turn the printer back on.

Go into WordPad or Microsoft Word or Notepad. Type a document that contains 3 words (such as "I love you") and also the word "abcdefghijklmnopqrstuvwxyz". Print that document by doing this:

Click the WordPad button (which is left of "Home"). Make sure your printer's name is highlighted; if it's not, highlight it. Click the "Print" button.

If the computer prints that document okay, all your hardware is okay. Any remaining problem is probably just software: for example, you forgot to tell your program or Windows what kind of printer you bought, or you told it incorrectly.

If the computer does *not* print that document okay, you're probably having a hardware problem (in your printer, your computer, or the cable connecting them); for example, make sure the cable connecting them is plugged in tight at both ends, and the printer is turned on and has enough paper & ink, correctly inserted.

### Clogged printer queue

Here's another possible reason for failing to print: the **printer queue** (your hard disk's list of documents waiting to be printed) is clogged, because an earlier document was too complicated to fit in the printer's RAM.

To solve that problem, empty the printer queue by doing this:

Double-click the printer icon (which is at the screen's bottom, left of the time). You see the printer queue's window, which shows a list of documents waiting to be printed. Click "Printer" then "Cancel All Documents". Press Enter. Wait until the list of documents is empty. Close the printer queue's window (by clicking its X).

### Incomplete characters

When you look at the printed paper, you might see that **part of each character is missing**. For example, for the letter "A" you see just the top part of the "A", or just the bottom part, or everything except the middle. That means you're using an inkjet or dot-matrix printer, and some of the ink jets or pins aren't successfully putting ink onto the paper.

If you're using an inkjet printer, probably one of the jets is clogged and needs to be cleaned.

Follow the manufacturer's instructions on how to test and clean the ink jets. If cleaning doesn't solve the problem, try buying a new ink cartridge.

If you're using a dot-matrix printer and the bottom part of each character is missing, your ribbon is too high, so that the bottom pins miss hitting it.

Push the ribbon down lower. Read the instructions that came with your printer and ribbon, to find out the correct way to thread the ribbon through your printer.

If you're using a dot-matrix printer and some other part of each character is missing, probably a pin broke or is stuck.

Look at the print head, where the pins are. See if one of the pins is missing or broken. If so, you'll be tempted to buy a new print head, but that costs almost as much as buying a new printer.

### Extra characters

When using a program (such as a word-processing program), the printer might **print a few extra characters at the top of each page**.

Those extra characters are special codes that the printer should *not* print. Those codes are supposed to tell the printer *how* to print. Your printer is misinterpreting those codes, because those codes were intended for a different kind of printer — or your printer cable is loose.

First, make sure the printer cable is tight. Then try again to **tell your software which printer you bought**, by doing this:

Attach your printer to the computer. Turn the printer on. For Windows 10, tap the Windows Start button then the Settings icon then "Devices" then "Add a printer". For Windows 7, click Start then "Devices and Printers" then "Add a printer". Then follow the prompts on the screen.

## Misaligned columns

When printing a table of numbers or words, the columns might wiggle: some of the words and numbers might be printed slightly too far left or right, even though they looked perfectly aligned on the screen.

That's because you're trying to print by using a proportionally spaced font that doesn't match the screen's font.

The simplest way to solve the problem is to **switch to a monospaced font**, such as Courier New or Lucida Console.

Since those fonts are monospaced (each character is the same width as every other character), there are no surprises. To switch fonts while using Windows, use your mouse: drag across all the text whose font you wish to switch, then say which font you wish to switch to.

Unfortunately, monospaced fonts are ugly. If you insist on using proportionally spaced fonts, which are prettier, remember that when moving from column to column you should **press the Tab key, not the Space bar**.

In proportionally spaced fonts, the Space bar creates a printed space that's too narrow: it's narrower than the space created by the typical digit or letter. If the Tab key doesn't make the columns your favorite width, customize how the Tab key works by adjusting the Tab stops. (In most word-processing programs, you adjust the Tab stops by sliding them on the layout ruler.)

## Margins

On a sheet of paper, all the printing might be too far to the left, or too far to the right, or too far up, or too far down. That shows you forgot to tell the computer about the paper's size, margins, and feed, or you misfed the paper into the printer.

Software makes assumptions:

Most computer software assumes the paper is 11 inches tall and 8½ inches wide (or slightly wider, if the paper has holes in its sides). The software also assumes you want 1-inch margins on all 4 sides (top, bottom, left, and right).

If you told the software you have a dot-matrix printer, the software usually assumes you're using **pin-feed paper** (which has holes in the side); it's also called **continuous-feed paper**. For ink-jet and laser printers, the software typically assumes you're using **friction-feed paper** instead (which has no holes).

If those assumptions are not correct, tell the software. For example, give a "margin", "page size", or "feed" command to your word-processing software.

If you make a mistake about how tall the sheet of paper is, the computer will try to print too many or too few lines per page. The result is **creep**: on the first page, the printing begins correctly; but on the second page the printing is slightly too low or too high, and on the third page the printing is even more off.

To solve a creep problem, revise slightly what you tell the software about how tall the sheet of paper is. For example, **if the printing is fine on the first page but an inch too low on the second page, tell the software that each sheet of paper is an inch shorter**.

On pin-feed paper, the printer can print all the way from the very top of the paper to the very bottom. On friction-feed paper, the printer *cannot* print at the sheet's very top or very bottom (since the rollers can't grab the paper securely enough while printing there). So on friction-feed paper, the printable area is smaller, as if the paper were shorter. Telling the software wrong info about feed has the same effect as telling the software wrong info about the paper's height: you get creep.

**So to fix creep, revise what you tell the software about the paper's height or feed.** If the software doesn't let you talk about the paper's feed, kill the creep by revising what you say about the paper's height.

If you're using a dot-matrix printer that can handle both kinds of paper (pin-feed and friction-feed), **you'll solve most creep problems by choosing pin-feed paper**.

If all printing is too far to the left (or right), adjust what you tell the software about the left and right margins; or if you're using pin-feed paper in a dot-matrix printer with movable tractors, slide the tractors to the left or right (after loosening them by flipping their levers). For example, **if the printing's an inch too far to the right, slide the tractors an inch toward the right**.

## No sound

If **you don't hear sounds** (such as beeps and music), the problem could be caused by hardware or software.

