

Internet Basics I

Class Objectives

1. What is the Internet?
2. Important terminology
3. Parts of a Browser
4. Setting up your home page
5. Clearing the Cache
6. Downloading and uploading—
Intellectual Property
7. Search Engines



What is the Internet?

The Internet is a vast system connecting computers worldwide. After class, visit the web page <http://tinyurl.com/ybuhadq> and read a great article on the history of the Internet.



So what is the Web? The portion of the Internet the public can view through a Browser.

And what is a Browser? Software that lets you navigate web pages on the World Wide Web. Common browsers include *Edge (Windows 10)*, *Internet Explorer (Windows)*, *Safari (Apple products)*, *Chrome (a free download from Google)*, and *Firefox (a free down-*



Some important terminology

The Top 30 Internet Terms for Beginners by Paul Gil, An About.com Guide

1. The Web vs. the Internet

The Internet is a vast 'interconnection of computer networks' that spans the globe. It is comprised of millions of computing devices that trade volumes of information. Desktop computers, mainframes, GPS units, cell phones, car alarms, video game consoles, and even soda pop machines are connected to the Net.

The Internet started in the late 1960's as an American military project, and has since evolved into a massive public spiderweb. No single organization owns or controls the Internet. The Net has grown into a spectacular mishmash of non-profit, private sector, government, and entrepreneurial broadcasters.

The Internet houses many layers of information, with each layer dedicated to a different kind of documentation. These different layers are called 'protocols'. The most popular protocols are the World Wide Web, FTP, Telnet, Gopherspace, instant messaging, and email.

The World Wide Web, or 'Web' for short, is the most popular portion of the Internet. The Web is viewed through web browser software.

2. http and https

http is a technical acronym that means 'hypertext transfer protocol', the language of web pages. When a web page has this prefix, then your links, text, and pictures should work in your web browser.

https is 'hypertext transfer protocol **SECURED**'. This means that the web page has a special layer of encryption added to hide your personal information and passwords. Whenever you log into your online bank or your web email account, you should see https at the front of the page address.

:// is the strange expression for 'this is a computer protocol'. We add these 3 characters in a Web address to denote which set of computer language rules affect the document you are viewing.

3. Browser

A browser is a free software package that lets you view web pages, graphics, and most online content. Browser software is specifically designed to convert HTML and XML into readable documents.

The most popular web browsers in 2013 are: Google Chrome, Firefox, Internet Explorer, and Safari.

4. HTML and XML

Hypertext Markup Language is the programmatic language that web pages are based on. HTML commands your web browser to display text and graphics in orderly fashion. HTML uses commands called 'HTML tags' that look like the following:

```
<body></body>
<a href="www.about.com"></a>
<title></title>
```

XML is eXtensible Markup Language, a cousin to HTML. XML focuses on cataloging and databasing the text content of a web page. XML commands look like the following:

```
<entry>
<address>
<city>
```

XHTML is a combination of HTML and XML.

5. URL

URL's, or 'uniform resource locators', are the web browser addresses of internet pages and files. A URL works together with IP addresses to help us name, locate, and bookmark specific pages and files for our web browsers.

URL's commonly use three parts to address a page or file: the protocol (which is the portion ending in '://'); the host computer (which sometimes ends in .com); and the filename/pagename itself. For example:

```
https://personal.bankofamerica.com/login/password.htm
http://forums.about.com/ab-guitar/?msg61989.1
ftp://files.microsoft.com/public/eBookreader.msi
telnet://freenet.edmonton.ca/main
```

6. IP Address

Your computer's 'internet protocol' address is a four-part or eight-part electronic serial number. An IP address can look something like '202.3.104.55' or like '21DA:D3:0:2F3B:2AA:FF:FE28:9C5A', complete with dot or colon separators. Every computer, cell phone, and device that accesses the Internet is assigned at least one IP address for tracking purposes. Wherever you browse, whenever you send an email or instant message, and whenever you download a file, your IP address acts like a type of automobile licence plate to enforce accountability and traceability.

7. Email

Email (formerly spelled e-mail with a hyphen) is electronic mail. It is the sending and receiving of typewritten messages from one screen to another. Email is usually handled by a webmail service (e.g. Gmail or Yahoo! Mail), or an installed software package (e.g. Microsoft Outlook).

Email has many cousins: text messaging, instant messaging, live chat, videomail (v-mail).

