



Introduction to Computers

Module 4

Module 4

This module focuses on introducing the Internet- how to connect and using a web browser.

1. The Internet

The Internet, sometimes called the World Wide Web (WWW) or just the web, is your access to a huge collection of information and services. Through the internet you can access:

- Newspapers, Magazines, Movies, Television
- Libraries, Maps, Cookbooks
- Calendars, Restaurants, Social Networks
- Job Searches & Training

Through the internet you can also:

- Shop
- Play games
- Manage your finances
- Research things

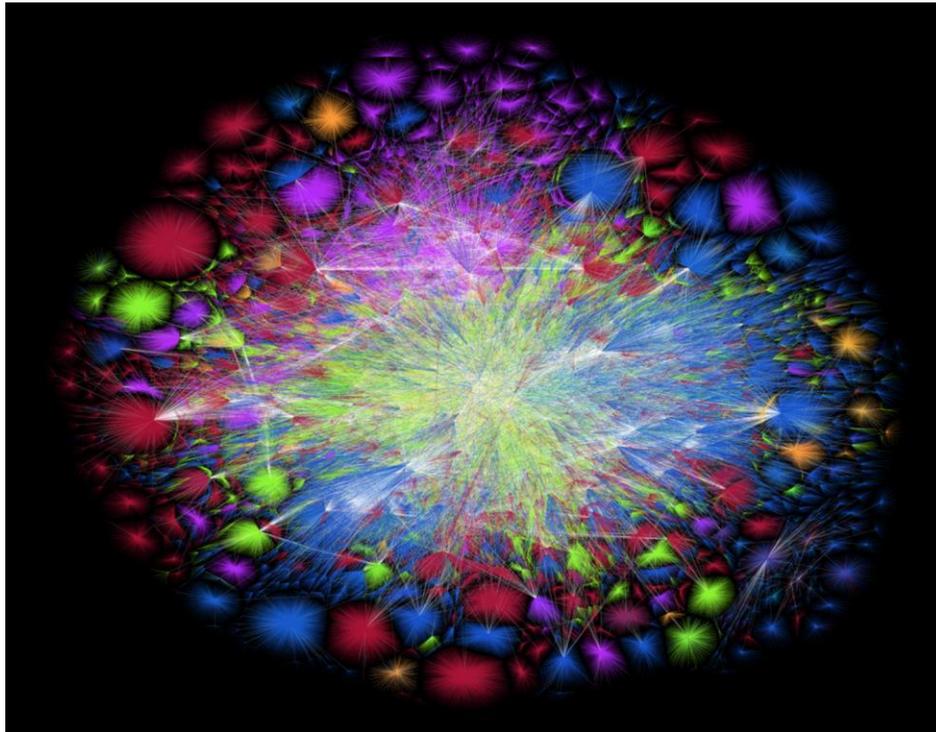
Your access to information is limitless. Any question you may have can be answered on the internet, and some of the answers are reliable.

What is the internet? The internet is an interconnection of computers providing access to billions of users at all points on the globe. It is estimated that there are over 3.5 billion worldwide users and that by 2020, there will be 50 billion things connected to the Internet. This includes personal computers, databases, and “smart” devices.

For more information about the resources on the Internet, see PRC's Tech Talk on Using the Internet at <http://pbdd.org/prc/>

- Presentation Material
- Video

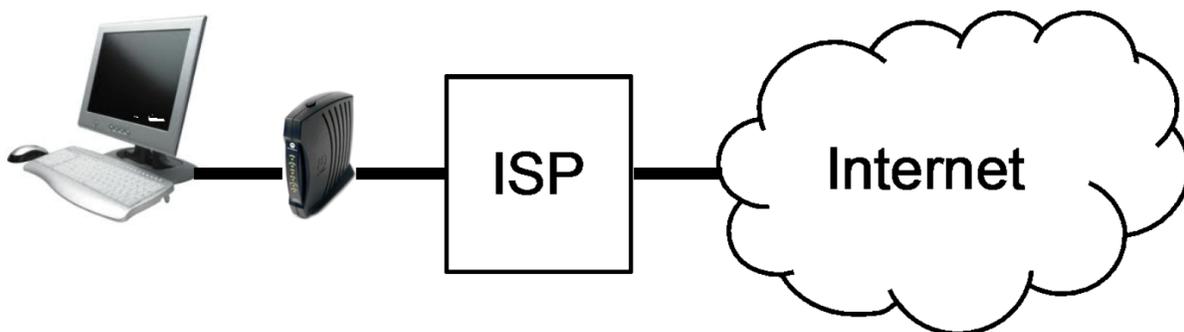
The Opte project provides a visual representation of this interconnection of networks across the world.