Make sure the speakers are plugged into the computer. Make sure they're plugged into the computer's speaker jack tightly, not the microphone jack. If the speakers contain batteries, make sure the batteries are working. If the speakers need to be plugged into a wall socket or power strip, make sure they are. If the speakers have an ON button, make sure it's in the ON position.

Make sure all volume knobs are turned up:

There's probably a volume knob on the front of the speakers. On the back of the computer, where the speakers plug into the computer, you might find a volume dial.

If you're still not hearing sounds, do software cleaning (on page 172), which reduces memory conflicts, because when the computer faces a memory conflict it gives up trying to produce sounds.

At the screen's bottom right corner, next to the time, you might find a Volume icon (which looks like a blaring loudspeaker). If so, do this:

Click the Volume icon. If you see a Mute box; make sure it's unchecked. You see a slider; drag it up to the top or the right. Try clicking the slider; you should hear a bell sound, at the volume level you requested.

When using YouTube, remember that YouTube has its own volume icon, as I explained on page 147.

Other sound-creation techniques, useful mainly on ancient computers, are on page 178 of this book's previous edition (the 32<sup>nd</sup> edition).

## CD drive

If the **CD drive stops working**, the cause is probably dust, bad disks, a loose cable, or CD driver software.

First, get rid of dust. Dust off the disks and tray. Take a deep breath and blow air into the CD drive, but avoid spit. If you wish, buy a CD lens cleaner; it's a fake CD-ROM disk that has brushes on it, to brush dust off the CD lens.

If a CD has scratches on it, that disk might be damaged and never work. Try other disks instead.

If you're using a "homemade" CD-R or CD-RW disk created on another computer, the signals on that disk might be too weak to be detected by an old CD drive. Try disks created in other ways instead, or try using a different CD drive.

Open the computer and check the cable that runs out of the CD drive. Probably one end of that cable is loose and flimsy. Try to plug it in more snugly.

If your screen's four corners say "Safe mode", you can't use the CD drive while your computer is in that mode: you must shut down the computer and restart in "Normal mode".

# Command prompt

Before Microsoft invented Windows, it invented an operating system called the **Disk Operating System (DOS)**. Microsoft called it **Microsoft DOS (MS-DOS)**. IBM called it **Personal Computer DOS (PC-DOS)**.

An imitation of MS-DOS is included in modern versions of Windows (such as Windows 95, Windows 98, Windows XP, Windows Vista, Windows 7, Windows 8, and Windows 8.1). That imitation is called the **Windows command prompt**. That imitation lets you give DOS commands.

DOS commands are worth learning because they give you total control over your computer. They solve the difficulties caused when Windows acts strangely or conks out.

DOS commands are trustworthy: when you give a DOS command, you know exactly what will happen. When you give a Windows command, you can't be sure of the consequences: Windows is flaky and full of unfortunate surprises. Technicians repairing computers rely on DOS commands.

DOS commands run well and fast even on computers that are old, decrepit, or broken, where Windows runs slowly or erratically or not-at-all.

This chapter explains the DOS commands that are included in Windows 7, 8, 8.1, and 10. It also explains DOS jargon, which Microsoft often uses in Windows error messages!

(For info about older versions of DOS commands, get older editions of this book by phoning me at 603-666-6644.)

## See the command prompt

To give **DOS commands**, turn on your Windows computer, then request the **command prompt** by doing this:

**Windows 10** Right-click the Start button. Tap "Command Prompt".

**Windows 8.1** At the Apps screen, type "co". Tap "Command Prompt".

**Windows 8** At the Start screen, type "co". Tap "Command Prompt".

**Windows 7** Click the Start button. Type "cmd" (and press Enter).

You see the **Command Prompt window**. Maximize it (by clicking its maximize button, which is next to the X button). That makes the window bigger.

**Windows 10** The window becomes taller & wider.

**Windows 7&8&8.1** The window becomes taller but not wider.

In that window, the first line says "Microsoft Windows". It also tells you the version number.

The next line says "Copyright" and tells you the year it was invented.

The next line says "C:" (which is pronounced "C colon" or "C drive"). It means the computer is examining the disk in drive C. That line also says "Users" and mentions your user name. (Windows XP says "Documents and Settings" instead of "Users".) For example, if your user name is "Joan", you see this line:

```
C:\Users\Joan>
```

That line is called the **command prompt**.

To give DOS commands, you put your fingers on the keyboard and type a DOS command. The popular DOS commands are explained on these pages:

Command	What the computer will do	Page
attrib +r Mary	make the Mary file be read-only	187
attrib +h Mary	make the Mary file be hidden	187
C:	make drive C be the current drive	186
cd \	show the standard C prompt	185
cd windows	make Windows be the current folder	185
cls	hide what was in the DOS window	182
color 1	make the DOS window's characters be blue	182
copy con Mary	copy from keyboard to a file called Mary	186
copy Mary con	copy from the Mary file to your screen	187
copy Mary Sue	make copy of file Mary; call the copy "Sue"	187
d:	make drive D be the current drive	186
date	show today's date	182
del Mary	delete a file called Mary from the disk	187
dir	show a directory of files	182
dir *.sys	show a directory of files that end in ".sys"	184
dir /a	show directory of all files, even hidden ones	183
dir d:	show a directory of drive D's files	186
dir p*	show a directory of files that begin with "p"	184
dir windows	show a directory of files in Windows folder	184
echo wow	show the word "wow" on the screen	182
@echo off	hide the batch file's commands	188
help	list other DOS commands you can give	188
md Sarah	make a new folder, called Sarah	186
rd Sarah /s	delete a folder called Sarah from the disk	187
ren Mary Lambchop	rename the Mary file; change to Lambchop	187
time	show the current time	182
title DOS world	make the DOS window's title "DOS World"	182
type Mary	show, on the screen, what's in the Mary file	187
ver	say which Windows version is being used	182
xcopy \S \T /e/h	make copy of folder S; call the copy "T"	187

To simplify your first experience, please **type "cd \"**. When you type that, make sure you type the symbol "\" (which is a **backslash** and above the Enter key), not "/" (which is a forward slash). Your typing appears to the right of the command prompt, so your screen looks like this:

```
C:\Users\Joan>cd \
```

When using the Command Prompt window, **you must press the Enter key at the end of each command you type**; so after typing "cd \", press the Enter key.