8. Blogs and Blogging

A blog ('web log') is a modern online writer's column. Amateur and professional writers publish their blogs on most every kind of topic: their hobby interest in paintball and tennis, their opinions on health care, their commentaries on celebrity gossip, photo blogs of favorite pictures, tech tips on using Microsoft Office. Absolutely anyone can start a blog, and some people actually make reasonable incomes by selling advertising on their blog pages.

Web logs are usually arranged chronologically, and with less formality than a full website. Blogs vary in quality from very amateurish to very professional. It costs nothing to start your own personal blog.

9. Social Media and Social Bookmarking

Social media is the broad term for any online tool that enables users to interact with thousands of other users. Instant messaging and chatting are common forms of social media, as are blogs with comments, discussion forums, video-sharing and photo-sharing websites. Facebook.com and MySpace.com are very large social media sites, as are YouTube.com and Digg.com.

Social bookmarking is a the specific form of social media. Social bookmarking is where users interact by recommending websites to each other ('tagging sites').

10. ISP

ISP is Internet Service Provider. That is the private company or government organization that plugs you into the vast Internet around the world. Your ISP will offer varying services for varying prices: web page access, email, hosting your own web page, hosting your own blog, and so on. ISP's will also offer various Internet connection speeds for a monthly fee. (e.g. ultra high speed Internet vs economy Internet).

Today, you will also hear about WISP's, which are Wireless Internet Service Providers. They cater to laptop users who travel regularly.

11. Download

Downloading is a broad term that describes when you make a personal copy of something you find on the Internet or World Wide Web. Commonly, downloading is associated with songs, music, and software files (e.g. "I want to download a new musical ringtone for my cell phone", "I want to download a trial copy of Microsoft Office 2010"). The larger the file you are copying, the longer the download will take to transfer to your computer. Some downloads will take 12 to 15 hours, depending on your Internet speed.

Be warned: downloading itself is fully legal, as long as you are careful not to download pirated movies and music.

12. Malware

Malware is the broad term to describe any malicious software designed by hackers. Malware includes: viruses, trojans, ratware, keyloggers, zombie programs, and any other software that seeks to do one of four things:

- vandalize your computer in some way
- steal your private information
- take remote control of your computer ('zombie' your computer) for other ends
- manipulate you into purchasing something

Malware programs are the time bombs and wicked minions of dishonest programmers.

13. Router (aka 'Network Router')

A router, or in many cases, a router-modem combination, is the hardware device that acts as the traffic cop for network signals into your home. A router can be wired or wireless or both. Your router provides both a defense against hackers, and the redirection service of deciding which specific computer or printer should get which signals in your home. If your router or router-modem is configured correctly, your Internet speed will be fast, and hackers will be locked out. If your router is poorly configured, you will experience network sluggishness and possible hacker intrusions.

14. Keywords and Tags/Labels

Keywords are search terms used to locate documents. Keywords are anywhere from one to five words long, separated by spaces or commas: e.g. "horseback riding calgary" e.g. "ipad purchasing advice" e.g. "ebay tips selling". Keywords are the foundation for cataloging the Web, and the primary means by which you and I will find anything on the Web.

Tags (sometimes called 'labels') are recommendation keywords. Tags and labels focus on crosslinking you to related content... they are the modern evolution of 'suggestions for further reading'.

15. Texting/Chatting

Texting is the short way to say 'text messaging', the sending of short electronic notes usually from a cell phone or handheld electronic device. Texting is popular with people who are mobile and away from their desk computers. Texting is something like the pagers of old, but has the file attachment ability of email.

To send a text message, you will usually need a keyboard-enabled cellphone and a text message service through your cellphone provider. You address your text messages using the recipient's phone number.

In 2010, texting has spawned a controversial habit called 'sexting', which is when young people send sexual photos of themselves to other cell phone users.

16. I.M.

I.M. (usually spelled 'IM' without the periods) is instant messaging, a form of modern online chatting. IM is somewhat like texting, somewhat like email, and very much like sending notes in a classroom. IM uses specialized no-cost software that you install on your computer. That IM software in turn connects you to potentially thousands of other IM users through the Internet. You locate existing friends and make new friends by searching for their IM nicknames.

Once the software and your friends list is in place, you can send instantaneous short messages to each other, with the option of including file attachments and links. While the recipient sees your message instantly, they can choose to reply at their leisure.