Connecting to the Internet

In order to use the internet, you need:

- A computer (or other device)
- An Internet Service Provider (ISP), typically paid monthly. Needs physical connection and a subscriber contract.
- A modem (a device which lets your computer connect to your ISP)



ISPs

An Internet Service Provider is a company which has broadband (high speed, always on) connections to the Internet and which sells a service to allow you to use their connections.

The primary ISPs are the companies who provide communication to their customers: phone companies (like AT&T) and cable television companies (like Comcast or Wide Open West).

These companies provide the service for a monthly fee to customers in their service area. Where you live determines which service providers you may choose from.

Cost of Internet Connections

The ISPs sell service to their customers. Often, they will bundle services together, so if you have cable television service, you can get a discount if you bundle Internet service with that. The service providers often offer a discounted rate for the first year of service. Without a discount, home Internet service often costs approximately \$50 per month.

If you are eligible, there are some low-cost options for Internet Access. You can learn about options available for you (specific to your location and personal financial situation) via

<http://everyoneon.org/>

Other Internet Connection Considerations

In addition to cost, there several other factors that can impact your Internet usage experience.

- Speed

The speed of your internet connection can affect how easy it is to use. If you are sending email, the speed doesn't have much effect on your experience, since the mail will be sent, and if it takes a half a second or five seconds, it doesn't matter much to you. For web sites, if you have a slow connection, it may take a bit of time before the computer responds, and this can be trying to your patience. For things like watching movies or listening to music, it can be very disruptive if the speed of your connection can't keep up with the speed at which you want to watch or listen, and if the movie or music has to pause for a while before it plays for few seconds, it can become so disruptive that it isn't useful. For video streaming, typically a rate of 5 Mbps is needed.

With many providers, the network is shared within your neighborhood, so you may find that speed varies depending on the time of day and how many people are using the Internet.

- Data Caps

Some ISPs provide a limited amount of data which can be used each month. This is particularly common with wireless providers. In some cases, after the cap is met, the speed of the connection is significantly decreased, so the Internet can be used, but it is much slower. In other cases, the ISP may charge money for usage over the cap, and this is dangerous because it can become very expensive very quickly.

- Reliability

A high-speed connection which doesn't work when you need it is worse than a slower connection that is always available, so consider the experience people report for an ISP when you are considering buying service from them.

Home Connection (Home Network)

Once you have chosen an Internet service provider, you will need to buy or rent a modem which works with their network. Over the long term, it is often less expensive to buy the modem. You need to be sure to get a device which works with your selected ISP.

If you have a single computer in your household, you can connect the computer directly to the modem, but if you have more than one, or if you want wireless access, you will need a router. In either case, it can connect to your computer using the network connection port on the back of your computer.



Figure 1 Network Port

If you have a wireless router, you can connect your computer to the router using radio waves rather than a cable connected to your network port. In this case, you will need a device which can transmit the radio waves and can plug into your computer, typically through a USB port.

In addition to the standard commercial rates for ISPs, depending on your location and economic circumstances, you may be eligible for a low cost internet access option. To learn about your eligibility, go to EveryoneOn.org

2. Browser

Browser Options

A web browser is an application program which is used to access all the content on the Internet. Web browsers are typically available for free download. The most popular web browsers available for Windows 10 are:

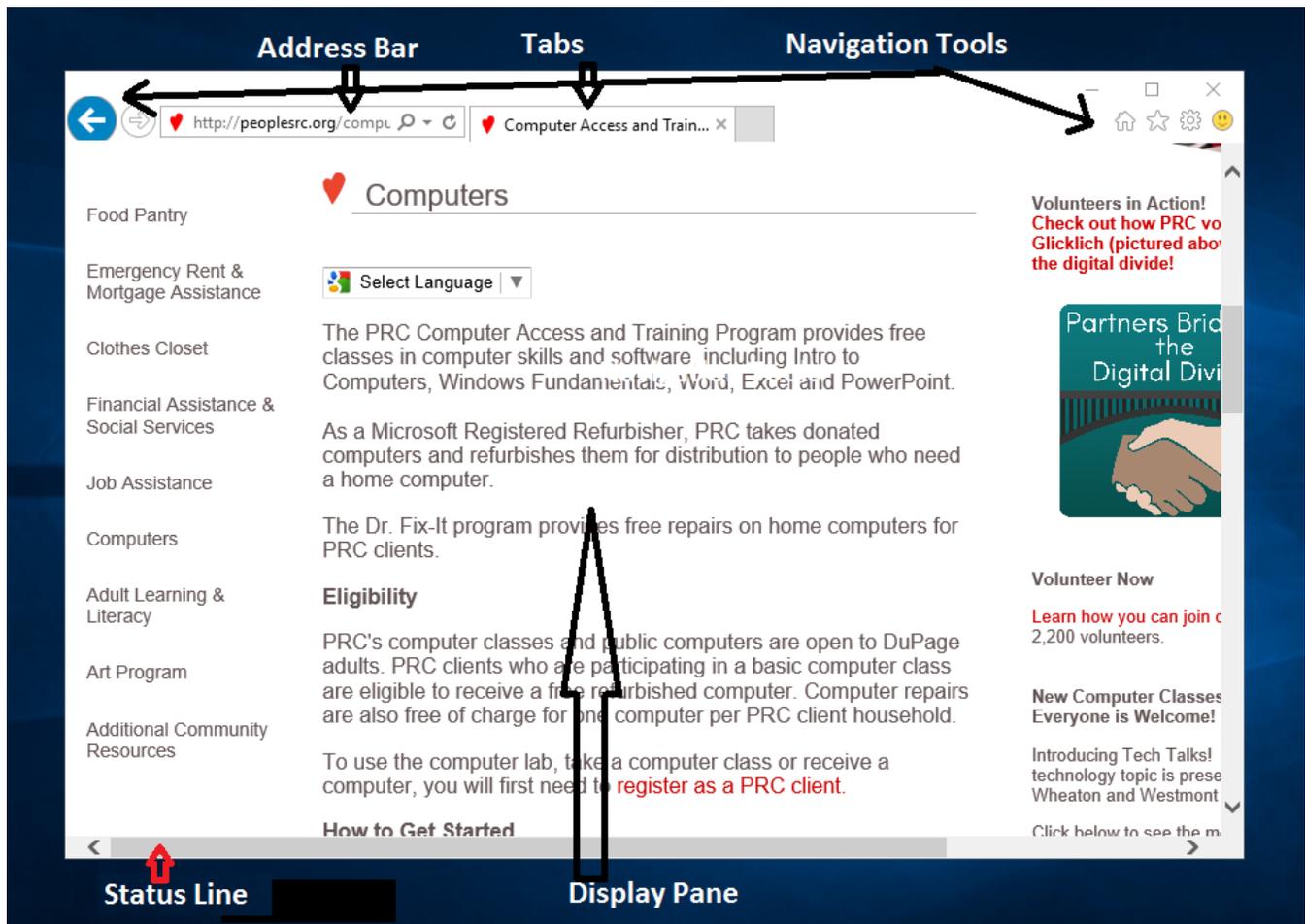
- Chrome (by Google)
- Edge (by Microsoft)
- Firefox (by Mozilla)
- Internet Explorer (by Microsoft)

Each of these browsers have the same basic capabilities, and are updated with new improvements on a regular basis. Within this class, we will be using the Microsoft Internet Explorer browser. At home, if you have a Windows 10 machine, you will find Microsoft Edge browser installed as the default for Windows 10 computers.

Opening a Web Browser Application

Opening a Web Browser application is similar to opening any of the other applications. From the Start menu or task bar magnifying glass, type **Internet** and select **Internet Explorer**

Browser Basics



The most important parts of the browser are:

- Tabs – Shows the set of pages active within the browser window
- Display Pane – the big area taking up most of the window that presents the content of the web page as shown in the address bar
- Navigation Buttons – for selecting which page is shown within the active tab
- Address Bar – for entering the web page or a web search
- Status Line – Indicates where a link will take the user

Tabs

The concept of tabs comes from file folders, where multiple folders are stacked, one on top of the other, and you can see the contents of the top folder, and the tab of the folders that are behind it.