Now your screen looks like this:

```
C:\>
```

That line is called the **standard C prompt**. Notice it consists of 4 characters: a **capital C**, a **colon**, a **backslash**, and a **greater sign**.

Now you can give standard DOS commands, simply!

I'll show you DOS commands. (Whenever you get tired of playing with DOS commands, close the Command Prompt window by clicking its X button.)

## Simple commands

After the C prompt (which is "C:\>"), the computer waits for you to type a **DOS command**. When typing a DOS command, remember these principles:

Type the command after the C prompt. Remember that the C prompt is typed by the computer, not by you.

If you type a command wrong, press the Backspace key, which is above the Enter key and has a left-arrow on it.

When you finish typing a command, press the Enter key. That key makes the computer read what you typed.

**Start by trying these simple DOS commands...**

## Version (ver)

After the C prompt you can type “ver”, like this:

```
C:\>ver
```

(When you finish typing that command, remember to press the Enter key.)

The “ver” command makes the computer remind you which VERsion of Windows you’re using, like this:

```
Windows 7 Microsoft windows [Version 6.1.7601]
Windows 8 Microsoft windows [Version 6.2.9200]
Windows 8.1 Microsoft windows [Version 6.3.9600]
Windows 10 Microsoft windows [Version 10.0.10586]
```

## Echo

The computer’s your obedient slave: it will say whatever you wish!

For example, here’s how to make the computer say “wow”.

After the C prompt, type “echo wow”, like this:

```
C:\>echo wow
```

Remember to press the Enter key at the end of that command. Then the computer will say:

```
wow
```

The computer will do that by just displaying “wow” on the screen. (DOS is too stupid to know how to say words out loud.)

If you want the computer to say it loves you, type this:

```
C:\>echo I love you
```

That command makes the computer say:

```
I love you
```

If you want the computer to say it likes strawberry ice cream, type this:

```
C:\>echo I like strawberry ice cream
```

Then the computer will say:

```
I like strawberry ice cream
```

Notice that the echo command makes the computer act like a canyon: whatever you say into the computer, the echo command makes the computer echo back.

## Clear screen (cls)

Suppose you make the computer say “I love you” (and other things that are even wilder), and then your boss walks by. You might be embarrassed to let your boss see your love messages. Here’s how to hide all messages in the Command Prompt window.

After the C prompt, type “cls”, like this:

```
C:\>cls
```

The “cls” command makes the computer CLear the Screen, so all messages in the Command Prompt window are erased and the window becomes blank. The only thing that will remain in the window is —

```
C:\>
```

so you can give another command.

## Date

To use the computer’s built-in calendar, type “date” after the C prompt, like this:

```
C:\>date
```

That makes the computer tell you the date.

For example, if the computer’s clock was set correctly and today is Sunday, December 25, 2016, the computer will say:

```
The current date is: Sun 12/25/2016
```

Afterwards, the computer says:

```
Enter the new date: (mm-dd-yy)
```

Ignore that line: just press Enter.

## Time

To find out what time it is, type “time” after the C prompt, like this:

```
C:\>time
```

That makes the computer tell you the time.

For example, if the computer’s clock was set correctly and the time is 2.71 seconds after 1:45PM, the computer will say:

```
The current time is: 13:45:02.71
```

Afterwards, the computer says:

```
Enter the new time:
```

Ignore that line: just press Enter.

## Color

In the Command Prompt window, you normally see white characters on a black background. To change to different colors, use these color codes:

0 = black	8 = gray
1 = blue	9 = bright blue
2 = green	a = bright green
3 = aqua	b = bright aqua
4 = red	c = bright red
5 = purple	d = bright purple
6 = yellow	e = bright yellow
7 = white	f = bright white

For example, to make all the window’s characters suddenly become green (instead of white), type “color 2” after the C prompt, like this:

```
C:\>color 2
```

To make all the window’s characters suddenly become *bright* green, type “color a”, like this:

```
C:\>color a
```

To change the background as well as the characters, **type the background code then the character code**. For example, to make the background be blue (color 1) and the characters be bright green (color a), type “color 1a”, like this:

```
C:\>color 1a
```

If you don’t type the background code, the computer assumes you want the background to be black.

Have fun playing with different color combinations! Go wild! Amaze your friends!

To make the window return to normal (white characters on a black background), type “color 7”, like this:

```
C:\>color 7
```

## Title

If you got to the Command Prompt window by using the normal method (instead of a shortcut method), the Command Prompt window’s top says “Command Prompt”. That’s the window’s **title**.

You can change the title. For example, to make the title say “The Wonderful World of DOS”, type “title The Wonderful World of DOS”, like this:

```
C:\>title The wonderful world of DOS
```

## Directory (dir)

After the C prompt you can type “dir”, like this:

```
C:\>dir
```

That “dir” command makes the computer show you a directory of the files that are stored on the hard disk.

The directory looks like this sample:

```
08/01/2012 10:08 PM <DIR> inetpub
09/08/2012 07:29 PM <DIR> Intel
07/26/2012 03:33 AM <DIR> PerfLogs
03/13/2013 06:01 PM <DIR> Program Files
03/13/2013 06:01 PM <DIR> Program Files (x86)
11/09/2012 01:31 PM <DIR> SWSETUP
11/09/2012 01:28 PM <DIR> Users
03/23/2013 01:46 AM <DIR> windows
```

That's how the directory looks on my Windows 8 computer. It looks almost the same on my Windows 8.1 and 10 computers. On *your* computer, the directory might look slightly different, depending on what your hard disk contains and which version of Windows you're using.

