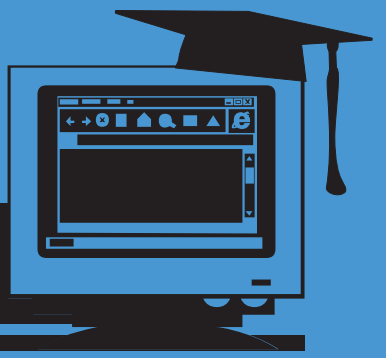
INTERNET POCKET GUIDE FOR TEACHERS



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Dedication

This book is dedicated to my wife, Teresa, whose patience is limitless, to Hurshel Deavours, my father-in-law, who brought me my first computer, to my best friend Steve Exler, who showed me the joys of computing, and to my Lord, through whom all things are possible.

About the Author

I chose teaching as a career because my mother was a teacher of French and English on the secondary level. I joined the faculty of the North Hagerstown High School in 1992 as a teacher of Social Studies. In 1994, I was invited to attend a conference of educators on the Holocaust at the United States Holocaust Memorial Museum. There I witnessed a demonstration of how the newborn World Wide Web could be used in the classroom. I was inspired to bring the Internet into my classroom. Through slow but consistent steps, I have integrated this technology into my teaching. These efforts have led to the North Hagerstown High School Web site, which is celebrating its fifth anniversary this year. I hope it will continue to grow and serve the students in my community.

Introduction

Welcome to the ***Internet Pocket Guide for Teachers***. The Internet is here to stay, and as an educator, you'll want to learn how to use it to do your job better. "How will the Internet impact my job?" you may ask. You can use the Internet to retrieve information that can be used in your lessons. You can also communicate and collaborate with other teachers via the World Wide Web and e-mail in order to gain new skills and knowledge that were previously unavailable to you. Your students will also be using the Internet. By making it a part of the education process, you can emphasize the positive aspects of this new communication medium.

This *Guide* will get you started using the Internet as easily and as quickly as possible by helping you, the average "non-techie" teacher, to get connected to the Internet at home and at school. It will also provide the information you need to find your way around the Internet and help you figure out how to use what you find in your classroom.

I have led numerous workshops where teachers who knew little or nothing about computers, e-mail, or the Web started their journey on the Internet. It would be great if I could lean over your shoulder and answer your questions as you gain new skills, encounter obstacles, or find new sources of information. Well, unfortunately that's just not going to be possible, so I'm replicating that approach in this book. This *Guide* is like a training session. You'll ask the questions and I'll answer them. We'll cover the most common problems and issues teachers face when they start exploring "cyberspace." I'll respond to each question as clearly and as succinctly as I can.

Learning how to use a computer and the Internet from a book is not a very exciting process. While it has its rewards, it can be downright dry with all of its "click here" and "select that" options. I'll make it as lively as I can. Sometimes I'll pass along a few technical tips or personal experiences. Look for them in a section called ***Gem From George***. There you'll find advice ranging from helpful hints to detailed explanations of concepts related to Internet use.

I hope this book makes learning about the Internet easier. Just remember that I taught myself everything I know about the Internet and computers, and I've never taken a formal training or credit course on this subject. Through many late nights of tinkering and experimentation I figured out how to use the Internet to support my educational activities at school. By using this *Guide* you should be able to avoid a lot of the frustration that I experienced and save a lot of time as well.

Don't worry. You can't break anything or delete anything from your computer by reading this book. And if you take the time to practice on your computer what you find here, using the Internet will become an enjoyable experience that will help you do your job more effectively.

Gem From George:

There is an on-line version of this *Guide*

Find the on-line version of the **Internet Pocket Guide for Teachers** at http://www.genium.com/ipgt/

I bet you have a lot of questions that need to be answered. First, I'll tell you more about the Internet and how teachers can benefit by at least becoming familiar with it. Then I'll give you the information you need to get on the Net at home and at school. Once you're up and running, we'll take a look at the different parts of the Internet. Keep in mind that the Internet is like a global roadway system that covers a variety of regions. Some of the roads are smooth like highways, while others are bumpy like country dirt roads. However, these roads are usually connected to each other in some way. I'll help you navigate your way through the different types of terrain.

On your journey, you'll want to know the best places to visit. I'll show you which Web sites and discussion groups you'll want to visit in your search for teaching materials and ideas. I'll also show you how to link up with others who share your interests. We'll also talk about how to stay out of the rough parts of town so that you can feel safe and confident during your time on-line. And I'll provide lots of information on how to use your new skills for the benefit of students.

If you come across a word or term you don't understand, turn to the glossary in the back of this *Guide*. If you have a question that is not answered in this *Guide*, I'll try to send you to a resource that can answer it. The resource may even be on the Internet. There is no better way to gain these new technical skills than to just roll up your sleeves and get into it!

The Internet: What It Is and How It Works

What is the Internet?

Put simply, the Internet is a global network of computers connected by some variation of communication or transmission lines. The average user connects to the Internet by way of "plain old telephone service" (called POTS lines in Internet jargon). Business and government computers often link to the Internet through high-speed lines that connect to their own local networks. The Internet had an estimated 150 million individual users worldwide as of December 1998. Eighty-seven million of these users reside in the United States and Canada. There is also a significant number of Internet users in Western Europe. In developing countries, where the communications infrastructure is not as up-to-date, the Internet is not yet commonplace. Still, the Internet is helping to form a new global economy.

The Internet was revolutionized around 1993 when the World Wide Web (WWW) started to become widespread. The Web has a point-and-click interface that makes it much easier to use than the more archaic Unix systems of the pre-Web days. The Web and e-mail are probably the two most popular aspects of the Internet.

The Internet is often perceived as the great democratizer because anyone and everyone can have access to a world of information or publish their own ideas with an instant global audience. In fact, the Internet has long been viewed as an open forum where scholars of varying disciplines are able to exchange views on topics important to their field. And while the government was a major force in the development and funding of the Internet in its early stages, many Internet users bristle at the thought of the Internet being regulated by the federal government. It is within this spirit of freedom and self-expression that the

users of the Internet have grown to become an on-line community. The members of this community follow customary rules of etiquette (known as *netiquette*), but there are few legal regulations governing the activities of its participants.

What's on the Internet?

Almost any type of information can be found on the Internet in many forms, including words, pictures, sounds, and video. If someone has something to say, it can be published on the Web or on public discussion boards called *newsgroups*. You can communicate with others via the Web and by using e-mail, and files can be transferred by using FTP. All you need is a full-service Internet account.

The World Wide Web is one of the most popular parts of the Internet. It is like a global library without a Dewey Decimal System or card catalogue. You can find your way by using a Web site specifically designed for searching the Web for ideas and concepts that you are looking for. A large number of such sites have grown up on the Web. Three famous and popular sites are Yahoo (http://www.yahoo.com), Alta Vista (http://www.altavista.com), and Excite (http://www.excite.com), But there are many more, all varying in search strategy and effectiveness.

Usenet newsgroups (publicly accessible discussion groups) are another part of the Internet. They are divided into a number of major discussion areas, and then those areas are divided into specific topics. Currently there are over 15,000 discussion topics, and the list is growing rapidly.

Later on, we'll take a more detailed look at what is on the Internet.

How can teachers benefit by using the Internet?

The Internet is revolutionizing education. Television changed the way information was delivered over a half-century ago. The same process is now under way with the Internet. It can be a valuable resource for educators because it contains vast amounts of information. It is also notorious for propagating tons of misinformation, which is another reason why teachers should learn how to use the Internet's resources intelligently.

The World Wide Web, as well as the other parts of the Internet, is by no means a perfect medium for teachers (yet). While the techniques still need to be refined, it can be a powerful presentation tool, an on-line library, and a vehicle for self-expression. In addition to the fact that teachers at every level can publish their own Web pages, organizations such as museums and colleges are posting Web pages. These sites are valuable resources that can contribute to making a school's Web site a reservoir of curriculum-related links. The Web is also a repository for pages containing information on state and local governments, as well as an increasing body of material posted by the federal government. The news media, such as television, radio, newspapers, and magazines, maintain on-line counterparts that deliver up-to-date content twenty-four hours a day. All of these resources are at your disposal for information dissemination, student research, and student Web page development.

How does the Internet work?

Computers and the Internet are complex systems, but all you need is a simple, non-technical glimpse of how things work on the Internet. An e-mail message, Web page, or anything else transmitted over the Internet is broken up into *packets.* These packets travel along transmission lines over the network we know as the Internet. Computers called *routers* direct the packets to their destination computer. Your computer makes sense of the packets and turns them back into what they started out as.

There are sets of rules for electronic communication that programs like e-mail readers and Web browsers must follow. These sets of rules are called *protocols*. The protocols that handle packet transmissions on the Internet are called *TCP/IP*, which stands for Transmission Control Protocol/Internet Protocol. But you really don't need to know about these technical terms. Just remember that when you see TCP/IP, it's talking about a set of rules that defines how information is transmitted on the Internet.

Where does the information on the Internet come from?

Anyone with access to the Internet can place information on the Internet. All that is required is a program that helps you edit a Web page and a program that allows you to upload, or send, your files to a computer that stores them and allows Web users to see the files using a Web

browser. Once you send the information to the storage computer, called a *server*, it can be read by anyone in the world with Internet access.

The Internet's WWW is rapidly becoming dominated by people who want to make money from its ability to allow for rapid, easy communication. By publishing on the Web, individuals have the same forum as multinational corporations (even though the corporations have far greater resources to devote to their Web sites). Most organizations doing business on the Internet for profit have .com in their address.

The governments of the world publish a lot of information on the Web. The US federal government, along with every state government, has Web sites. The federal Web sites are signified by the three-letter .gov suffix. States and municipalities often use .us.

Non-profit organizations also use the Internet to share information. You can identify these sites because they have a .org suffix.

Colleges and universities place course catalogues, scholarly research, and school information on the WWW so that prospective students can see what the school has to offer. Educational institutions have a .edu suffix.

Military installations use a .mil suffix.

Internet service providers place their information on the Web using the .net suffix. Through these organizations, the average person can place information on the Internet in the form of Web pages, e-mail or through discussion groups.

Foreign countries each have their own two-letter suffixes. For example, Canada is .ca.

As you can see, the Internet is a very diverse and open medium.

Gem From George:

The different parts of a Web address

A Web address is one example of a URL, which stands for Uniform Resource Locator. A URL is a

method of specifying the location of an object on the Internet. For the Web that object is generally a file named index.html. However, the user typically does not enter the file name when entering a Web address.

There are three main pieces to a URL. The first piece is the type. Common URL types are http, ftp, and gopher. After the URL type comes a colon (:) and two slashes (//). The second piece is the name of the computer that contains the information you are seeking. After the name of the computer is a slash (/). The last piece of the URL is the path to the object you want to access. The path is the series of directory (folder) names, separated by a slash (/). The URL must be entered correctly, or you will not get what you want. For example, in http://www.genium.com/ipgt/ "http" is the type, "www.genium.com" is the host computer's domain name, and "ipgt/" is the path to the file location. The default file is named index.html, but it should not be entered in the Web address. Since the Internet is a global network, a URL (or Web address) may include an indication that the page resides on a computer in a country other than the United States. You may see a country code such as .ca for Canada, .nl for the Netherlands, or .mx for Mexico. These letters tell you that you are connecting to a computer in that nation. To learn more about how Internet addresses work and how they are assigned, you can visit the Library of Congress Brief Guides to the Internet at http://lcweb.loc.gov/loc/guides/address.html. There you'll find a link that leads to a complete list of country codes (http://www.ics.uci.edu/pub/websoft/wwwstat/country-codes.txt).