Figure 2 Physical Tab Example

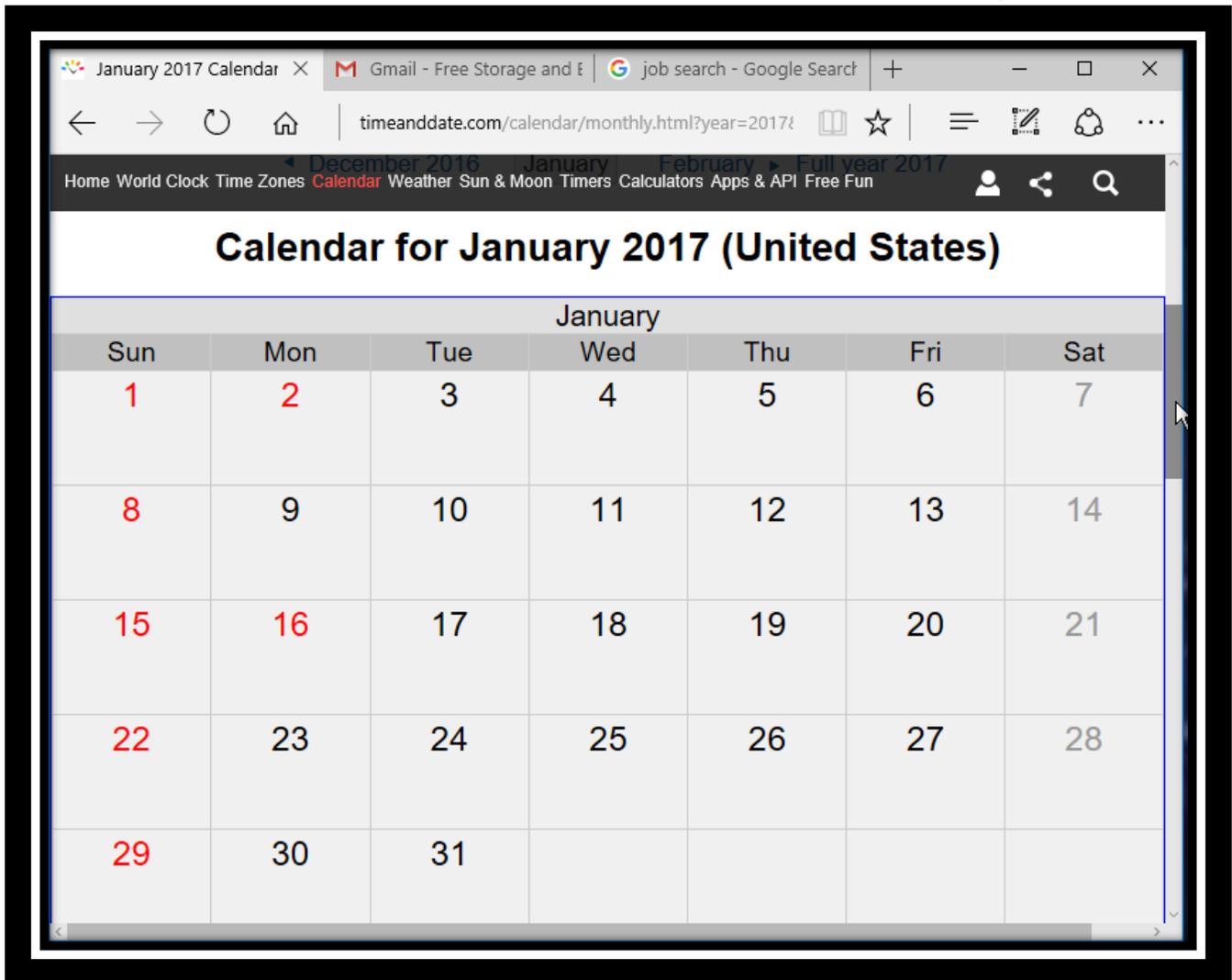


Figure 3 Edge Browser Tab Example

If you have multiple tabs open, and click on the tab of that is not in front, the browser will come to the front, on top of the stack.

Display Pane

The content of the display pane is determined by the web page shown in the address bar. The computer hosting this content “decides” what is shown to you. It can include text, pictures, sound, video, advertisements, and links to other web pages.

You can tell that a picture or set of words is a link if you hover your mouse over it and the cursor changes to a pointing finger icon, as shown immediately below. See the section on Status Line below.



If the content doesn't fit on a single page, scroll bars will appear at the edge of the display pane, allowing you to scroll to see the information that isn't yet displayed.