In that sample directory, one line says:

```
03/23/2013 01:46 AM <DIR> windows
```

Here's what that line means:

```
The hard disk has a file whose name is "Windows".
That file was last updated on March 23, 2013, at 1:46 AM.
That file is a folder (which has its own DIRectory).
```

In that sample directory, another line says:

```
03/13/2013 06:01 PM <DIR> Program Files
```

Here's what that line means:

```
The hard disk has a file whose name is "Program Files".
That file was last updated on March 13, 2013, at 6:01 PM.
That file is a folder (which has its own DIRectory).
```

**Summary statistics** Below the directory, the computer shows summary statistics:

```
0 Files(s)
8 Dir(s) 936,562,847,744 bytes free
```

That means:

```
The directory showed 8 folders (DIRs).
The directory showed no simple files (since it showed just folders).
On the directory's disk (which is disk C), over 936 billion bytes (936 gigabytes) are still unused.
```

**Change the order** The "dir" command shows the files in alphabetical order (from A to Z). To see the files in chronological order (from oldest to newest), say "dir /od" instead (which means "directory ordered by date"), like this:

```
C:\>dir /od
```

**Change the time** The "dir" command shows when each file was updated. To see when each file was originally created instead, say "dir /tc" (which means "directory showing time created"), like this:

```
C:\>dir /tc
```

**Hidden files** A file can be marked "visible" or "hidden". The "dir" command shows just the files that are marked visible. To see *all* the files, even the ones that are marked "hidden", say "dir /a" instead (which means "directory of all"), like this:

```
C:\>dir /a
```

For example, when I type that command on my Windows 8 computer, I see this:

```
12/06/2012 07:15 PM <DIR> $RECYCLE.BIN
08/01/2012 11:01 PM <DIR> Boot
07/25/2012 11:44 PM 398,156 bootmgr
06/02/2012 10:30 AM 1 BOOTNXT
07/26/2012 03:22 AM <JUNCTION> Documents and Settings [C:\Users]
12/19/2012 03:04 PM <DIR> found.000
12/19/2012 11:19 PM <DIR> found.001
03/23/2013 01:42 AM 6,611,189,760 hiberfil.sys
11/09/2012 01:30 PM <DIR> hp
08/01/2012 10:08 PM <DIR> inetpub
09/08/2012 07:29 PM <DIR> Intel
02/27/2013 11:14 PM <DIR> MSOCache
```

```
09/08/2012 08:11 PM 0 OS
03/23/2013 01:43 AM 1,275,068,416 pagefile.sys
07/26/2012 03:33 AM <DIR> PerfLogs
03/13/2013 06:01 PM <DIR> Program Files
03/13/2013 06:01 PM <DIR> Program Files (x86)
02/01/2013 01:18 AM <DIR> ProgramData
08/01/2012 10:08 PM <DIR> Recovery
11/09/2012 01:31 PM 268,435,456 swapfile.sys
11/09/2012 01:31 PM <DIR> SWSETUP
03/23/2013 02:17 AM <DIR> System Volume Information
11/09/2012 01:31 PM <DIR> SYSTEM.SAV
11/09/2012 01:28 PM <DIR> Users
03/23/2013 01:46 AM <DIR> windows
6 Files(s) 8,155,091,789 bytes
19 Dir(s) 936,562,806,784 bytes free
```

That shows the computer has 18 normal folders (DIRs), 1 special folder (a JUNCTION), and 6 simple files (bootmgr, BOOTNXT, hiberfil.sys, OS, pagefile.sys, and swapfile.sys). The 6 simple files consume 8 gigabytes. Many of those items are hidden, so they're not mentioned if I type "dir" instead of "dir /a".

A file can be hidden in two ways: it can be **H hidden** or **S hidden**.

```
To see a list of all files that are H hidden, say "dir /ah".
To see a list of all files that are S hidden, say "dir /as".
```

Files that are S hidden are called **system files**. A file can be both H hidden and S hidden, to make double-sure beginners and evil people don't normally see it and don't try to manipulate it.

**Read-only files** Another way to protect a file is to make it **read-only**, which means it can't be edited or deleted. To see a list of files that are read-only, say "dir /ar".

**What's a switch?** A **switch** is a comment that begins with a **slash**. You've learned about these switches:

```
/od /tc /a /ah /as /ar
```

To type the slash, make sure you press the **forward slash** key, which says "/" on it. Do *not* press the key that says "\", which is a **backslash**.

If you wish, you can put a blank space before the slash. The blank space is optional. For example, you can say either "dir /a" or "dir/a".

You can combine switches. For example, if you want the directory to show all files and also be in order of date, say "dir /a/od".

The computer doesn't care which switch you type first: typing "dir /a/od" does the same thing as typing "dir /od/a".

**Bootmgr** The fundamental file is named "bootmgr" because it's the boot manager.

When you turn on the computer (by pressing its power button or reset button), the computer obeys the instructions in bootmgr, which tells the computer how to begin. To prevent people from wrecking that file, it's H hidden and S hidden and read-only.

**What else is on the hard disk** Besides all the files mentioned by "dir /a", the hard disk also contains these 2 special items:

```
the master boot record (MBR) reminds the computer to look at the fundamental file
```

```
the master file table (MFT) tells the computer where to find each file on the hard disk
```

Since those 2 special items aren't called "files", they aren't mentioned when you type "dir /a".

**What's NTFS?** When a disk is organized by using the MFT, the disk is said to use the **New-Technology File System (NTFS)**. It's used by modern Windows (such as Windows NT, Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8, Windows 8.1, and Windows 10).

A less sophisticated file structure, called the **File Allocation Table (FAT)**, is used instead of MFT on:

earlier versions of Windows (such as Windows 95, Windows 98, and Windows Me)  
 earlier versions of DOS  
 smaller disks (such as floppy disks)  
 smaller storage devices (such as digital-camera memory cards)

**Extensions** Notice that a file's name (such as "pagefile.sys") can include a period then an **extension** of 3 characters (such as ".sys"). The period separates the main part of the filename from the extension.

That period is called a **dot**. So if you're chatting with another computer expert about "pagefile.sys", pronounce it "pagefile dot sys".

Though the typical extension has 3 characters (such as ".sys"), an extension can be longer (such as ".docx") or shorter.