Internet Service Options

What choices do I have regarding Internet service?

There are two forms of Internet access you are likely to use. The first comes from an *Internet Service Provider (ISP).* The second comes from a *commercial on-line service (COS).* The ISP provides access to the Internet when you connect to it. If you are using a modem, your modem dials a number

connecting you to the ISP's modem/computer, which is on the Internet. In addition to connecting you to the Internet, the ISP may provide some basic Internet-related software, as well as customer support. The commercial on-line service also connects you to the Internet, but, in addition, offers proprietary services to subscribers. The most popular commercial on-line service today is America Online (AOL) with an estimated 14 million subscribers.

Internet Service Provider (ISP)

What should I look for in an Internet Service Provider?

Here are some factors you'll want to consider:

- the ISP's rates
- the availability of a local access phone number to avoid long-distance charges
- the size of the Internet Service Provider
- the availability of technical support

One of the most important elements of a good ISP is a Technical Support Department that can respond to your requests quickly and politely. Technical support staff can lose the customer in the shuffle if an ISP is too large, while one that is too small may not have the knowledge needed to support all user computer systems and answer your questions. If you are using a Macintosh computer, you should be especially careful because you are in the minority when compared to people using Windows-based computers. The ISP you choose should have technical support staff familiar with Macintosh computers.

There are both regional and national Internet Service Providers. Regional providers operate locally, while national providers set up local access numbers for their subscribers. National providers may also use toll-free area codes (e.g., 800, 888, or 877) to provide service for their customers.

How can I find an ISP?

Probably the best way is by word-of-mouth. Talk to your friends and colleagues who are using the Internet and get their recommendations (and also who they suggest that you stay away from). Another good source is your telephone book. If you have access to the Web (at school or at the library), you can locate a listing of ISPs within a

specific area code by visiting the Web site of The List at http://thelist.internet.com/. Yet another way to locate ISPs is to stop by any reasonably adequate bookstore and go into the computer section or look on the magazine rack. There you'll find an ever-growing number of books and periodicals that will help you find a local ISP or describe the various on-line services so that you can make a decision and try one out.

Choosing an Internet Service Provider does not have to be a difficult process. If you have access to the Internet at school or at the public library, review this checklist on how to compare ISPs at http://www.equaljustice.org/nuts/isp.html. Here you'll find links to other sites that will define terms and present you with all the factors that make up quality Internet service.

How much should I expect to pay for an Internet connection?

The average dial-up account (often called SLIP or PPP) will run in the neighborhood of $20 per month and that cost continues to drop. Many ISPs offer the subscriber 2 to 5 megabytes of server space on their host computer should you want to put your own Web pages on the Internet.

Commercial On-line Service (COS)

What should I look for in a commercial on-line service?

A commercial on-line service is a closed system that is not accessible to non-members who may be surfing the Web or reading e-mail through other services such as ISPs. In addition to basic Internet services such as e-mail and Web browsing, an on-line service provides access to proprietary services not available to non-subscribers.

Commercial on-line services provide the basic Internet services to their subscribers:

- E-mail
- Access to the World Wide Web
- Usenet newsgroups
- FTP

They also provide functions through their own software such as:

- Chat

- Access to research databases such as Compton's Encyclopedia or Encarta
- Bulletin board discussion groups on a variety of topics
- News, sports, and weather information
- Job, personal, and real estate classified ads
- Stock exchange updates
- On-line shopping networks
- On-line games
- Travel information
- Software downloads

Think of a commercial on-line service like AOL as being a big community with a gate around it. If you are a member, you have access to the community's resources, and since your community is part of the Internet, you can also use the Web and e-mail to sites outside the community. People outside the community can send you messages and read your Web pages as long as they have your address.

Things that you should consider about a commercial on-line service like AOL:

- Due to the large number of users, it is sometimes hard to get connected because of busy signals. The service may also be very slow on days when a large number of people are unexpectedly home, such as a major snowstorm that closes schools and businesses.

- AOL is notorious for having thousands of young people clog up its chat rooms. These young people often search the member directory and ask for help with homework through Instant Messenger.

- These services may sell their member list which may result in having unwanted bulk e-mail sent to you.

Figure 1. AOL's opening screen for version 4.0. You can choose from various channels or read your e-mail.

AOL members have a neat little utility at their disposal called the *instant message*, or IM. One AOL member can send a message to another AOL member in real time if they are both on-line at the same time. In doing so, a two-way conversation takes place. AOL members can set up *buddy lists* whereby they can see if their buddies are on-line at the same time they are and send them instant messages.

Non-AOL members can also have "on-line conversations" by downloading a software program from the AOL Web site called *Internet Messenger*. (You'll need an account from a regular Internet Service Provider.) After you install Internet Messenger, you can send instant messages to other non-AOL members as long as they have the same software, they are on-line at the same time, and they have the software running. The Internet Messenger software also works with AOL members who happen to be on-line at the same time as you. With Internet Messenger, you can exchange instant messages with someone halfway around the world with no long distance charges.

There is another advantage of having the Internet Messenger software on your computer. AOL is well-known for its chatrooms. With Internet Messenger, you can invite others with the same software into *buddy chat* sessions. This is where you can engage in text-based chat with one or more other people in "real time." It's like having your own AOL chatroom with only your friends and family. This differs from simply sending instant messages because you can involve multiple participants,

not just one other person. Buddy chat won't work between services. That means you can buddy chat with others who are running Internet Messenger, but you won't be able to buddy chat with someone who is using AOL. You can, fortunately, send your AOL friends instant messages using the software.

Cable TV Service

What about connecting to the Internet through my cable TV service?

Many cable companies are now offering Internet access. The cable company provides a cable modem that connects to a network card in your computer. This kind of access is extremely fast, is always available, and does not occupy your phone line. If you want to know more about this technology, call your local cable company. The cost for this service is about $40 per month.

Getting Connected At Home

How do I get connected to the Internet at my home?

If you don't have a computer at home, you can go to your public library, which is most likely connected to the Internet, but sooner or later you will probably want to consider having a computer connected to the Internet at home. What are the benefits of having the Internet at home? The most obvious benefit is that you control the use of the computer (unless you have children!). This means that you can do what you want, when you want. You can exchange e-mail with family and friends; have an endless supply of information, software, and programs available at any hour; try out new things; etc.

Choosing the Right Computer

What kind of computer do I need?

Computer technology changes so fast that any answer will be obsolete by the time you read it. Since the Web has made the Internet a multi-media experience, your computer should be able to handle the different types of information formats that you may encounter while surfing

the Web. After you buy your computer, you want to feel secure in knowing that it is adequate in getting you around the Internet without the need for a major overhaul or upgrade six months from now.

One of the first decisions you will need to make is whether you want to use a Windows-based computer (often referred to as a "PC" or a "Pentium") or a Macintosh computer (referred to as "Mac", "PowerMac", or "iMac"). Both types of computers work well with the Internet. What do your colleagues and friends recommend? What is your school using? Once you have the answers to these two questions, you'll probably be able to make a decision.

No matter which type of computer you choose, it should have a computer chip, called the *central processing unit (CPU)*, with an operating speed of no less than 133 megahertz (MHz). The CPU is the heart of the computer and the operating speed refers to the frequency at which this chip runs. Generally, the higher the frequency, the faster the computer operates.

Your computer should have at least 32 MB (megabytes) of *RAM* (Random Access Memory). RAM is temporary storage space for programs and information that are currently in use by your computer. If you have too little RAM, your computer will seem slow. With more RAM, you can also run more programs at one time. Most computers sold today come with at least 32 MB of RAM.

As a general rule, the higher the operating frequency and the higher the amount of RAM, the faster (and more expensive) the computer.

How much will it cost?

Computer prices are dropping all the time. Computers that do an adequate job handling basic Internet-related tasks cost less than $1000. If your computing needs call for faster processing speeds, more storage space, and more memory, you may end up paying between $1500 and $2000. Add about $500 to $1000 if you want to have it all in the form of a laptop or notebook computer, which gives you greater mobility than does its desktop counterpart.

What kind of modem do I need?

If you plan to connect to the Internet using a modem (which is how most people are doing it at this time), your modem should run at a minimum of 28.8 kilobits per second (kbps). This number indicates the speed at which your computer can communicate with the Internet. New computers commonly come with a modem that runs at 56 kbps.

If your computer lacks a modem, you can purchase either an internal or external modem. Generally external modems are slightly more expensive because they come with a case and power supply. A 56 kbps modem can be purchased for between $50 and $150 depending on its brand and features.

Connecting to the Internet Step-by-Step

How do I set up my computer so I can connect to the Internet?

Making that first connection to the Internet can be a challenge. Here are the basic steps to set up your first connection to your Internet Service Provider. I have included the steps for Windows 95 or 98, Windows 3.1 or 3.11, and Macintosh computers. No matter what your computer system, you will first need to get your account information from your ISP. This information includes:

- User name and password
- Access (dial-up) telephone number(s)
- DNS server IP address

Getting Connected with Windows 95 or 98

Step 1: Adding the TCP/IP Settings

From the **Start** button at the bottom left of the Desktop, choose **Settings**, and **Control Panel,** then open the **Network** icon. Once there, the TCP/IP protocol must be added (click **Protocol**, then **TCP/IP**, then **Add**). Then click on the **Properties** tab, and enter the DNS information that you got from your ISP. The process should result in a screen that looks something like the following.

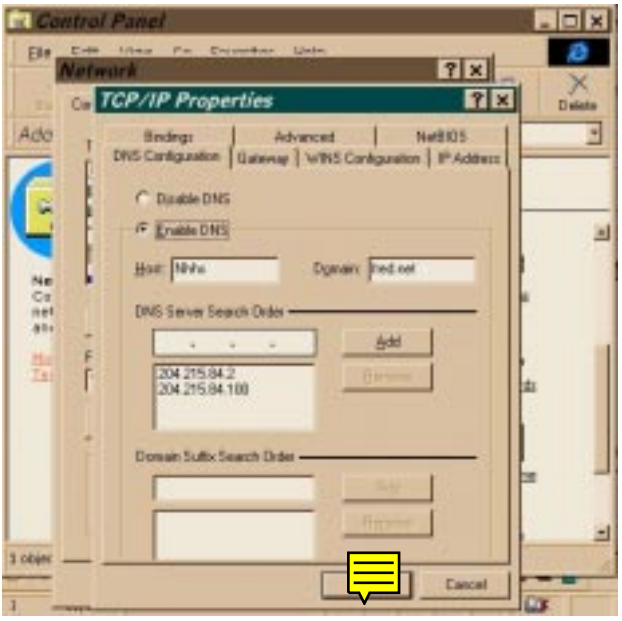


Figure 2. Windows 95 network settings

Once completed, click **OK** until all the boxes disappear (a process called "OKing out"). Windows will ask you if you want to restart your computer. Choose **Yes**.