Navigation Buttons

When you're on a web page and click on a link, the browser will take you "forward" to the page you selected. If you want to return to the previous page, the navigation buttons at the top of the browser will do that for you. Once you have followed a link, the arrow pointing to the left will be enabled, and will take you back to the previous page. Once you have done this, an arrow pointing to the right will be enabled, and will take you to the page you were on before you hit the "back" button. The icon with the circular arrow will reload the current web page from the providing host web site. The icon of a house will take you page back to the website that is defined, within this browser on this computer, as your "home" page.

The circle icon provides the ability to reload the current web page from the host. While a page is loading, an "X" will appear in the address bar. If the page is taking a while to load and you want the page to stop loading, you can click on the "X".

Address Bar

The address bar provides a place where you can type the URL (web page identifier), or where you can type words to perform a search. If the display pane is showing the content of a web page and you haven't typed anything in the address bar, the address bar will show the identifier of the web page currently being displayed within the active tab.

Status Line

When you move the cursor over a link, the bottom line of the browser will provide the identifier of the web page to which this link points. This is particularly useful if you are suspicious that a link will take you somewhere you don't want to go. Before you click on the link, you can hover your cursor over it to determine if the site to which it would take you is somewhere you want to go. When you left-click on the link, it will open the page in your current tab. If you right click on the link, you will see options to open the link in a new tab (within the same browser window) or to open the link in a new browser window.

Customizing your Browser

There are many ways of controlling your web browser experience to make it work best for you. You can mark your favorite web pages to make it easy to return to them whenever you want. You can define the pages that open when you start the browser, and you can set the search engine to be used when you search from the address bar. However, we will not be discussing these in detail in this class.

Exercise: Using the Internet Explorer Browser

- 1) If you don't already have it open, open the Internet Explorer Application, as described in **00 Opening a Web Browser Application** above
- 2) In the Address Bar, type **peoplesrc.org**
- 3) Hit the **Enter** key to let the computer know you are done typing the address
- 4) Move your mouse cursor over the PRC Services Heading at the top
- 5) Look at the bottom of the screen to see that this link will take you to **peoplesrc.org/services**
- 6) Click on the link

- 7) Notice that the back button has become active (dark). Click on the back button
- 8) Notice that the forward button has appeared. Click on the forward button.
- 9) Scroll down on the Services page, looking for “Computers” on the left side.
- 10) Right click on “Computers”, and choose “Open in new tab”
- 11) Observe that you have an additional tab now open at the top of your browser
- 12) Click the Computer Access and Training tab

3. Searching

With over a billion websites available, how do you find what you want? A tool that has spurred the growth of the internet and is used billions of times per day is the search engine. The most popular search engine is Google. It is also widely regarded as the best search engine.

Other search engines include Bing (from Microsoft) and Yahoo Search.

Performing a Google Search

1. Open a new tab in your web browser by clicking on the “New Tab” spot to the right of the existing tabs
2. In the address bar, type **google.com**
3. In the search box at the top of the display pane, type the words for your search
4. Notice that as you type, Google provides suggestions, based on what other people have been searching for. If you like a suggestion, click on it
5. When you're done entering your search, hit the enter key or click on the magnifying glass icon to the right of the search box
6. Google will display the results. It will show you how many results were found and the first page of these results. Very often, the answer you want is on the first page. If not, you can scroll to the bottom and click on Next for more results. Or you can add words to your search criteria to try and find a better, more specific answer
7. Notice that some of the results at the top of the list are tagged as advertising, with the Ad notation on the right 
These are results from companies that have paid to have their results highlighted for some of the words you entered. It's perfectly fine to click on these, if they are what you were looking for, but you should be aware that the Ad may not be the best search result even though it is listed first.
8. When you see a result that you think may be the answer you want, move your mouse over that text until you get the pointing finger cursor, and if it is a place you want to go, click on the link to go to that web page.
9. You can use the back arrow to return to the search results.

Exercise: Performing a Google Search

1. Using the steps listed above, perform a search for **chicken soup**
2. Look at the results, noticing how many results were found
3. If you were looking for chicken noodle soup recipes which one would you select?
4. In the search box, add the word **noodle**
5. Notice how the total number of matches has changed
6. Is it easier to find what you are looking for?

The more specific you are in your search, the more likely you will find what you are looking for.

4. Internet Safety

Risks and Benefits of Internet Usage

The Internet has a wealth of information, much of it free*. It is also a very democratic institution, meaning that anyone can post information on the internet.