The computer can handle many different types of files. Each type has a different extension:

Extension	What the file contains
.exe	a program you can EXEcute
.txt	TeXT you can read easily (by using Notepad or a word processor)
.rtf	text in Rich Text Format (written by WordPad or copied by using Ctrl with C)
.doc	a DOCument written by an old version of Microsoft Word (which is a word processor)
.docx	a DOCument eXtended, written by a new version of Microsoft Word
.pdf	a document written by Adobe Acrobat (in Portable Document Format)
.hlp	messages that HeLP you learn how to use a program
.xls	an old Microsoft EXcel Spreadsheet (table of numbers)
.xlsx	a Microsoft EXcel Spreadsheet (table of numbers) in modern (eXtended) format
.ppt	a slideshow created by an old version of PowerPoint
.pptx	a slideshow created by PowerPoint in modern (eXtended) format
.pps	an old PowerPoint Slideshow, modified to be easy to view
.ppsx	a PowerPoint Slideshow, modern (eXtended), modified to be easy to view
.bmp	a picture stored as a BitMaP, created by an old version of Windows Paint
.png	a picture in Portable Network Graphics, created by a new version of Windows Paint
.jpg or .jpeg	a picture in the format invented by the Joint Photographic Experts Group
.wav	music soundWAVes
.mp3	music in the format invented by the Moving Picture Experts Group, version 3
.htm or .html	an Internet Web page, written in HyperText Markup Language
.dat	DATA that's used by a program
.tmp	TeMPorary data, which the computer will use and then erase
.ini	data to INItialize a program, so the program starts properly
.sys	data that's part of Windows (which is the operating SYStem)
.db	a DataBase (table of data)
.idx	an InDeX to help find data in a database
.log	a LOGbook (a record of the times when files were created or altered)
.dll	part of the Dynamic Link Library (which helps a program manipulate devices)
.zip	a file that's ZIPped up (compressed to consume less space on the hard disk)
.bak	a file's BAcKup version, kept just in case the file's other versions have difficulties

**Wildcards** The symbol "\*" is called an **asterisk** or a **star**. To type it, tap the 8 key while holding down the Shift key.

Try this experiment: type "dir p\*". (That command is pronounced "dir pee star".) That makes the computer print an abridged directory, showing info about just the files whose names begin with p. For example, when I type that command on my Windows 8 computer, I see this:

```
07/26/2012  03:33 AM    <DIR>          PerfLogs
03/13/2013  06:01 PM    <DIR>          Program Files
03/13/2013  06:01 PM    <DIR>          Program Files (x86)
```

(I also see the summary statistics.)

The symbol "\*" means "anything". That's why saying "dir p\*" makes the computer show a directory of anything that begins with p.

To see *all* the p files (even the ones that are marked hidden), put "/a" at the end of the command, so the command becomes "dir p\* /a".

To see a directory of files whose names begin with w, say "dir w\*". When I type that command on my Windows 8 computer, I see this:

```
03/23/2013  01:46 AM    <DIR>          windows
```

To see a directory of all files whose names end in ".sys", even the ones that are marked hidden, say "dir \*.sys /a", like this:

```
C:\>dir *.sys /a
```

A symbol (such as "\*"") that "matches anything" is called a **wildcard**.

Notice that in the word "Windows", the second letter is "i". To see a directory of files whose second letter is "i", ask for all files that begin with "a character followed by i", like this "dir ?i\*". The "?" means "a character". My computer will say:

```
03/23/2013  01:46 AM    <DIR>          windows
```

The symbol "?" is a wildcard that matches one character. To match *two* characters, use "??". For example, to see a directory of files whose third character is n, say "dir ??n\*". My computer will say:

```
03/23/2013  01:46 AM    <DIR>          windows
```

**What's in a folder?** To find out what's in a folder, say "dir" then the folder's name. If the folder's name includes a space, put the folder's name in quotation marks.

For example, to find out what's in the Windows folder, say this:

```
C:\>dir windows
```

The list of files in the Windows folder is called the **Windows directory**.

To find out what's in the Program Files folder, say this:

```
C:\>dir "Program Files"
```

You must put "Program Files" in quotation marks because "Program Files" contains a space. The list of files in the "Program Files" folder is called the **Program Files directory**. To see even the hidden files, put "/a" at the end of the command, like this:

```
C:\>dir "Program Files" /a
```

Saying just "dir" shows the list of files that are *not* in folders. That list is called the **main directory** (or **root directory**).

So to see the root directory, just type "dir" after the C prompt, like this:

```
C:\>dir
```

The other directories (such as the Windows directory and the Program Files directory) are called **subdirectories**.

DOS commands don't care about capitalization. So instead of typing "dir Windows", you can type "dir windows": you get the same result.

## Window too short?

If the Command Prompt window isn't tall enough to show everything you want to see, try these tricks:

**Maximize method** Make sure the Command Prompt window is maximized (by clicking the button that's next to the X button, once or twice).

**Pause method** When giving a "dir" command, put "p" at the command's end, like this:

```
C:\>dir "Program Files" /p
```

That makes the computer **pause** at the end of each screenful, wait for you to read the screenful, and wait for you to press the Enter key to continue.

**Wheel method** Roll your mouse's scroll wheel away from you. That lets you see the writing that disappeared from the screen's top. When you've finished reading that writing, roll the mouse's scroll wheel toward you.

**Arrow-click method** Below the Command Prompt window's X button, you see an up-arrow. Using the mouse, point at that arrow, then hold down the mouse's left button awhile. That lets you see the writing that disappeared from the screen's top. When you've finished reading that writing, point at the window's down-arrow (which is at the window's bottom-right corner) then hold down the mouse's left button awhile.

**Arrow-key method** While you stare at the C prompt, try pressing the up-arrow key. That makes the computer retype for you the command you typed previously. If you do indeed want to give that command again, press Enter. If you prefer, edit the command before pressing Enter. If you want an earlier command instead, press the up-arrow key a few more times, until you find the command you want; then press Enter.

## Change directory (cd)

Here's how to examine your folders more closely....

**Windows folder** You've learned that you can find out what's in the Windows folder by saying "dir windows" after the C prompt, like this:

```
C:\>dir windows
```

Here's a better way to find out what's in the Windows folder....

Say "cd Windows". (The "cd" means "change directory".) That makes the computer think about the Windows folder. The computer changes the prompt to this:

```
C:\Windows>
```

That means the computer is thinking about drive C's Windows folder. If you type "dir" after that prompt, the computer will print a directory of the files in drive C's Windows folder; but since the directory is too long to fit on the screen, you can see it better by typing "dir /p" instead.

When you finish using the Windows folder, you should **return to the standard C prompt by saying "cd \"**. (Make sure you type a backslash \, not a forward slash /.) Then the computer will print a standard C prompt again:

```
C:\>
```

**Program Files folder** Here's the best way to explore what's in the Program Files folder.

First, make sure the screen shows a standard C prompt, like this:

```
C:\>
```

Then say "cd Program Files". That makes the computer think about the Program Files folder, so the computer changes the prompt to this:

```
C:\Program Files>
```

To find out what's in that Program Files folder, say "dir /p", which makes the computer show a directory of the files in the Program Files folder.