Step 2: Setting up Dial-Up Networking (DUN)

Now Dial-Up Networking must be set up. After that's done, a connection to the ISP can be made. Double click the **My Computer** icon, double click the **Dial-Up Networking** folder, and double click on **Make New Connection**. The set-up wizard will guide you as you enter the phone number of the ISP and other account information such as user name and password. When you are ready to connect, double click the new icon that was created, and the following window will appear:

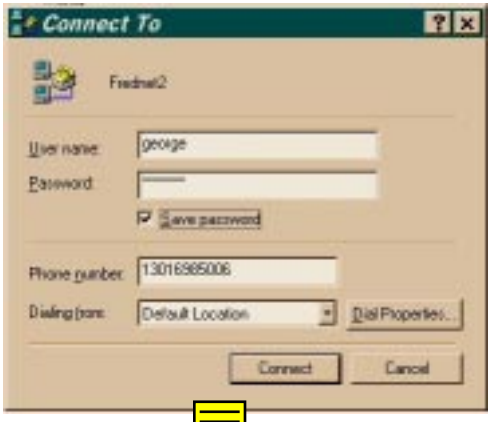


Figure 3. Dial-Up Networking

Click **Connect**, and you're done.

Getting Connected with Windows 3.1 or Windows 3.11

Users of Windows 3.1 or 3.11 (Windows for Workgroups) don't have software built into their operating system that generates a link to the Internet. You will need to add special software to generate the required TCP/IP connection.

Step 1: Download and Install Trumpet Winsock

If you use Windows 3.1*x*, you'll need a program called Trumpet Winsock to dial your Internet Service Provider and create the TCP/IP link. If you don't already have Trumpet Winsock, you have to get it. Unless the Internet Service Provider makes the program available to you, this step is easier said than done.

Trumpet Winsock is available on the Internet. One place to find Trumpet Winsock is through http://www.shareware.com — search for "Trumpet". The problem is that you need to be connected to the Internet to download this program, but this is the program you need to connect to the Internet! So, you must find and use a computer that's already connected to the Internet to download Trumpet Winsock. Now you must transfer Trumpet Winsock from this other computer to your computer and install it.

Step 2: IP Information

When you finally have Trumpet Winsock installed and operating on your computer, enter the information provided by the ISP into the appropriate fields.

Step 3: Activation

When you activate Trumpet Winsock you are telling the modem to call your ISP via the telephone line. Your ISP may even supply a script (a series of commands) that automates the log on process. Dialing and log on can also be done manually.

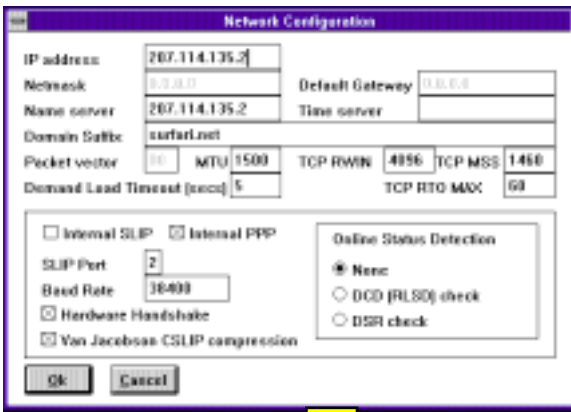


Figure 4. Trumpet Winsock's setup screen courtesy of http://www.surfari.net/trumpscr.html

Getting Connected with Macintosh using OpenTransport

When selecting an Internet Service Provider, be sure they have customer service representatives who understand Macintosh computers. Your ISP may provide an installation program that will help configure your computer and their customer service representatives should be able to assist if necessary.

All Macs that have a CPU with an operating speed of at least 133 Mhz are capable of using OpenTransport to provide access to the Internet. Older Macs may require different software (MacTCP) for TCP/IP connections. MacTCP setup is similar to OpenTransport setup, but is not specifically covered in this *Guide*.

Step 1: Install OpenTransport TCP/IP and PPP/Remote Access.

The two components of OpenTransport used for dial-up networking are the TCP/IP control panel and either the PPP or the Remote Access control panel. Look under the **Apple Menu** in **Control Panels**. If these control panels are already present, you do not need to install them. If they aren't already present, OpenTransport is available on the MacOS installation CD-ROM that came with your computer (or a subsequent system software upgrade).

Step 2: Configuring TCP/IP

Open the TCP/IP Control Panel.

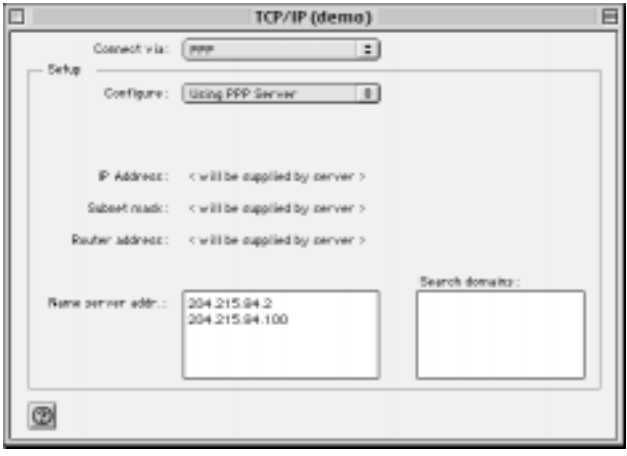


Figure 5. Mac TCP/IP Control Panel

For **Connect via:** choose **PPP.** Enter the DNS (Name server) address(es) supplied by your ISP.

Step 3: Configuring PPP/Remote Access

System 8.5 rolled the PPP configuration into the "Remote Access" Control Panel. Systems prior to 8.5 had a separate PPP Control Panel. Settings in both are similar.

Open the Remote Access (or PPP) control panel.

Figure 6. Mac Remote Access (PPP) Control Panel

Enter the user name, password and access phone number supplied by your ISP. Click on the **Options...** button.

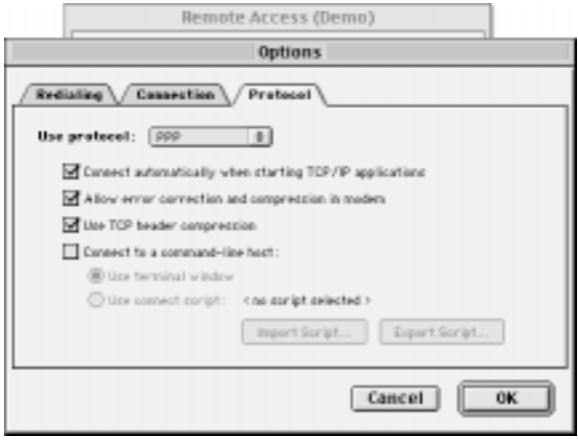


Figure 7. Mac Remote Access (PPP) Options

Set the options as required by your ISP or as you prefer. (I suggest those shown.) Press **OK**. You're now ready to connect using the **Connect** button in the Remote Access (or PPP) Control Panel. The settings suggested above will automatically initiate the connection when required by an Internet client.

Getting Connected At School

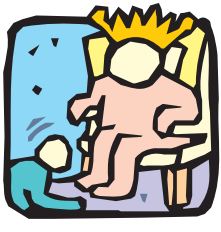
How do I get connected to the Internet in my classroom?

Internet access from the classroom is something that many of us want, but to get it, we need to ask the right people. Your school district is most likely working to get its classrooms connected, if they are not already connected. The first place to start is with your principal. The principal knows what is happening on the building level, where teachers are trying to use Internet technology in their lessons. He or she also knows the situation at the district level, where funding and connections are being arranged to bring the Internet to the building and classroom levels. So, ask your principal what it would take to arrange for an Internet connection in your classroom.

It may not be easy. Funding could be tight, and if the wires and computers are not already in place, it sometimes takes a long time (and a miracle) to get the players together so that a computer with Internet access is made available for teacher and student use.

If your school does not have a building-wide network, you may want to suggest to your principal to have a regular telephone line installed in your classroom until a network is installed. Then you could access the Internet using a standard modem.

If your school has a networked computer lab, you may need to begin your journey there to become familiar with the Internet's resources. In many districts, administrators hope to place computers in individual classrooms before they spend technology money on the hardware for a computer lab. The idea is that individual computers on teachers' desks will provide the training they need to make a lab of networked computers useful.



Once you get a computer in your room that can handle Internet access, you'll need to become friendly with your district's or building's network administrator. This is the person who will install software, network interface cards, and manage the server that will make your on-line experience possible. Having this

person as a resource will help minimize your setup/connection time and maximize your time on-line.

Internet Services

What information and communication services are on the Internet?

In some ways, using the Internet is similar to traveling the globe. You can visit faraway places and establish ties with strangers or with family near and far. The Internet can help you gain insights and perspectives that would not otherwise be available if you stayed in your hometown. When you travel, you must decide what vehicle would be most effective in reaching your destination. On the Internet, there are a number of "vehicles" at your disposal. The methods discussed in this *Guide* are:

- The World Wide Web
- E-mail
- Mailing Lists (e-mail discussion lists)
- Usenet Newsgroups (public discussion groups)
- FTP

World Wide Web

What is the World Wide Web?

The Web is the fastest growing part of the Internet. The Web consists of millions of computers that contain electronic files called *Web pages*. These files contain code that a program called a *Web browser* can interpret. The code is called *HTML (Hypertext Mark-up Language)*. HTML tells a Web browser how to display a page. Many types of media can be displayed as part of a Web page. Text, pictures, audio, and video are all possible on the World Wide Web.

The World Wide Web has a mouse-based point-and-click interface that makes it much easier to access information compared with earlier systems on the Internet. Just about anyone (who has just enough hand-eye coordination to operate a mouse) can locate information, catch up on the news, play games, and communicate with others.

Once connected to the Internet, how do I access the Web?

You access the World Wide Web through software called a Web browser. There are two browsers that have together captured about 95% of the market share: Netscape Navigator and Microsoft Internet Explorer. Both browsers operate in either a Windows or a Mac environment. With a browser, you can view Web pages and transmit information by way of electronic forms.

Selecting a browser is generally a matter of personal preference.

Can you show me an excellent Web site for teachers?

There are hundreds of Web sites developed by teachers for teachers. Many of them have been designed to make it easier to use information technology within the curriculum that you teach. One such site belongs to Classroom Connect http://www.classroom.net.

At Classroom Connect, you'll find on-line resources that you can insert into your lesson plans. You can also register to keep in contact with other on-line educators. Classroom Connect hosts conferences in various locations that are excellent opportunities for teachers to gain and practice new on-line skills.

I have been gathering Web resources and placing my own lessons on-line since 1994. As the Webmaster for my school, I have always tried to make our Web site a resource for teachers and students alike. Please stop by and take a look at http://www.fred.net/nhhs/html/cassutto.html. Social Studies teachers will surely benefit from the material found at this site as will those interested in computer applications. Even if the subject areas don't match your own, it might still be of value to take note of how I have integrated the Internet into my teaching style.