17. P2P

 P2P file sharing ('peer-to-peer') is the most voluminous Internet activity today. P2P is the cooperative trading of files amongst thousands of individual users. P2P participants install special software on their computers, and then voluntarily share their music, movies, ebooks, and software files with each other.

Through 'uploading' and 'downloading', users trade files that are anywhere from 1 megabyte to 5 gigabytes large. This activity, while in itself a fully legal pastime, is very controversial because thousands of copyrighted songs and movies trade hands through P2P.

18. E-commerce

E-commerce is 'electronic commerce': the transacting of business selling and buying online. Every day, billions of dollars exchange hands through the Internet and World Wide Web. Sometimes, the e-commerce is your company buying office products from another company (business-to-business 'B2B' e-commerce). Sometimes, the e-commerce is when you make a private purchase as a retail customer from an online vendor (business-to-consumer 'B2C' e-commerce).

E-commerce works because reasonable privacy can be assured through technical means (e.g. https secure web pages), and because modern business values the Internet as a transaction medium.

19. Bookmark

A bookmark (aka "favorite") is a marker that you can place on web pages and files. You would bookmark something because:

- You want to return to the page or file later
- You want to recommend the page or file to someone else

Bookmarks/Favorites can be made using your right mouse click menu, or the menus/toolbars at the top of your web browser. Bookmarks/Favorites can also be made on your Mac or Windows computer files.

20. Social Engineering

Social engineering is the conman art of talking directly to people to trick them into divulging passwords and their private information. All social engineering attacks are some form of a masquerade or phishing attack, designed to convince you that the attacker is trustworthy as a friend or as a legitimate authority figure. The attacker might use an email, phone call, or even face-time interview to deceive you. Common social engineering attacks include greeting cards, bogus lottery winnings, stock investment scams, warnings from an alleged banker that you've been hacked, and/or credit card companies pretending to protect you.

21. Phishing

'Phishing' is what modern-day con men do to defraud you of your personal accounts. Phishing is the use of convincing-looking emails and web pages to lure you into typing your account numbers and passwords/PINs. Often in the form of fake eBay web pages, fake PayPal warning messages, and fake bank login screens, phishing attacks can be very convincing to anyone who is not trained to watch for the subtle clues. As a rule, smart users distrust any email link that says "you should login and confirm this".

22. Add-ons and Plugins

Add-ons are custom software modifications. User optionally install add-ons to improve the power of their Web browsers or office software. Examples include: a custom eBay toolbar for your Firefox browser, a new search feature for your Outlook email. Most add-ons are free, and can be found and downloaded from the Web.

Plugins are a special kind of web browser add-on. Plugins are essentially required add-ons, if you wish to view very specialized web pages. Examples include: Adobe Flash or Shockwave player, Microsoft Silverlight player, Adobe Acrobat pdf reader.

23. Trojan

A trojan is a special kind of hacker program that relies on the user to welcome it and activate it. Named after the famous Trojan horse tale, a trojan program masquerades as a legitimate file or software program. Sometimes it will be an innocent-looking movie file, or an installer that pretends to be actual anti-hacker software. The power of the trojan attack comes from users naively downloading and running the trojan file.

24. Spamming and Filtering

'Spam' has two meanings. 1) Spam can mean 'the rapid repetition of a keyboard command'. But more commonly, 2) spam is the jargon name of 'unwanted/unsolicited email'. Spam email is usually comprised of two sub-categories: high-volume advertising, and hackers attempting to lure you into divulging your passwords.

Filtering is the popular-but-imperfect defense against spam. Filtering uses software that reads your incoming email for keyword combinations, and then either deletes or quarantines messages that appear to be spam. Look for a 'spam' or 'junk' folder in your mailbox to see your quarantine of filtered email.

25. Cloud Computing and Software-as-a-Service (SaaS)

Cloud computing is a fancy term to describe that your software is online and 'borrowed', instead of purchased and actually installed on your computer. Web-based email is the most prevalent example of cloud computing: the users' email is all stored and accessed 'in the cloud' of the Internet, and not actually on their own computers. This is the modern version of the 1970's mainframe computing model. As part of the cloud computing model, 'Software as a Service' is the business model that claims people would rather rent software than actually own it. With their web browsers, users access the cloud of the Internet, and log into their online rented copies of their SaaS software.

26. Apps and Applets

Apps and applets are small software applications. They are designed to be much smaller than regular computer software, but still provide very useful functions. Lately, apps are very popular with cellphone and mobile platforms; specifically: with the Apple iPhone and the Google Android phone.