When you finish using the Program Files folder, return to the standard C prompt by saying "cd \". Then the computer will print a standard C prompt again:

```
C:\>
```

**Users folder** Windows Vista & 7 & 8 & 8.1 & 10 have a Users folder. (Windows XP has a "Documents and Settings" folder instead.) To see what's in the Users folder, make sure the screen shows a standard C prompt, then say "cd Users".

Then analyze what's in that folder, by saying "dir". When you finish analyzing that folder, return to the standard C prompt by saying "cd \".

**Folders in folders** A folder can contain folders. For example, try this experiment. Make sure the screen shows the standard C prompt: "C:\>". Then say "cd Windows". That makes the computer think about the Windows folder, so the computer changes the prompt to this:

```
C:\Windows>
```

Then find out what's in the Windows folder, by saying "dir /p", which makes the computer print a directory of the files in the Windows folder. You'll see one of the files in the Windows folder is another folder, called System32. Yes, System32 is a folder that's inside the Windows folder!

To find out what's in the System32 folder, say "cd System32" after the prompt, so your screen looks like this:

```
C:\Windows>cd System32
```

That makes the computer think about the System32 folder inside the Windows folder, so the computer changes the prompt to this:

```
C:\Windows\System32>
```

Then if you say "dir", the computer will show a directory of the files in the Windows System32 folder. On most computers, the System32 folder contains over 2000 files! To see them **all**, and make the computer **pause** after each screenful, say "dir /a /p".

**Parents** When a folder is inside another folder, the situation resembles a pregnant woman: the inner folder is called the **child**; the outer folder is called the **mommy** (or **parent**). For example, the System32 folder is the child of the Windows folder.

When you finish using the System32 folder, you have a choice. **If you say "cd ..", those two periods make the computer return to the mommy folder** (Windows) and say:

```
C:\WINDOWS>
```

If instead you say "cd \", the backslash makes the computer return to the root directory and say:

```
C:\>
```

Saying "cd .." is called "returning to mommy"; saying "cd \\" is called "returning to your roots". Whenever you feel lost and scared, return to mommy or your roots!

**Pointer files** Socrates warned, "Know thyself." Freud warned, "Be prepared to tell me about your mother."

To obey their warnings, each folder contains a Socrates file and a Freud file. The Socrates file, called ".", reminds the folder of what files are in the folder. The Freud file, called "..", reminds the folder of who the folder's mother is, so the computer will know what to do when you type "cd ..".

That's why, when you're in the middle of a folder and say "dir", the first two files you see in the directory are called "." and "..". They're called **pointer files** because they point to the folder's inner self and mommy.

**Short cut** Suppose the computer says:

```
C:\Program Files>
```

That means the computer is thinking about the Program Files folder. To make the computer think about the Windows System32 folder instead, you can use two methods.

The normal method is to say "cd \\" (which makes the computer leave the Program Files folder and return to the standard C prompt), then say "cd Windows", then say "cd System32".

The shorter method is to combine all those cd commands into this single command: "cd \Windows\System32". In that command, make sure you type all the backslashes.

**Backslash versus forward slash** Don't confuse the backslash (\) with a forward slash (/).

Type a backslash (\) when discussing folders, such as "cd \Windows\System32".

Type a forward slash (/) when you're giving switches, such as "dir /a /p".

## Different drives

If your computer has a floppy-disk drive, that drive is called **drive A**.

If your computer has *two* floppy drives, the main floppy-disk drive is called **drive A**; the other floppy-disk drive is called **drive B**. In most such computers, drive A is on *top* of drive B or to the *left* of drive B.

# Edit your disks

Here's how to edit the info on your disks.

## Make directory (md)

Let's create a new folder on your hard disk.

First, get a standard C prompt, so your screen looks like this:

```
C:\>
```

Then invent a name for your folder. Pick a short name, such as Sarah or Tony or Junk or Poetry or Fiddling. (The name must not contain a slash or backslash. To keep things simple, the name should not contain a blank space.) Type "md" then the name.

For example, **to Make a Directory called Sarah, say "md Sarah"** after the C prompt, like this:

```
C:\>md Sarah
```

At the end of that line, press the Enter key. (If the computer says "A subdirectory or file sarah already exists", your disk *already* contained something called Sarah, and you must pick a different name instead.)

Then the computer will say "C:\>" again, so you can give another DOS command.

**To prove the Sarah directory was created, say "dir Sarah".**

The computer will show that Sarah contains 2 files: Socrates (.) and Freud (..).

Go ahead! Create a folder named Sarah and other folders!

**cd** Suppose you've created a Sarah folder. If you wish, you can go into the Sarah folder by saying "cd Sarah", which means "change directory to Sarah". That makes the computer say:

```
C:\Sarah>
```

Then if you say "dir", the computer will show you the Sarah directory's two files. To return to the root directory, say "cd \".

## Copy

The Jewish religion prohibits Orthodox Jews from eating ham. That's why Mary had a little lamb:

```
Mary had a little lamb,  
'Cause Jewish girls can't eat no ham.  
If Mary were a Hindu now,  
Mary couldn't eat no cow.  
Religions all are fine and dandy,  
Even my dentist's, which says "No candy!"  
But Ma's religion makes me shiver.  
That's why mine says "Ma, no liver!"
```

**Copy from console** Here's how to put that poem onto your hard disk and call it Mary.

Your version of Windows prohibits you from putting your own file at "C:", so you must create a *folder* to hold the file. Create a folder (by saying "md Sarah") and go into it (by saying "cd Sarah"), as I explained in the previous section (called "Make directory"), so your computer says:

```
C:\Sarah>
```

After that prompt, type "copy con mary", like this:

```
C:\Sarah>copy con Mary
```

Underneath that typing, type the poem.

(If Sarah *already* contains a file named Mary, the computer asks "Overwrite Mary?" after you type the poem's first line. To reply, press the Y key then Enter, then go on to type the second line.)

If you don't like that poem, make up your own! If you're a slow typist, make up a poem that's shorter to type, or type just the first two lines.

The main part of your computer's main hard drive is called **drive C**. If your computer has more than one hard drive, or its hard drive is **partitioned** into several parts, or you have a CD-ROM drive or DVD drive or USB flash drive or your computer is wired to other computers on a computer network, those extra memory surfaces are called **drive D, drive E, drive F**, etc.