Gem From George:
Off-line Web viewing

A Web site can be stored on your computer so that you can view it after you've disconnected from the Web. The exact procedure varies from browser to browser, so check the on-line instructions. Downloading files for later viewing means that you can disconnect from the Internet, which, assuming you only have one telephone line into your house, means that people can now call you on the telephone. Also, if you want to use the site in classroom presentations, downloaded files offer less chance for surprises than being on-line while doing your presentation.

E-mail

What is e-mail?

E-mail is one of the most used Internet services. Using an e-mail program such as Netscape's Messenger or Microsoft's Outlook Express, you can send electronic messages to a someone across town or on the other side of the globe. The messages can travel across the country (or even around the world) in seconds, but since you connect through your local Internet Service Provider, the cost is only that of a local phone call. E-mail is easy to use and can carry programs and graphics to the recipient as well.

Once connected to the Internet, what do I need to do to use e-mail?

You'll need information about your Internet account (provided by your ISP) and an e-mail program. The first step is to configure your e-mail program (also called an e-mail client) to "talk" to your ISP's mail server. After you dial your ISP and connect, just open your e-mail program and click on the button or menu item that says something like **check mail**.

You don't need to connect to the ISP to compose an e-mail message, only to send or receive one. While it is

best to write e-mail within an e-mail program, you can write messages in any word processing program and copy and paste the text into an e-mail program. Many e-mail programs let you compose e-mail first, then connect. This reduces the amount of time spent on-line, which is especially helpful if you have only one phone line.

What is an address book?

Every worthwhile e-mail program has a place where you can store the e-mail addresses of people you e-mail frequently. Such a place is called an *address book*, just like the one you might carry in your purse or breast pocket. Most e-mail programs provide an easy way for you to add the addresses of your favorite correspondents while viewing their messages, for example, by choosing "Add to Address Book." While composing a message you can use your address book to enter information into the To:, Cc: (carbon copy), or Bcc: (blind carbon copy) fields. You can enter multiple recipients into the To: field, and you can also "cc" (carbon copy) others. Many programs have a Bcc (blind carbon copy) field. Any "To:" or "Cc:" recipient receives the message without knowing that those listed in the Bcc: field have received it as well.

What is an attachment?

One useful aspect of e-mail is its ability to carry *file attachments*. Attachments are files that can be carried by e-mail messages. You "attach" the file to the message, and when received, the attachment can be "detached," or saved back into a separate file. Any type of file can be attached, including:

- Software programs
- Web pages
- Graphics files
- Text files
- Spreadsheet files
- Sound files

Since some of these types of files can be quite large, attachments should be used with caution. You must consider the recipient's technical setup before sending a file larger than say, 1 MB. At 28.8 kbps a 1 MB file can take over 15 minutes to be received. Also some ISPs restrict the size of e-mail files. Ask the recipient before attaching a large file to an e-mail message.

Caution: File attachments can consist of any type of computer file. Each type of file requires a program that can read it. It's always a good idea to ask your recipient what type of file he or she can handle. For example, a Word 97 file will come up as unintelligible characters when opened with WordPerfect 5.1.

Gem From George:
File formats

You might encounter a variety of file types while using the Web. To use a file, you need to know what software is required to handle its type.

Hypertext

Most (but not all) Web pages contain HTML code and usually end with a .htm or .html extension. (The difference stems from the limitations on file name in the operating system used to create the file. .htm files conform to the Windows 3.x/DOS file name limitations, whereas later versions of Windows, Mac, and Unix can handle long file name extensions like ".html".) Like .htm(l) files, .asp files also contain HTML but were produced as Microsoft's Active Server Pages. In addition to HTML files, browsers can display basic text files, which usually have a .txt ending.

Graphics

Within Web pages, you'll find two common file formats for graphics. The GIF format (files ending with .gif) is used to display simple images like line drawings or "cartoons" with 256 colors or less. The JPEG format (files ending with .jpeg or .jpg) is good for displaying "continuous tone" images like photographs with up to millions of colors. Most Web browsers (like Netscape Navigator and Internet Explorer) can display both GIF and JPEG formats.

Sounds

Sound can be digitized and stored in computer files for later playback. The most common file ending for digitized sound is .wav. Other sound file endings include .mp3, .aiff, and .au. One other type of sound format is called RealAudio. It has .rm or .ram file ending, but it is quite different from other sound file types. It is called streaming audio and it gives the effect of listening to "live" conversations. Sound files require special software to play the recorded sound. To play sounds, browsers call on

that software to play the sound. You may need to download the special software and perhaps a browser plug-in to hear certain sound files.

Video

Video can also be digitized for later playback. It is commonly stored in the AVI format (files ending with .avi), MPEG format (files ending with .mpg or .mpeg), or QuickTime format (files ending with .mov). There is also a RealVideo format (files ending with .rm or .ram) that is a streaming format like RealAudio. It gives the effect of viewing something "live." To view video files, browsers call on special player software. Windows already has the necessary software to play AVI movies; Macs have built-in QuickTime capability, which often handles AVI and MPEG as well. To view QuickTime videos in Windows, you can get QuickTime at http://www.apple.com/quicktime/ for free. Both the MPEG and QuickTime formats require plug-ins to view the files within a browser.

Compressed Files

Large files or batches of files can be "compressed." Compressing one or more files reduces the amount of time needed to download. The Windows "standard" compression type is .zip. A popular program for uncompressing .zip files is Pkunzip. WinZip (http://www.winzip.com) is another program that can handle .zip files and may be easier to use. On Macintosh computers, .sit files are the "standard" compression type. Stuffit Expander (http://www.aladdinsys.com/) can uncompress both .zip and .sit files. (Note: .zip files are not related to Zip disks and drives, which have nothing to do with compression.)

Can you give me a specific example of how teachers are using e-mail in their work?

Teachers are communicators. They share knowledge, and they seek knowledge. E-mail is one way that teachers can share and seek knowledge with each other.

Through e-mail, teachers from different countries are sharing experiences in the classroom. They are finding out how colleagues are dealing with discipline problems. Teachers are finding out what works and what doesn't in their curricular areas. E-mail is allowing teachers from all over the globe to discuss their profession with each other.

I also use e-mail to help my students. If they ask a question that needs a better answer than the one I can give, I use e-mail to contact an expert in the field. If they need a resource on the Web for a Web project or paper, I may send a message to the Webmaster of the site to ask permission to use the resource found on that site. I also have students engage in e-mail exchanges so that others can critique their Web-based projects and so that they can learn from students in other cultures. E-mail can be a wonderful tool not only for yourself, but for your students.

Can you show me how to find someone else's e-mail address?

There are a number of Web sites that specialize in people searches. One problem with e-mail address searches is that the person you are looking for may have to submit their name to the e-mail directory in order for you to find them. If they have not done so, it may be harder to find them.

http://www.whowhere.com and http://www.four11.com are two sites that specialize in finding e-mail addresses, but there are others. You may need to investigate a number of names and addresses before finding your mystery person. Also, the more information you can provide when doing your search, the greater the chances are that you'll be able to find your desired individual.

Mailing Lists (e-mail discussion list)

What is a Mailing List (or e-mail discussion list)?

A Mailing List distributes e-mail that is sent to it to everyone who is on the list. To join an e-mail discussion list, you must know the address of the computer that maintains the list of members. You can find a list of hundreds of discussion list topics as well as the address that you can use to subscribe to any particular list at http://tile.net/lists.

When you belong to an e-mail discussion list, you can reach all of its readers with one message. E-mail discussion lists are a fantastic resource for information on any aspect of teaching. Through electronic discussion lists, teachers are exchanging lesson plans, helping students with homework, discussing term papers, and getting questions answered. Of course, you must exercise caution when participating in the discussion by following the rules of "netiquette" (Net etiquette), which are often learned the hard way.

Gem From George:
Examples of netiquette

On the Internet, especially in the areas of mailing lists, Usenet newsgroups, and text-based chat, there are certain rules all users should follow. A new user (called a "newbie") should try to learn the rules before actively participating. Failing to adhere to these often unwritten "rules of the road" can make you unpopular at best and the object of severe ridicule at worst. Here are just a few of the most important examples of netiquette:

- Do not send unsolicited, especially "commercial," e-mail messages or post them to newsgroups or mailing lists. This practice is called "spamming," and it is strongly discouraged.
- DO NOT WRITE IN ALL CAPS. THIS IS SEEN AS SHOUTING AND CAN GET YOU LOTS OF DISPARAGING E-MAIL.
- Get in the habit of using your e-mail program's spell checker utility. Also, be sure to use proper punctuation and grammar.
- Stay away from chain letters or forwarding large files. Some e-mail accounts have limits on the size of messages. Large files can wreak havoc with these limited accounts, as well as take a lot of time when the recipient receives the file.

How do I use a Mailing List?

The best way to start is to subscribe and then *lurk*, which means you observe the ongoing discussion without participating. This way you can learn what is appropriate behavior for a list before joining in. Lurking helps you understand the rules of the group to prevent you from putting your virtual foot in your mouth.

To subscribe to a mailing list you must first find the address of the computer that accepts the commands to place someone on the list or remove someone from the list. For example, the address to subscribe to Classroom Connect is crc-request@listserv.classroom.com.

If you send a message that says "subscribe" to the above address, the computer will place you on Classroom Connect's mailing list. If you want to send a message to a mailing list, you would send a message to a different address. In this example, to send a message to the entire Classroom Connect mailing address you would send the message to crc@listserv.classroom.com.

Gem From George:
Take care when responding

When you receive a message from a mailing list, care should be taken when responding to that message. Simply hitting "reply" may send a message back to the computer that delivered the message. Which means that rather than sending your response to the person who posted the message to the list, the message would go to **everyone on the list**! Instead of a private retort or comment, you will have shared your thoughts with the entire list membership. To avoid this situation, you need to change the To: address before sending. If you fail to do that, what may be intended to be a private message may go out to thousands of readers.

Can you give me specific examples of how teachers can benefit from subscribing to a mailing list?

E-mail discussion lists are excellent resources for educators who wish to communicate with others who teach similar subject areas or who have experienced similar situations. Nevertheless, these discussions can also become very heated and emotional. If the content of the messages turns personal, the list manager or owner may call a halt to the discussion. From there, violators can be expelled from the list itself. On the Net, directing unprofessional and irate messages at unsuspecting e-mail participants is called *flaming*. Avoid becoming the recipient of such flames by always following correct netiquette.

I belong to between ten and fifteen educational discussion lists (and a few recreational ones as well). I belong to a discussion list for teachers in the Maryland schools (send a message that says "subscribe MDK-12 *your name*" to listserve@umdd.umd.edu if you'd like to join). There, we discuss issues related to teaching in Maryland, as well as computer-related and curricular topics. I often share my current on-line projects with the various members. I belong to a discussion list for Social Studies teachers (visit http://www.h-net.msu.edu/ to learn about the discussion lists for teachers of the Humanities), where we discuss events taking place in Social Studies education. I discuss Holocaust Education with an excellent group of educators on the Holocaust Education list through the US Holocaust Memorial Museum (send a message with the "subscribe" command to listserv@ushmm.org to add your name to this list). The H-Net High School Social Studies List is a great forum for discussing current issues in politics as well as pedagogy. As a Discovery Teacher for the Discovery Channel (http://discoveryschool.com), the discussion on their list allows me to publicize our on-line discussion boards as well as exchange successful lessons using their video resources.