This introduces some dangers- how do you know what to trust what you read, and how do you protect yourself from people who are trying to take advantage of you?

For a good overview of the benefits and risks of the internet, and what to do about the risks, check out

<http://www.zonealarm.com/blog/2015/02/the-advantages-and-disadvantages-of-the-internet/>

and

PRC's Tech Talk on <http://bit.ly/2gdzmUI>

As a general rule, if something seems suspicious, be cautious. Rely on people you trust as knowledgeable to act as your guide. Use well respected institutions as a primary information source. And use the community of Internet users to help determine if something is safe. (Google the website you're wondering about along with words like "trustworthy" or "scam" to see what other users are reporting.)

Who is Providing Content

Since anyone can provide a web page on the internet, how do you know where the information is coming from?

Every web site has a domain, which identifies who is providing the information.

A typical web site address (URL) looks like

<http://www.sears.com/appliances/b-1020003>

http:// identifies the “language” that your browser is using to communicate with the host web site. If this shows **https://**, this indicates that the communication between your computer and the host website is secure, and cannot be “eavesdropped” by devices in the middle. This is very important if you are entering passwords or credit card numbers or other personal information.

www. Is a common way of identifying the start of a web site. It is not needed when typing a web address

sears.com is the domain providing the content. Usually, the domain is a company or institution. The **.com** is a top level domain identifying the domain as commercial. Other common top level domains include:

- **.org** – typically a non-profit organizations
- **.edu** – an educational organizations
- **.gov** – a US government agency-provider

There are many other top level domains, some of which identify the country of origin, for example **.ca** for Canada

/appliances/b-1020003 identifies the page within the Sears website that provides this specific content. Sometimes the information after the domain can be very long and complicated to instruct the computer at the host site what should be displayed

* The Cost of Free

A huge amount of what we can access on the Internet is free. News, games, email accounts, social networks. But the companies that provide these things are in business to make money. The way most of them make money is the same way free broadcast television makes money-with advertising.

Some websites will give you an option of paying money to avoid the advertising, but for many, putting up with advertising is the price we pay for access to the information. Be aware of the advertising, and pay attention to who is providing the content you are reading.

Password Protection

To access some of the services on the internet, you will need an account with the company providing the service. Typically they will also require an email account.

Email is a great mechanism for communication on the Internet, and details are discussed in Module 6. Email accounts and other accounts on the Internet require passwords.

A password is a way for the computer on the other end to know that you are a legitimate user. Protecting your passwords is important, because if you share a password with others, or if you

use a password that is easy to guess, someone else can pretend to be you, and this can cause you harm.

The simplest rules are:

- Longer and more complicated is better protection
- Do not reuse passwords for multiple accounts
- Be sure you can remember it when you need it

These are sometimes difficult to balance, but writing them down in a safe place (not near your computer) is often the best way to cover all these things. For more information, see:

https://en.wikipedia.org/wiki/Password_strength#Common_guidelines

Virus Protection

One important way to protect your computer is to have anti-virus protection software running on it. This is a computer program which runs all the time to watch for files added to your computer to determine if they are harmful and protect your computer from them.

All computers with Windows 10 have virus protection from Windows Defender, and it is important that it be kept up to date on the latest known viruses and that it be run on a regular basis.

Exercise: Exploring the Internet

1. Using the steps listed above, perform a search for **directions to Naperville**
2. Explore the google map site, finding directions from your home to a restaurant you would like to try.
3. In the address bar, type **yahoo.com**
4. Explore the categories of information they present along the left column
5. Open a link in a new tab and explore the contents of the pages in that tab.
6. Practice navigating back and forward
7. Think of a topic you'd like to learn about. Do a search for this, and follow the links to learn more.

5. Typing Practice

Exercise: Find Typing Tutor on your Desktop, Open it, and start using it.

On your desktop, locate the Typing Tutor icon.

Double click the Typing Tutor icon and follow the instructions on the screen.

6. Vocabulary Summary

Broadband- A connection from your computer to the Internet via an ISP

Browser- Software on your computer which is used to see the content of web pages

http – HyperText Transfer Protocol

ISP- Internet Service Provider

Link – text or picture on a web page that will navigate you to another location

URL – “Universal Resource Locator”- the address of a web site

WWW – Worldwide Web

7. Review Exercise: Shut down the computer

8. Homework

Practice what we did in class today

Research something on the internet to find an answer. Identify who is providing the answers.