For example, your computer probably has a drive D (which is probably a partition of your hard drive and called "RECOVERY" and contains a backup copy of the files that came with your computer when you bought it).

To find out what's on drive D, type "dir d:". For example, if you type that after the standard C prompt, your screen looks like this:

```
C:\>dir d:
```

To type the colon ":", make sure you hold down the Shift key.

If you're lucky, the computer will reply by printing a directory that lists the files on drive D's disk.

If you're *unlucky*, the computer will give you one of these gripes:

```
Gripe: The system cannot find the path specified.  
Meaning: Your computer doesn't have a drive D.  
  
Gripe: The device is not ready.  
Meaning: Drive D is supposed to hold a CD or DVD,  
but you haven't inserted the disk yet.  
  
Gripe: File not found  
Meaning: The files on drive D are all marked as hidden,  
so to see them you must say "dir d: /a" instead.
```

**Change drive** To find out what's on drive D, you've learned to say "dir d:" or "dir d: /a", but now I'll show you a better way...

When the computer's waiting for you to type a DOS command, the computer normally shows this prompt:

```
C:\>
```

That's called the **standard C prompt**. It means the computer is thinking about the disk in drive C.

To change the prompt, so the computer will think about drive D instead of drive C, type "d:", so your screen looks like this:

```
C:\>d:
```

When you press Enter after the "d:", the computer changes the prompt to "D:", so you see this:

```
D:\>
```

That's called the **D prompt**. It means that the computer is thinking about drive D.

After the D prompt, try saying "dir", so your screen looks like this:

```
D:\>dir
```

Because of the A prompt, that "dir" makes the computer print a directory of drive D (instead of drive C). Better yet, to make sure you see *all* of drive D's files (even the files that are hidden), say "dir /a", so your screen looks like this:

```
D:\>dir /a
```

When you finish analyzing drive D and want to return to drive C again, make the computer return to a standard C prompt. Here's how. After the D prompt, type "c:", so your screen looks like this:

```
D:\>c:
```

When you press Enter at the end of that line, the computer will change the prompt back to this:

```
C:\>
```

The drive the computer thinks about is called the **current drive** (or **default drive**). If the computer says "C:\>", the default drive is C; if the computer says "D:\>", the default drive is D.

So to make D become the default drive, say "d:" (and press Enter). To make C become the default drive again, say "c:" (and press Enter).

Underneath your poem, **press the F6 key then the Enter key**. The computer will automatically copy your poem onto the hard disk and call it Mary.

To prove that your computer put the poem onto the disk, look at the hard disk's directory, by typing "dir". You'll see that one of the files in the directory is Mary.

Your computer's **console** consists of the keyboard and screen. Saying "copy con Mary" tells the computer that you want to copy from the console (keyboard and screen) to a disk file named Mary.

**Copy to console** Suppose your disk contains a file called Mary. To find out what's in Mary, say "copy Mary con". That makes the computer copy Mary from the disk to your console's screen. For example, if Mary was a poem, the poem will appear on your screen.

**Filenames** When you create a file, give it a short name, such as Mary or Lambchop. The name must not contain a slash or backslash.

At the end of the filename, you can put a period and an **extension**. For example, you can name a file "Lambchop.yum". In that example, the "Lambchop" is called the **filename**; the "yum" is called the **extension**.

To keep things simple, don't put a blank space in the name. For example, the name shouldn't be "Tasty lambchop.yum." If you *insist* on including a blank space, you must put the whole name in quotation marks every time you mention it, like this:

```
copy con "Tasty lambchop.yum"
```

**Many ways to copy** After you've created a simple file called Mary, here are many ways to copy it.

Goal	What to say
copy Mary to your screen	copy Mary con
copy Mary to drive D	copy Mary d:
copy Mary to the "Tony" folder	copy Mary \Tony
copy Mary to drive D's "Tony" folder	copy Mary d:\Tony
make a copy of Mary, and call the copy "Sue"	copy Mary Sue

To copy all simple files from the Sarah folder to the Tony folder, say:

```
copy \Sarah \Tony
```

To make an exact copy of *everything* in the Sarah folder and call it "Tony", say:

```
xcopy \Sarah \Tony /e/h/i/k
```

Here's why:

```
xcopy means "do extra-fancy copying"
/e means "copy even the folders inside Sarah, even the empty ones"
/h means "copy even the hidden files in Sarah"
/i means "don't inquire whether Tony is a folder"
/k means "if a file is read-only, make the copy be read-only also"
```

## Type

Suppose you've put on your hard disk a file called Mary containing a poem, by typing "copy con Mary". To see the poem on your screen, you can tell the computer to copy Mary to the console's screen, by saying "copy Mary con". An even easier way to copy Mary to the screen is to say just "type Mary".

**Text files** Files created by "copy con" (or by the Windows Notepad program) contain words and numbers that you can read on the screen easily, by giving the "type" command. Those files are called **text files**. Other files are weirder; if you try to view them by giving the "type" command, you'll see strange symbols instead of just words and numbers.

Files ending in .txt or .log are always text files. Files ending in .exe are programs that are never text files.

If a text file uses just standard characters (no crazy symbols or hieroglyphics), it's called an **ASCII file**. ("ASCII" is pronounced "ass key" and stands for **American Standard Code for**

**Information Interchange**.)

## Rename (ren)

The computer understands the word "rename". For example, if a file is named Mary, you can change that file's name to Lambchop by saying "rename Mary Lambchop". If a folder is named Sarah, you can change that folder's name to Tony by saying "rename Sarah Tony".

Instead of typing the word "rename", you can type just "ren", like this: "ren Mary Lambchop".

## Delete (del)

The abbreviation for the word "delete" is "del".

**Deleting a simple file** Suppose a simple file is named Mary. To delete that file from the disk, say "del Mary".

That command works just if Mary is in directory (folder) you've been looking at and is visible (not hidden).

**Deleting a folder** To delete a **folder** named Sarah, say "rd Sarah /s" (which means "remove directory Sarah & its subparts"). The computer will ask whether you're sure; press Y then Enter.

That command works just if Sarah is visible (it's mentioned when you say "dir") and you're not in the middle of using Sarah.

That command is powerful: it ruthlessly deletes the folder Sarah and everything in it, with no exceptions! It even deletes files marked read-only! It even deletes files marked hidden!

## Attribute (attrib)

To protect your important files from being erased accidentally, give the "attrib" command. Here's how.