Gem From George:
Managing e-mail from mailing lists

It is very easy to become overwhelmed with e-mail after joining mailing lists. If just a couple of lists generate twenty-five messages per day, you can quickly get swamped. Keep the following suggestions in mind when deciding to join an e-mail discussion list:

- Choose your lists carefully. Don't sign up for too many too quickly.
- Don't feel as though you need to read or respond to every message. It's OK to delete messages that don't interest you. I look over the subject headings to see what is worth my time.
- Some lists can deliver all of the day's messages in one big message called a "digest." Receiving your list e-mail might be easier to manage in this form. When you join a list, the list's computer will send you basic instructions (such as how to get off the list, stop the flow of mail temporarily, and other facts you want to know). It's a good idea to save that message or print it out and place it on file. Look for instructions on how you can get your e-mail in the digest format if it is available.
- Your e-mail program might be able to filter your mail. If so, you can set up your e-mail program to sort your messages into different folders based on the sender or the subject line. Just remember to look in those folders for new messages before they pile up!

Can you show me how to subscribe to an excellent mailing list for teachers?

I've already mentioned the Classroom Connect mailing list. You can get on that list by visiting http://www.classroom.com/contactus/. More detailed information can be found at ftp://ftp.classroom.com/Classroom-Connect/crcposts/crc-faq.txt.

To join a discussion list, you must send a command to the list computer. For the Classroom Connect list, send a message to crc-request@listserv.classroom.com that says "Subscribe crc" in the first line of the body of the message. The subject line can be left blank. If your e-mail program won't let you leave the subject line blank, place

some gibberish there so that it won't be misinterpreted by the computer as a command.

Once you have received confirmation from the Classroom Connect list that you have been successfully added, you can join the discussion. The way to do that is to send an e-mail message to crc@listserv.classroom.com. This address is the one to use to send messages and share your thoughts with all of the list members.

Gem From George:
Keeping mailing list addresses straight

As you can see, becoming a member of an e-mail discussion list means you have to keep straight a number of e-mail addresses. For each list, one address (the administrative address) gets you on the list. If you see a word like "listserv," "request" or "admin" in the username part of an e-mail address, you are probably communicating with the software that gets members on the list and that processes list commands. You won't use this address frequently; it is only for subscribing, unsubscribing, and changing things like your digest mode.

Then there's another address (the posting address) that lets you communicate with other list members. If you see the name of the discussion list in the address, you are probably about to send a message to the list membership. This is the address you'll use most frequently.

Be sure to send your messages to the appropriate address. Subscribe or unsubscribe messages won't work (and tend to annoy list members) if sent to the posting address. Conversely, if you send a message that does not contain list commands to the administrative address, it will, at best, only generate an error message and not get sent to the list members.

Usenet Newsgroups

What are Usenet newsgroups?

Usenet newsgroups are public discussions. You access these discussions with a program called a newsreader rather than having the discussion come to you by way of e-mail. Netscape and Microsoft both supply newsreaders.

Netscape's is called Collabra and Microsoft's e-mail program, Outlook Express, doubles as a newsreader.

As with e-mail discussion lists, you "subscribe" to particular newsgroups. This does not mean messages will land on your virtual doorstep as they do with e-mail discussions. Instead, subscribing tells your newsreader which groups you want to have quick access to when you start the newsreader program.

The Usenet network began as a way for scientific and academic data to be exchanged and examined by those with an interest in specific topics. Once a message is posted to Usenet, it is in cyberspace (meaning it resides on Internet-linked computers accessible to all). Anyone with a newsreader and access to a Usenet news server can read the message. The message remains on the server for a limited period of time, depending on how active the newsgroup is. Readers can respond to the entire newsgroup in a public fashion, or the reader can respond to the author of the message by private e-mail, or both simultaneously.

The Usenet network has grown to an enormous number of topics. The number of newsgroups is over 15,000. Many of the topics deal with serious scientific, academic, or scholarly pursuits. Other topics relate to technical areas such as computers and programming, while others deal with a myriad of hobbies. Usenet newsgroup addresses reflect the topic of the newsgroup and are part of a hierarchy of topics. These addresses are organized by placing the widest category first, then narrowing the topic from left to right.

Some of the major headings of the Usenet hierarchy include (* means that there are a number of subjects within that hierarchy):

news.* Newsgroups about Usenet news itself. First time users of Usenet news should read the "Welcome to Usenet!" message in the news.announce.newusers group. Other information about Usenet news can be found in news.answers and news.newusers.questions. Together these are a sort of "user manual" for Usenet news.

alt.* The "alternative" newsgroups. This category includes thousands of topics, is something of a catchall of newsgroup areas, and is relatively "uncontrolled." Many newsgroups inappropriate for use in the classroom are found within this category.

comp.* The computing groups. From programming languages, Web design, and hardware to software and reporting bugs in hundreds of programs.

k12.* Newsgroups dealing with teaching in elementary and secondary education. On the k12 newsgroups, teachers often exchange project announcements, classroom experiences, and lesson plans. One common activity on the k12 newsgroups is the posting of Web addresses that can enhance teaching and learning.

microsoft.* Discussion of anything having to do with the software giant. If a user encounters software troubles while using a Microsoft product, the participants of these newsgroups may be able to help.

misc.* Miscellaneous. If it isn't in the other categories it may be here! This hierarchy is more structured (and controlled) than the alt.* groups. Misc.education.* has groups of interest to educators.

rec.* Recreation is the theme for this category of topics from aircraft soaring to woodworking.

sci.* Science ties these groups together. Astronomy (sci.astro.*), biology (sci.bio.*), and medical topics (sci.med.*) can all be found here.

school.* This heading is very similar to the k12.* area, although it is less active. Participants share classroom procedures, discuss best practices, and announce Internet and other collaborative projects.

soc.* Social topics and sociology are the common elements of these discussion groups. Almost every nation has a newsgroup called soc.culture.* where * is the name of the nation or culture. Adoption, college, genealogy, and

history are just a few of the topics found within this category.

Once connected to the Internet, how do I find a newsgroup?

Your ISP runs software called a *news server* that temporarily stores all the messages on the Usenet network. You need to set up your newsreader to read Usenet newsgroups. Your ISP must inform you of the address of the news server so you can enter it in the newsreader's server address field. The address probably looks something like news.isp.net.

Next, you select specific newsgroups to which you would like to subscribe. Methods for subscribing to newsgroups vary from one newsreader to another. Both Netscape and Microsoft supply newsreading capability in their Internet access packages. Netscape uses the Collabra component. Microsoft's Outlook Express can read Usenet news in addition to e-mail. Check the on-line help in your preferred software for details on subscribing to newsgroups.

Can you tell me how newsgroups can be helpful to teachers?

Usenet newsgroups may not be well-suited for use in the classroom. Their value is more for professional development through information exchange, rather than being a source for classroom presentations.

Promoting Usenet news for student research needs to be carefully considered and monitored. Like many other parts of the Internet, the messages exchanged on Usenet primarily contain the private opinions of the participants rather than a formal publishing of information. Any data obtained from a newsgroup should be carefully confirmed before relying on it as accurate. Also like the rest of the Internet, there are many newsgroups that are inappropriate for any student access.

One reason for teachers to use newsgroups is to get information from colleagues. If you have a certain expertise, you may derive satisfaction from providing information to those who are seeking the information. Here is a response I composed to a teacher asking for examples of lessons that use the Internet:

```
Subject: Re: Integrating the Internet into
Lesson Plans
Date: Thu, 24 Dec 1998 16:06:13 -0500
From: George Cassutto <nhhs@fred.net>
Organization: North Hagerstown High School
To: Patricia S. <e-mail address>
Newsgroups: k12.ed.soc-studies, k12.ed.science,
k12.ed.comp.literacy
References: 1

Patti,

I saw your call for information on lesson plan
integration. I invite you to take a look at my
Lesson Plan of the Day Web page, now in its
second year. My school's Web site is five years
old, and it contains hundreds of examples of
technology integration, mostly in the area of
Social Studies. The address for Lesson Plan of
the Day:

http://www.fred.net/nhhs/lessons/lpotd.htm

You may want to start at my home page, entitled
"The World of Social Studies" at

http://www.fred.net/nhhs/html/cassutto.html

I think you'll find a good supply of resources
at my Web site. The school's main page is
located at http://www.fred.net/nhhs/ and it is
readily accessible from any of the pages I have
already listed. More addresses follow below. I
look forward to your comments or questions.

Take care,

George Cassutto
Teacher of Social Studies/Computer Applications
North Hagerstown High School (MD, USA)
nhhs@fred.net
georgec@umd5.umd.edu
```

Can you show me how to find a newsgroup for teachers, right now?

When you set up your newsreader, you'll be able to see all the newsgroups available, and then select the ones you want to subscribe to from that master list. Two of the major hierarchies that may be of particular interest to teachers are k12.* and school.* (Remember that * means that there are a number of groups within that hierarchy.) Here is what your newsreader might look like when you are about to subscribe to a newsgroup:

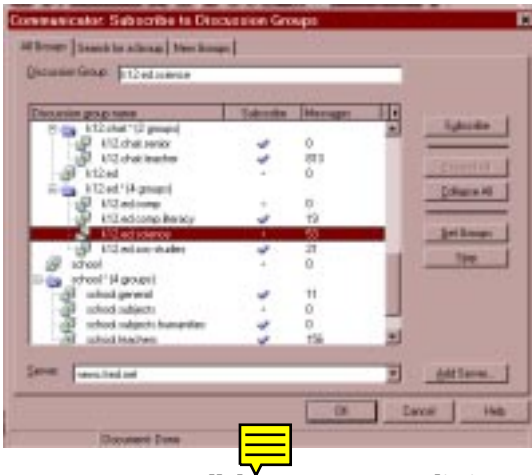


Figure 8. Netscape Collabra's newsgroup listing

You only have to download the entire list of newsgroups once. It takes a few minutes. After that, the list loads pretty quickly because it only has to download the new newsgroups that have been created since you last used your newsreader.

FTP

What is FTP?

FTP (File Transfer Protocol), as its name implies, is a way to transfer files over the Internet. When you connect to a computer that allows you to transfer files (called an FTP server), you can *download* information, graphics, or programs to your own computer. FTP also allows you to put, or *upload*, files to an FTP server on the Internet.

All sorts of files are available for download via FTP. It is often used to get new software to enhance your computer or give it new capabilities.

Once connected to the Internet, how do I use FTP?

Netscape Navigator and Internet Explorer can connect to FTP sites and download programs in the same way that you connect to a Web site. The URL in the location/address field is ftp://… instead of http://…. When you select the program you want to download, a "Save As" dialog box may appear. Just tell the browser which folder on your hard drive you want to download the file

to. It is important to remember where you stored the download because you will need to find the file to install the program (or view the text or graphics file if that's what you were downloading).