27. Encryption and Authentication

Encryption is the mathematical scrambling of data so that it is hidden from eavesdroppers. Encryption uses complex math formulas ('ciphers') to turn private data into meaningless gobbledygook that only trusted readers can unscramble. Encryption is the basis for how we use the public Internet as a pipeline to conduct trusted business, like online banking and online credit card purchasing. On the provision that reliable encryption is in place, your banking information and credit card numbers are kept private.

Authentication is directly related to encryption. Authentication is the complex way that computer systems verify that you are who you say you are.

28. Ports and Port Forwarding

'Network ports' are thousands of tiny electronic 'lanes' that comprise your network connection. Every computer has 65,536 tiny ports, through which Internetworking data travels in and out. By using port management tools like a hardware router, users can control port access to better safeguard themselves against hackers.

29. Firewall

Firewall is a generic term to describe 'a barrier against destruction'. It comes from the building term of a protective wall to prevent the spreading of housefires or engine compartment fires. In the case of computing, 'firewall' means to have software and/or hardware protecting you from hackers and viruses.

30. Archives and Archiving

A computer 'archive' is one of two things: a compressed container of multiple smaller data files, or a purposeful long-term storage of files that are not going to be used often. In some cases, an archive can be both.

The act of 'archiving', similarly, is one of two things: to combine and squeeze multiple files into a larger single file (for easier emailing); or, archiving is when you will retire data and documents to be put into long-term storage (e.g. your thousands of old emails in your inbox).

Parts of the Browser

While these parts may be in different locations in different browsers, all browsers offer the same basic functions. Below is a diagram for the new Edge Browser in WIN 10.



Parts of the Edge Browser

The **Forward and Back arrows** help navigate between web pages. The Back arrow takes you to pages previously visited. The Forward arrow becomes active after you have used the Back arrow.

The **Refresh icon** reloads a page. Use this when checking to see if a page has been updated with new information (ie. Local weather radar).

The **Search Box** can search for either a page URL (the page address: ie. wunc.org) or a keyword search (ie. North Carolina Public Radio).

New **Tabs** can be opened by clicking on this + sign so you can have several pages open at the same time.

The **Favorites Bar** stores links to frequently visited web pages.

The **Reading View** icon becomes highlighted when you visit an online article. If you click on it after the page is fully loaded, you can read the article without ads on the page.

The **Favorites star** allows you to store a web page EITHER on your Favorites Bar or in a Reading List to visit again later.

The Hub is the place where you can access your Reading List or edit and organize your Favorites.

Web Notes allows you to draw or highlight on a web page, or take notes. The edited page can be saved or shared with others (ie. Sending a web page with several items you might like to purchase with your notes on it to a friend for their comments).

Share lets you share saved web pages via email or Twitter.

The ... **icon** (the three dots indicate a menu with **More Options**) is where you can print a page or save the page to your Start menu for quick access to it (ie. A quick way to check your favorite news or weather sources when you turn on your computer each day). You can also make the text on a page larger here for easier reading.

Practice

1. Open your browser of choice.
2. Type **randquest.org** into the search box. This is an address or a URL.
3. Now erase that and type in **Asheboro Weather**. This is a keyword search.
4. Click on the grey box labeled *New Tab* in your handout and type news.google.com in the address box.

Pick a news story *and right click* on the title. **Pick** “open in a new tab”. Do it again.

5. **Type** *www.wsj.com*. Check the market data, then *click the refresh icon* and see if the market values have changed.

7. Type in the URL *www.digtriad.com*. *Click* on a story to go to that page, then click on a link on the story page. Use the forward and back arrows to navigate between pages.

8. **Favorites.** If there are web pages you visit frequently, you may wish to save them as Favorites rather than type in the URL every time you wish to visit. To save a web page as a Favorite, click on the Star on the upper right corner. A window opens and you can choose where to save the URL. The Favorites Bar is great for the places you visit most often.

Downloading, Uploading and Intellectual Property

Uploading refers to posting information on the web. **Downloading** refers to taking information off the web and storing it on your computer. You might upload a copy of your resume to apply for a job. You might download a photograph from an email or download the Google Chrome Browser to install on your computer.