**Read only** To protect a file named Mary, you can say "attrib +r Mary". That prevents Mary from being changed accidentally.

For example, if somebody tries to delete Mary by saying "del Mary", the computer will refuse and say:

```
Access is denied.
```

If somebody tries to delete many files by saying "del \*", the computer will delete *most* files but not Mary.

If somebody tries to create a new Mary and obliterate the old one (by saying "copy con mary", then typing some lines, then pressing F6 and Enter), the computer will refuse and say "Access is denied."

If somebody tries to find out what Mary is (by saying "dir Mary" or "type Mary" or "copy Mary con") or rename Mary (by saying "rename Mary Lambchop"), the computer *will* obey. The computer will let people *read* Mary *but not destroy* what's in Mary. That's because **saying "attrib +r mary" means, "give Mary the following ATTRIBUTE: Read only!"**

Mary will remain read-only forever — or until you cancel the "attribute read-only". **To cancel, say "attrib -r mary"**. In that command, the "-r" means "take away the read-only attribute", so that Mary is *not* read-only and can be edited.

**Hide** For a different way to protect Mary, say **"attrib +h mary"**. **That "h" hides Mary, so MARY won't be mentioned when you type "dir"**.

After you've hidden Mary, it won't be affected by "del", "rename" or "copy". If you try to wreck Mary by copying another file to it, the computer will say "Access is denied". If you try to change Mary's attributes by saying "attrib +r mary" or "attrib -r mary", the computer will refuse and say "Not resetting hidden file".

Although Mary is hidden and isn't mentioned when you say "dir", the computer will let you access that file if you're somehow in on the secret and know that the file exists and is called "Mary". For example, the computer *will* let you look at the file by saying "type Mary".

If Mary is hidden, **you can “unhide” MARY (and make MARY visible again) by saying “attrib -h mary”.**

**System** For an alternate way to hide Mary, say “attrib +s Mary”. That turns Mary into a **system file**, which is S hidden.

For the ultimate in hiding, say “attrib +h +s Mary”. That makes Mary be H hidden and also S hidden. Then if somebody tries to unhide Mary by saying “attrib -h Mary”, Mary will still be hidden by the +s.

To undo the +s, say “attrib -s Mary”.

**Normal** After playing with Mary’s attributes, you can make Mary be normal again by saying “attrib -r -h -s Mary”. That makes Mary be *not* read-only, *not* hidden, and *not* a system file.

**Examine the attributes** To examine Mary’s attributes, say “attrib Mary”. The computer will say “Mary” and show some letters to the left of “Mary”. For example, if it shows the letters R, H, and S, it means Mary is read-only, hidden, and system. If it prints just the letters R and H, it means Mary is read-only and hidden but not system. (It might also print the letter A, which means “archive”. Most files are archive.)

## Batch files

You can invent your own command — if you define it to stand for a list of other commands.

For example, let’s invent a command called “status” that makes the computer display a directory and also remind you of which Windows version you’re using. To invent that “status” command, just create a file called “status.bat”, which contains two lines, “dir” and “ver”. Here’s how.

Create a folder called “Sarah” and go into it, so you see:

```
C:\Sarah>
```

Type this —

```
C:\Sarah>copy con status.bat
dir
ver
```

then press the F6 key and then the Enter key.

Afterwards, whenever you type the word “status”, like this —

```
C:\Sarah>status
```

the computer will look at the file “status.bat” and obey the commands you stored there: the computer will automatically do “dir” then “ver”.

**What’s a batch file?** A file that’s a list of commands is called a **batch file**. The file “status.bat” is a batch file, because it’s a list of two commands (“dir” and “ver”). The name of every batch file must end in “.bat”, which stands for “batch”.

## Echo

While the computer performs a batch file, the computer prints little messages reminding you of what it’s doing. For example, while the computer performs the “ver” command in “status.bat”, the computer prints the word “ver” on your screen. Each such message is called an **echo**.

If you don’t want to see such messages, say “@echo off” at the beginning of your batch file, like this:

```
A>copy con status.bat
@echo off
dir
ver
```

To type the symbol “@”, tap the 2 key while holding down the Shift key. (If you forget to type that symbol, the words “echo off”

will remain on the screen while the batch file runs.)

Let’s define “chick”, so that if you say “chick” the computer will recite this chicken riddle:

```
why did the chicken cross the road?
To escape from Colonel Sanders!
```

To define “chick”, type “copy con chick.bat” at the prompt, like this:

```
C:\Sarah>copy con chick.bat
```

Then type the batch file:

```
@echo off
echo why did the chicken cross the road?
echo To escape from Colonel Sanders!
```

Then press F6 and Enter. The “@echo off” prevents the computer from printing distracting messages; the bottom two lines make the computer print the poem when you say “chick”.

## Clear screen (cls)

Another command you can put at the beginning of your batch file is “cls”. That makes the computer begin by erasing the screen, so you don’t see any distractions.

Put “cls” just under “@echo off”. Here’s what the batch file looks like now:

```
C:\>copy con status.bat
@echo off
cls
echo why did the chicken cross the road?
echo To escape from Colonel Sanders!
```

## Replaceable parameter (%1)

Let’s define “greet” so that if you say “greet Peter” the computer will say —

```
Hello, Peter the Great!
I like you, Peter!
```

and if you say “greet Suzie” the computer will say —

```
Hello, Suzy the Great!
I like you, Suzy!
```

And if you say “greet Godzilla” the computer will say —

```
Hello, Godzilla the Great!
I like you, Godzilla!
```

To define “greet” that way, type “copy con greet.bat” at the prompt, then type this batch file:

```
@echo off
echo Hello, %1 the Great!
echo I like you, %1!
```

Then press F6 and Enter. Make sure you type the “%1” in that batch file.

Afterwards, when you say “greet Peter” or “greet Suzie” or “greet Godzilla”, the computer will print a greeting to Peter or Suzie or Godzilla, by automatically substituting the person’s name for “%1”. Try it!

## Help

If you type the word “help”, the computer will show you a list of DOS commands.

To find out more about a command, type “help” and the command’s name. For example, to find out more about “dir”, type “help dir” (or “dir /?”).

For other DOS commands and more about older versions of DOS, get an older edition of this book by phoning me at 603-666-6644.

For even more help, phone me anytime at 603-666-6644 to chat, free.