Your Web browser is able to get (download) files from the Internet. However, you may need to upload a file to a server. A separate FTP program may be needed to connect to an FTP server and upload a file. Many such programs are available for download through your web browser. One popular FTP program for Windows computers is WS-FTP. It can be downloaded for evaluation or purchase from http://www.ipswitch.com.

Can you show me how to FTP software from the Internet?

What kinds of files might you want to get from FTP sites on the Internet?

There are programs collectively known as *Shareware* where the author of the program is sharing with those who are willing to download the programs, install them, and try them out. Be aware, however, that Shareware programs are not free – you must pay for them before a certain grace period expires. For example, the programs may be crippled in some way such that some critical element is not available, or the Shareware may disable itself after the trial period. If you decide to buy the program (called "registering" it), the software distributor may send you an electronic key or in some other way re-enable the program to its full or greater functionality.

There are also thousands of software programs available on the Internet that are free for the taking. These files are commonly known as *freeware* and can used without payment.

Many teachers have asked me how to download the latest version of Netscape, so I'll present it here as an FTP example. You can connect to Netscape's FTP server as a "anonymous". You use your e-mail address as your password. Connecting this way is called "anonymous FTP" because you don't need to be an authorized user to connect to the server. All you need is the word **anonymous** and your **e-mail address**. In this case, you connect to ftp.netscape.com. Once connected, you need to know which directories to navigate through. To get to the version 4.5 of Netscape's Communicator package for Windows, here's the path to follow:

ftp://ftp.netscape.com
/pub
/communicator
/4.5
/english
/windows
/windows95_or_nt
/professional_edition/

At this point, you need to select the file **cp32e45.exe**. The file is named as follows: **c** means Communicator; **p** means professional version; **32** means 32 bit which is for Windows 95, Windows 98, and Windows NT operating systems; **e** means executable; **45** means version 4.5. Clicking on this file will start the download.

Once the file makes it safely to your hard drive, the software has to be installed to make it run. Usually, double-clicking the file will begin the installation process.

Remember, this process can usually be accomplished with your Web browser, so you may not need a separate FTP client program. On the other hand, if you want to publish your own Web pages, then a separate FTP client will come in very handy because it allows you to upload your files to your Web storage space.

There are tons of great Shareware and freeware programs for downloading. These programs cover everything from add-ons to your operating system and screen savers, to test generators and electronic grade books. If you want to practice your FTP skills, or if you want to find some programs that will make your job as a teacher a little easier, visit the following Web sites and start filling up that hard drive!

http://www.download.com/ Just click on the education link and do a search for the type of file you want. Electronic grade books are available here.

http://www.jumbo.com/ Visit the Homework Central link and find numerous resources that can be used in your classroom.

http://dir.yahoo.com/Computers_and_Internet/Software/ Yahoo is a great starting point for all sorts of software and sites to browse or search when seeking that elusive software resource. There is even a link for freeware programs.

Using the Internet for Research

How can the Internet be used to conduct research?

Both teachers and students can benefit from using the Internet as a research tool. However, the Internet is so vast that it takes some practice to find the information you are looking for. Sometimes, the information you are seeking may not even be on the Internet. It's possible that no one has placed that specific idea on an Internet server. Sometimes it is easier to find what you need in a textbook, encyclopedia, or other print resource. Consider using the Internet when:

- there is a reasonable chance that what you seek is on the Internet.
- looking for public information dealing with federal, state, or local governments, or when conducting research on most large corporations.
- you have a need for electronic or digitized information. While it is possible to download information from the Internet, remember to follow the rules of scholarly research. Be careful not to plagiarize or violate copyright laws.
- looking for items that need to be up-to-date. The Internet contains hundreds of sites with news items that are updated frequently, such as news media Web sites.

The Best Approach

Where do I search for information on the Internet?

The Internet abounds with information, but the part of the Internet that you are most likely to want to search is the World Wide Web. The Web allows you to jump quickly to numerous documents on literally thousands of topics. Educators are flocking to the Web to share their knowledge and skills with the world. We are posting lesson plans and lists of Web sites that can be used to make teaching more exciting and, hopefully, easier.

What are some things I should think about before heading out onto the Web for research?

The glut of information on the Web makes research challenging. You *and* your students must keep in mind that everything on the Web is not gospel. Some Web sites, either intentionally or unintentionally, may be distorting the truth or even posting outright falsehoods. It is difficult to know what is legitimate information, what is propagandistic misinformation, and what is somewhere in between. However, you should try to make that distinction before using any information obtained from the Web. But, you've always had to do that with information obtained from other sources.

Here's my own analogy: Research on the Internet is like a fishing expedition. Your net is a computer program called a *search engine*. When you conduct a search using one of these programs, it's just like throwing a net into the ocean. The ocean in this analogy is the World Wide Web. The results of that search are like nets full of wriggling fish. Some of these fish are what you want, but many are not. Once you have a catch, so to speak, you must carefully sort your information, checking for freshness as well for lesions of inaccuracy and poisonous falsehoods. And always look for its author to see if that may affect what is presented or how it is presented.

Search Engines

Which search engine is the best?

There is no one best search engine or Web site that specializes in searching for information. Some work better than others for certain types of information, and as you gain experience with information searching, you will probably develop one or more personal preferences.

There are many excellent search engines on the Web. Although different search engines use different techniques to search the Web, most work on similar principles. Some search engines use a *spider*. A spider is a piece of software that runs continuously, contacting Web pages and indexing their contents. The spider then follows all the links on the page and continues the process. Other search engines only index URLs that are submitted to them. One way they differ is in the criteria by which a page is ranked in the search results.

Each search engine uses different criteria and no one search engine finds everything that there is to be found on the Web. To find a very specific piece of information you may need to consult two or more search engines. To learn more about search engines, check out PC magazine's on-line review of 82 search engines at http://www.zdnet.com/products/stories/reviews/0,4161,367982,00.html. A number of Web sites that specialize in information searches are also listed in the back of this *Guide*.

The Web site that I use most often is *Alta Vista*. This site is maintained by the Digital Corporation at http://www.altavista.com/.

Here's one way to pick your favorite. Use a search term for which you have specific results in mind. You might want to use the name of your school or a specific topic you're already very familiar with. Enter the term into each of the search engines you're considering and evaluate the search results. The search engines that consistently retrieve the results you expect toward the top of the list may be the ones you want to use most often when conducting research on the World Wide Web.

Let's say I choose to use Alta Vista. How do I actually conduct a search on the Web?

When you arrive at the Alta Vista Web site, you simply enter your *search query*, a series of words that summarizes what you're looking for, into the search field. Then just press **Enter** or click on the **Search** button. The Alta Vista computer automatically generates a Web page that lists Web sites containing the words that were entered in the search field. These Web pages contain the *search results* that the Alta Vista computer generated. A search engine's results appear on the screen as clickable Web addresses. The addresses of Web pages that contain the search terms more often or that most closely resemble those terms appear at the top of the list. Those that contain fewer of the desired terms or contain them less frequently appear lower on the list.

Alta Vista, and many other search engines, may also include the first few words found on a particular Web page. This snippet of the page is very important because it is one of the few ways of evaluating whether the Web site is worth visiting. You can also look at the Web page title to see if the content seems to match what you're looking for. But these can be misleading. Once you find a link that

has potential, check it out by clicking on it. If the page does not meet your needs, or if you just want to continue the search, hit the **Back** button on your browser until you return to the search results page.

If Alta Vista found more than one page of results, there will be a series of blue numbers at the bottom of the results page. By selecting those numbers, you will be able to look at the next set of search results until you get through all of them.

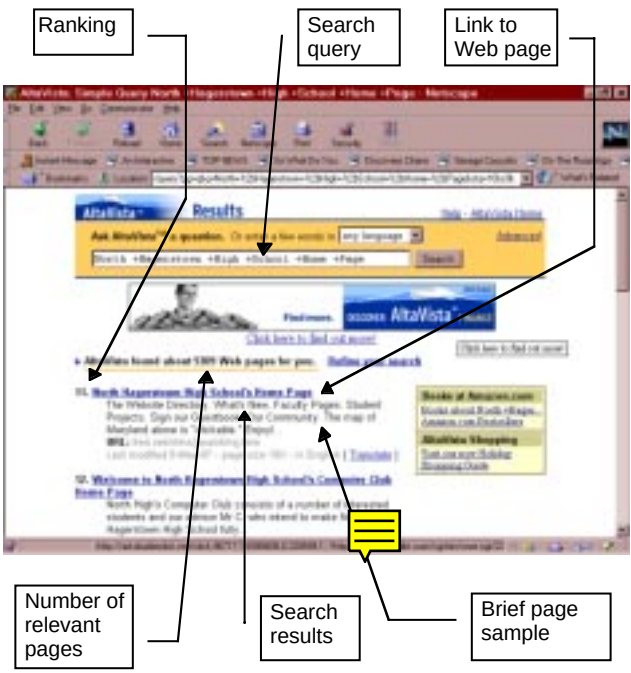


Figure 9. A sample page from Alta Vista

Gem From George:

Bookmarking a Web site or a search results page

Web pages can be bookmarked. The browser records the address and title of a page so you can return to the Web site in the future without having to retype the address. In Internet Explorer, bookmarks are called “favorites.” Other browsers might call them “hotlists.”

You will probably want to bookmark the Web site(s) that you use for searching for information, but you may also want to bookmark the search results page. This would be

useful if you didn't have time to fully explore your search results, or for some other reason might want to return to these results at a later time.

How can I refine my Web searches so that I get better results?

Search engines are software programs that search using a set of criteria. This set of criteria generally gives a broad range of relevant results, but you may want to either broaden or narrow the search criteria. You can do this by using certain words, called *operators*. The operators that I have found to be most useful are AND, OR, and NOT. Most search engines use the OR operator for searching their indexes if no other operator is entered by the user. The OR search is the broadest because it tells the computer to return sites that contain "word 1" or "word 2." The OR operator includes pages where one or both words appear on the Web page. Let's look at some examples of each type of search.

OR

This operator looks at a series of words and says: "Get all pages that have any of these words on them. If the page has all of these words, rank it first." Alta Vista uses the OR operator by default, which means that I don't have to enter it into the search field. For example, if I enter my name, "George Cassutto" into Alta Vista's search field, it will return links to pages with both my first and last name, but it will also return pages with just my last name and pages that have just my first name. The pages that have the word "George" but not "Cassutto" will appear lower on the ranking than those with both names.

AND

The key to successful searching involves choosing your search terms carefully. The more specific the terms, the more successful the search will be. You can tell a search engine to limit the search to Web sites that have all of the terms in the search field by using the AND operator. For example, if I entered the words "North and Hagerstown" into the Alta Vista search field, the search engine will return addresses of pages that contain both "North" and "Hagerstown" on the Web page. The user is telling the

search engine “find me pages that have the words North AND Hagerstown” together.

NOT

You can also exclude certain words from the search by using the NOT operator. This is useful when terms are ambiguous. This approach can reduce, but not eliminate, the chances of the undesired term appearing in the search results. However, it is not a reliable way to try to filter out inappropriate results.