BEWARE: Download only necessary items from trusted sources as downloading can bring viruses onto your computer. **DO NOT CLICK ON POP-UP ADS OR ANY AD THAT OFFERS TO SCAN YOUR MACHINE FOR VIRUSES.**

If you want to print images whether from the web or from your email, **DOWNLOAD THEM TO YOUR DESKTOP FIRST.** Then print them.

Practice Downloading

Go to Google Images (images.google.com). Type in “Lighthouses”. Right click on an image. Look for “Save image as” and “Copy Image”. You can save the image to your desktop to attach to an email or use later. If you need to resize the image, Copy the image into a Word document and resize it.—we’ll do more of this in the Word Class

But remember—if you print directly from the web, you’ll often get stuff in your print out that you don’t want. Always save images to your to your desktop before printing.

If you want to print the pages in their entirety or print out documents from the web, the print command is under **More (...)** in the top right set of icons.

Please know that most material on the web is protected by copyright and cannot legally be used for commercial purposes. You can use some images off the web for personal or scholarly use. The next page includes guidelines developed by the NC Department of Public Instruction to guide teachers and students on using digital media in school work while respecting intellectual property. We’ll talk more about this in the Word class and where to get copyright free images.

Fair Use Guidelines for Multimedia

Text

Up to 10% of a copyrighted work or 1000 words, whichever is less

Poems

Entire poem if less than 250 words

250 words or less if longer poem

No more than 5 poems (or excerpts) of different poets, from an anthology

Only 3 poems (or excerpts) per poet

Motion Media

Up to 10% of a copyrighted work or 3 minutes, whichever is less

Clip cannot be altered in any way

Illustrations

A photograph or illustration may be used in its entirety

No more than 5 images of an artist's or photographer's work

When using a collection, no more than 10% or no more than 15 images, whichever is less

Music

Up to 10% of a copyrighted musical composition, but no more than 30 seconds

Up to 10% of a body of sound recording, but no more than 30 seconds

Any alterations cannot change the basic melody or the fundamental character of the work

Internet

Internet resources often combine both copyrighted and public domain sites; therefore care should be used in downloading any sites for use in multimedia presentations.

Until further clarification, educators and students are advised to write for permission to use

Internet resources and to be mindful of the copyright ramifications of including embedded additional links to that particular site.

Numerical Data Sets

Up to 10% or 2500 fields or cell entries, whichever is less, from a copyrighted database or data table

A field entry is defined as a specific item of information (e.g. name, Social Security number) in a record of a database file.

A cell entry is defined as the intersection where a row and a column meet on a spreadsheet

Copying and Distribution Limitations

Do not post multimedia projects claiming fair use exemption on an unsecured web site

No more than 2 copies of the original production may be made

Only 1 may be placed on reserve for others to use for instructional purposes

An additional copy may be made for preservation purposes, but may be used or copied only to replace a use copy that has been lost, damaged, or stolen

If more than one person has created the multimedia presentation, each principal creator may retain only one copy

Alteration Limitations

Multimedia selections falling within the above guidelines may be altered to illustrate a specific technique or to support a specific instructional objective

Notation of the alteration should be documented within the presentation itself

Multimedia Presentations Citations

Educators and students must credit sources, giving full bibliographic information when available.

Educators and students must display the copyright notice and copyright ownership information if this is shown in the original source.

Copyright information for images may be shown in a separate bibliographic section unless the presentation is being used for distance learning. In this case, the information must be incorporated within the image itself (i.e. it must appear on the screen when the image is viewed).

Permission Requirements

For multimedia projects used for non-educational or commercial purposes

For duplication or distribution of multimedia projects beyond limitations outlined above

Search Engines

While Google is the most popular search engine in the world, it is not the only search engine. And using different search engines will produce a different set of results.

google.com - most popular general search engine

bing.com - general search engine powered by Microsoft

ask.com - formerly "Ask Jeeves" is a family-friendly search engine designed for homework help. Uses "natural language" searching ie: you type in your question as a question - "how tall is mount everest?"

about.com - a great place to look for explanations of how things work or technical/computer terms

dogpile.com - searches across multiple search engines (google, bing, yahoo) with one search enquiry

wolframalpha.com - computational search engine--solves math problems, linguistic problems, lots of science information as well as population demographics

Practice - Compare Search Engines

Pick a topic that interests you. Search several different search engines and compare results. Also note how much advertising is on each results page and whether this interferes with getting the information you really want. Some popular search engines include Google, DuckDuckGo and Bing.