Being able to limit search results is very important. Otherwise you may be overwhelmed with unwanted information.

For example, you may wish to search for information about the history of England. Entering “England and history” might find some useful information; however, you’d have to skip the many pages discussing the history of *New* England. By excluding the word “New” you’d probably retrieve a more useful set of results. So, a better search term might be “England AND history NOT new”.

AND, NOT, and OR operators can be used by most search engines, but different search engines have different ways to specify the search operators. For example, Alta Vista uses the + symbol for AND and the - symbol for NOT. In some search engines, putting quotation marks around the words tells the search engine to find pages with the exact phrase on them and to exclude pages that lack that specific phrase. (It acts as if the AND operator were placed between each word.) Look at the on-line instructions to see how a specific Web site’s search engine limits its search.

Using the Internet in the Classroom

Issues Related to Student Internet Use

What issues do I need to consider before exposing my students to the Internet?

Many of your students will probably know more about the Internet than you do! This can be a tough situation because you want to have control of what takes place in your classroom. If your students know more than you do, it may put you at a disadvantage. However, the more you practice your newly acquired Internet skills, the more knowledgeable you will become. Soon your

understanding of the Internet can rival that of your students. In fact, you'll be armed with strategies for channeling students' curiosity, and you'll feel good about your ability to integrate Internet resources into your lesson plans.

The issue that has everyone from superintendents to parents concerned about the Internet is the possibility of students encountering inappropriate material while using school computers. These concerns are justified because a lot of inappropriate material is out there. The trick is to direct students to the appropriate areas while making them understand that there are consequences for trying to access material that they should not.

How can I avoid misuse of the Internet in the classroom?

There are a number of common-sense ways to prevent problems relating to this issue. First, don't be afraid to discuss these topics with your students. Let them know that you are aware of what can be found on the Internet. Let students know that you are looking out for their safety while they are on-line in your classroom. Be sure they understand that while they are with you, they will be obliged to follow the school and district policies dealing with Internet use.

You've got to make a concerted effort to warn your students about misusing the school's Internet connection. I have explained to students that using the Internet is analogous to exploring a big city. I encourage them to visit the city's museums, sports arenas, and cultural events. Then I say: "You can also end up in the city's 'red light district,' where it may be OK for adults to go, but you might open yourself up to dangers if you venture into that part of the city. If you see a sign that says 'Adult section. No one under eighteen years of age allowed,' stay out of that area. If you make a conscious decision to go there, you will be violating my trust." The students need to know that there are consequences for making the wrong decision.

It is for these reasons that it is important for the school district, the school administration at the building level, and the teacher using the Internet to have a written *acceptable use policy (AUP)* in place that both the students and the parents read and sign. Teachers and students operating under such a policy know where they

can and cannot go when using the Internet, and they are aware of the steps that follow a disciplinary infraction.

The risk of encountering inappropriate content on the Internet cannot be eliminated completely, but it can be minimized through a number of methods:

- Clearly define expectations for students at the start of the school year (or when you first connect them to the Internet) and continue to hammer home these expectations at every opportunity.
- Inform students that any intentional misuse of school computers and Internet access will not be tolerated.
- Actively monitor what happens in your classroom or lab. While it may be impossible to simultaneously monitor all fifteen stations in a school computer lab, let students know that you are not oblivious to what is going on in the classroom. Let them know that you will conduct random checks of the computer to see who is going where on the Internet. Let them know that the computer keeps logs of what sites were visited. If students see that their activities on-line are not private or secret, hopefully, they will choose not to violate your trust. Your network administrator can show you how to conduct this monitoring.

What should I tell the parents of my students?

At the start of the school year, students and their parents should sign a permission slip that allows the student to use the Internet resources of the school. A sample of such a permission slip is available for download and editing at http://www.fred.net/nhhs/html/pslip.htm.While this document is not a substitute for an acceptable use policy, it is a tool for reaching out to parents to let them know that their child will be utilizing Internet resources while in your class.

Acceptable Use Policy (AUP)

How can I develop an acceptable use policy?

The acceptable use policy is an important document that is usually developed at the district level. Therefore, as a first step, inquire at the central office of your school district to see what policies are already in place. Administrators and teachers may want to work together on developing a school policy that complements the one developed for the district.

You can also look for acceptable use policies on the Internet to see what goes into making one for your school or classes. Any search on the Internet using the terms "acceptable use policy" will turn up numerous examples that you can look at. One example can be found on the WWW at http://www.ash.udel.edu/ash/teacher/AUP.html. At this Web site, you'll find a link to http://www.siec.k12.in.us/aup/Acceptable.Use.txt that will show you a sample AUP that can be used as a template for your own AUP.

Blocking Software

What is blocking software?

Software is available that does an adequate, but not excellent, job of blocking inappropriate material before it appears in the browser window. The program is hidden from view until it encounters a page with a word that has been forbidden by a system administrator. Here's an example: If the word "sex" or "nudity" has been entered into the software, any Web page with those words will cause a warning page to pop up that says something like "This site is blocked by this software." While this may sound great, it does not always work the way it should. A site with the term "sex education" would be blocked to teachers researching that subject. Biology students wishing to learn about "sexual reproduction" or "breast cancer" may not have the resources of the Internet available to them because the taboo terms are found on the Web site.

Your school district may have already looked into blocking software for any computer system that you might be running. They may have chosen software that runs on individual workstations like CyberPatrol http://www.cyberpatrol.com/ or Net Nanny http://www.netnanny.com/ or they may have decided on software that runs at the network level. Such a program would block any Web sites that fall outside of certain accepted categories or that have not been included in a database. Either way, you should know that, no matter what software program is used, inappropriate content (such as profanity, hate material, and pornography) can always seep through. Teachers need to be vigilant and attentive to this danger.

How can risks on-line be minimized?

Inappropriate content is often encountered in the process of searching the Internet. Search engines, while convenient and often effective, are not smart. They seek out Web pages based on the search terms (or keywords) supplied by the user. If the user seeks a page that has a term that can be interpreted in different ways, inappropriate material could pop up. The term XXX can mean a warning for adult material, but it can also indicate the Roman numeral 30. A sports fan seeking information on Super Bowl XXX may find a site not meant to be viewed in class or by your students. Just be aware that searches need to be done carefully and with great skill. The more opportunities you have to do searches ahead of time and direct students to sites you have already found, the less your chance of unpleasant experiences while students use the Internet.

Presenting Information Found on the Internet

How can I integrate the Internet into my lesson plans?

Bringing the Internet into your lessons should be attempted only after you feel comfortable with using computers and the Internet yourself. Once you have the hang of conducting searches, locating resources, and saving the information you find, then you can share these skills with your students.

In general, Internet integration into the curriculum falls somewhere within the following categories:

- You present information found on the Internet.
- Students locate information using the Internet.
- Students present information that they have found on the Internet.
- Students interact with others using the Internet as a medium of information exchange.
- Students publish their own Web pages.

How can I present information that I find on the Internet?

The easiest way is to tell students about what you have seen or read. You can also print Web pages and make copies of them for your students. For example, one of my school's Spanish teachers visits Spanish-based news sites and prints pages. He then shares them with his students and develops activities based on those printed Web pages. He is integrating the Internet into his lessons even though his students are not actually sitting in front of computer terminals.

Another approach is to transfer the information you find on the Internet to computers that students have access to. You can download Web pages, copy them onto a floppy disk, and then load them onto computers in a lab or in your classroom. The computers must have a Web browser, but they do not have to be linked to the Internet for students to view pages that you have loaded by way of floppy disk.

If you have access to a projector that allows students to see what is on your computer, you can share Web sites with students, both live from the Internet or locally on hard disk or floppy. You can also copy Internet-based information into word processor documents such as Word or WordPerfect files, or, if you know how to use presentation software such as Microsoft's PowerPoint, you can import graphics and text into your own classroom presentations and lectures. Once students have seen that you can do it, they will be interested in trying it for themselves.

I feel obligated to again mention copyright violations and plagiarism at this point. During your learning process you may become enamored with this new tool and how easy it is to obtain information that you forget about these traditional concerns. Copying and distributing information may violate copyright laws, and we must not forget to cite our sources of information.

What can go wrong when using the Internet to present information to the class? How can these problems be dealt with?

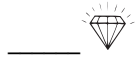
The idea that a good teacher is well-prepared extends far beyond Internet integration, but it is especially true when using technology. Computers and Internet connections

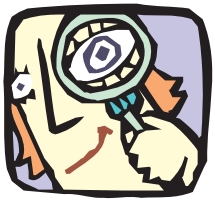
fail, files and disks become corrupted, and Web sites move or disappear overnight. Your lesson plans must be ready for all of these contingencies. Just be sure there is a backup plan.

Gem From George:

Integrating the Internet into the curriculum: problems and patches

A problem you might encounter	How you can deal with the problem
You are going to use the Web for a presentation but the Internet connection in your class is down.	Have the pages you want students to see on disk. Display the Web sites using a floppy disk, zip drive, or the hard drive of your computer.
No LCD projector or TV screen is available to display your Web presentation.	Have printed copies of the Web sites you want to discuss.
The Web site you want to discuss or display has moved or is no longer available.	Select key Web sites before you give your lesson. You can also select and bookmark alternate Web sites.
The sites you are discussing take a long time to download due to slow connection or net congestion.	Ask students discussion questions as they wait. You can also have a CD-ROM ready to display other information while the Web pages connect or load. Minimize/maximize between applications.
The computer crashes or locks up.	Have alternate activities ready to go.





How can I develop lessons that encourage students to find information on the Internet?

The first few attempts at having students use the Internet should be simple. Have them use predetermined Web sites to gather information or answer questions. This will give them experience that they can use in later projects. To help students become familiar with the workings of the computer, have them use basic text editors or word processors like SimpleText, WordPad, Note Pad, WordPerfect, or Microsoft Word to develop essays and respond to teacher questions. If you try student publishing down the line, those early compositions can be cut and pasted into student Web pages.

Allow students to copy and paste information from the Internet to complete electronic worksheets that you have placed on disk or on the school's Web site. But be careful when teaching students how to copy and paste from the Web. The Web has made plagiarism a major problem for teachers. Too many students are trying to pass off information found on the Web as their own. Be sure to discuss the importance of academic honesty with your students. Remind them that any information placed in a term paper or Web project must be accompanied by a bibliographical footnote that you can investigate.

Gem From George:
Everything in moderation

As with anything, too much of a good thing is dangerous. This is especially true when students rely on the Web without documenting sources or carefully evaluating information. Moreover, I have often redirected students away from the Web because the information they needed was more easily located in a book. I remind them that the Web is very big and unorganized. If they are seeking a piece of data that is common knowledge, I tell them to "just open your textbook or an encyclopedia!" Students all too often try to use the Web to thread a needle with a sledge hammer.

Getting Started on Your Own Internet Project

How can I develop lessons in which students present information they have found on the Internet?

Students can present their findings by using traditional methods or by using electronic resources. Students can give oral reports using standard show-and-tell materials such as trifold displays or slide shows. If they found the information on the Internet, then you have achieved curriculum integration with technology. If you have access to computer resources, you may want to teach students about computerized presentations using software such as PowerPoint.

One of the most popular methods for student presentations is to have students create their own Web pages. These can be displayed in the classroom using a projector. But more importantly, they can be placed on the school's Web site so students gain recognition for their work.

Examples of Internet Projects

Can you show me what some Internet projects look like?

Sure! The Web abounds with great student projects and teacher resources to help you get started. In order to become familiar with the procedures related to Web-based projects, you may want to join one or two projects already in progress before developing your own. To locate a project that matches your curricular needs, you can review newsgroup postings, visit educational Web sites, or do a Web search using the term "Internet projects." Classroom Connect http://www.classroom.net and Global Schoolhouse http://www.gsn.org/ are two great starting points for teachers who want to join projects in progress. Another great resource for finding out what is already under way is to join a mailing list where projects are announced. The Discovery Channel School http://discoveryschool.com has its own discussion list, as does NASA http://www.nasa.gov and numerous other Web sites that contain teacher resources. One list that is dedicated to the exchange of on-line e-mail projects is the Intercultural E-Mail Classroom Connections at

http://www.stolaf.edu/network/iecc/. Another Web site dedicated to on-line projects is called Keypals: the Modern Day Pen Pals at http://www.pitsco.com/keypals/.

Figure 10: The IECC Web page dedicated to on-line projects

Structuring an Internet Project

OK, now how do I get started on my own Internet project?

There are a few steps to developing and executing a project that uses the Internet as its main focus. As with any lesson plan, you'll need to define the project's instructional objectives, develop an approach for achieving the objectives, and create a schedule or timetable of events.

Define the project's objectives.

First, think about what it is you want your students to learn. Some projects may be geared toward word processing, information gathering, or computer skills. Other projects may deal more specifically with the content area of the curriculum. Either way, you'll have to identify the behavioral learning goals and set these down as the objectives of the project. The project may be made up of a series of lessons or a whole unit of learning.

Once you have developed a list of student objectives, match these objectives with the school district's curriculum for your subject area. If the project involves an e-mail exchange, the students must stay within the

confines of the stated objectives as they develop their messages. If the project involves developing graphics for a Web site, the graphics should be related to and enhance the topic of the report. It is easy to rationalize that the students are gaining computer skills when developing on-line projects, but if the class is science or social studies, then the material they develop must relate to those disciplines.

Here is one example. Students in my US Government classes developed Web pages that contained fictional letters between an American youth and a young person from a nation controlled by an authoritarian government. The title of the project was called "Letters from America." You can find the project at http://www.fred.net/nhhs/lessons/letters/freedom.htm.

Here are the stated objectives for the lesson plan that contains the Web project:

- Identify the principles of American democracy.
- Compare American democracy and authoritarianism through on-line research and creative writing.
- Examine human rights around the world and evaluate the status of human rights in the United States.

The objectives are achieved by the activities in the project. To see the entire lesson plan, point your browser to http://www.fred.net/nhhs/lessons/sept4usg.htm.

Figure 11: The "Letters from America" Web project

Develop an approach for achieving the objectives.

The first phase of the project involves a *Call for Participation (CFP).* The CFP describes the project and invites all appropriate classes and age levels to participate. The message should be placed as widely as possible on the Internet, print media, and even radio and television if possible.

If the project involves collaboration with other schools or with scholars on the university level, you'll need to make the announcement calling for participation at least two months before the project begins. This way, potential participants can contact you, get clarification on the project's procedures and objectives, and make a decision as to whether or not the project matches their learning needs.

Create a schedule or timetable of events.

Developing a time line is an effective way of defining what will take place at specific intervals. You will also want to consider whether students will work in cooperative learning groups. Topics will have to be assigned to those groups, and each student must have a role to play within the group process. The development phase of the project must be thought out as well. Will the computer lab be used, or are there enough computers in the classroom? Students may want to develop their projects at home on their own computers. Some projects require a paper-and-pen phase first, where students create a storyboard or flow chart that outlines their ideas in achieving the project's goals. The research phase will take the most time. Sometimes a number of weeks can be devoted to gathering on-line information and data from traditional library sources. You need to outline all of these steps in your lesson plan, and you'll need to review these steps with the students before the project begins.

You may want to create your own mailing list using e-mail software. By placing all participants on one e-mail list, you can inform all participants of preparation for the project and its progress through one e-mail message to all the participants.

Internet Project Formats

What are some formats that Internet projects can take?

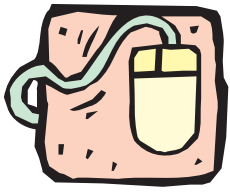
Internet-based projects can take a variety of formats. You can tailor your approach to the specific needs of the class depending on the number of students, subject area, and availability of Internet access and computers. The structure of a project is limited only by your imagination, but most on-line projects fall into certain types. They include correspondence (the on-line version of pen pals), information gathering and exchange, collaborative project or problem-solving, and teleconferencing. Let's review these types of projects.

Correspondence ("Keypals:" E-mail exchanges)

This type of project involves students of different cultures or perspectives who agree to exchange information about themselves, daily life in their culture or on a pre-arranged, mutually agreed-upon topic. Keypals may also include correspondence with experts in a certain field. Many college professors, scientists, or hobbyists are willing to take time to respond to student inquiries in their area of expertise. This type of project is so common on the Net that experts are called SMEs or subject matter experts. One might see them as "guest speakers" on Web sites or on discussion lists.

Gem From George:
Cautions regarding on-line correspondence

You've got to make sure students stay on the topic. It is too tempting for students to wander to non-curricular topics. You'll have to actively monitor what students are writing to keep them on-task. In fact, you must review all outgoing and incoming e-mail so that appropriate content comes through to the student and inappropriate content is screened.



Information Exchange

In this format, students engage in some sort of formal research. The results of that research are then passed on to another class or school, which uses the information to come to some conclusion. The subject area can involve scientific data dealing with the school's local environment or public opinion polls on issues that may have a demographic component. Another format for this project type is the virtual field trip. When a class visits local places of historical or cultural interest, they record their experiences in words and photographs. The class puts together a Web site on the field trips, and other classes check in to learn from their experiences. One model, called the "Mayaquest Model" after the Mayaquest Project led by Dan Buettner, allows students to direct a full-scale expedition by using e-mail to communicate with the scholars on the voyage. They engage in problem-solving while sharing the experiences of explorers in remote parts of the world like Central America, Africa, and Antarctica. To learn more about the Mayaquest Project, visit their Web site at http://www.mayaquest.com/.

This information exchange format was very successful in helping my advanced placement students prepare for the AP test in US History. Students did research, developed questions, and assembled their answers to develop a Web site where they posted formal essays answering the questions. AP students from other schools were able to critique the essays. Then my students received and reviewed essays. Such an exchange not only builds thinking and writing skills, but also expands students' understanding of the subject matter. All the steps in developing the essay exchange project can be found on the Web at http://www.fred.net/nhhs/html2/apus96.htm.

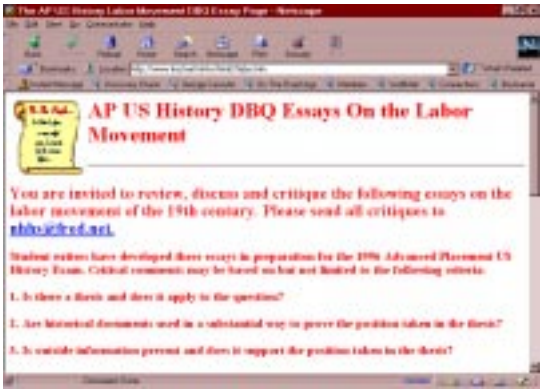


Figure 12. The information exchange project model

Collaborative Project (problem-solving)

The collaborative project involves problem-solving scenarios as well as communication with other classes and schools. In this model, classes across the globe are given a problem to consider. Classes e-mail each other their data and, finally, their solutions to the problem being considered. They also engage in research using on-line and traditional resources. This format lends itself very well to group problem-solving. Teachers can construct Internet scavenger hunts where students search through Web pages, on-line maps, and almanacs as well as traditional resources to arrive at the correct answers to specific questions. Other projects can come in the form of issue-oriented collaborations. Classes work together to solve a social problem that their community, the nation, or the world is facing. Then they post possible solutions at their Web sites.

One collaborative project that has been carried out by my US Government students for two consecutive years is a series of student Web pages on a single theme. In our project, students chose a Web page format and selected a topic dealing with Black History. The students were allowed to choose from the following formats:

- Maps of historical events
- Interview with witness
- Sketch time line
- Movie review
- Formal essay
- Trivia game or quiz
- Photo essay
- Letter to lawmaker
- Review of Web links
- Biographical sketch
- Fictional short story
- On-line debate

- Poetry with illustrations
- On-line newspaper
- PowerPoint presentation in HTML

The students were given a number of weeks in the school library to conduct research. They were encouraged to use the Internet as well as CD-ROMs and traditional sources of information. They worked in cooperative groups during the research, composition, and assembly phases of the project. The students developed a Web site with a variety of pages on Black American History. The project is entitled "The Civil Rights Movement: A Black History Celebration." You can find it on the Web at http://www.fred.net/nhhs/project/civrts.htm.

Figure 13. A thematic Web site project

Figure 14. Example of a student-developed Web page for a collaborative project

This type of project can take a number of weeks, and it consists of several stages that require the involvement of all the students on the team. Students still need to know

what is being asked of them even when it involves a number of days in the library or researching on-line. To give my students assistance in assessing where they needed to be in the project, I developed a calendar that listed daily goals.

The unit plan that I shared with my students contained a progression of goals they had to reach as they developed their projects. Each goal was evaluated, which meant they earned points as they progressed. All of these goals constituted their grades for the duration of the project. The project's goals included the following elements:

- Students conduct library and Internet research (two weeks).
- Three bibliography cards due. (Two days after library research began; repeat as many times as needed until sufficient number of note cards have been generated.)
- Three note cards with well-developed topics due.
- Arrange cards into rough draft. Develop outline or Web page diagram.
- Check sources of information for accuracy.
- Web page development (one week).
- Develop graphics during Web page development week.
- Enter text to form Web pages using non-HTML code-based Web page editors.
- Rough draft due.
- Web sites returned on paper with teacher corrections.
- Students make corrections on computer files.
- Final draft due.
- Final changes applied to Web pages.
- Student Web projects uploaded to school Web server.

The final product was also evaluated by way of a rubric that assessed almost every aspect of the Web site they developed. The scoring rubric was developed by Joseph A. Braun, Jr., and you can find it at a Web site entitled "A Rubric for Evaluating Social Studies World Wide Web Pages." The Web address for this excellent tool is http://www.coe.ilstu.edu/jabraun/braun/professional/wwwrubric.html.

Teachers of English will be familiar with this list of goals because it is similar to the development of a research paper. The added twist is that the teacher is also the Webmaster, and if you choose to take on this role, you have to be sure that the project reaches a high level of academic integrity and aesthetic Web design before

placing it on the Web. My own rule of thumb is that only projects that reach the level of A or B work get the privilege of being placed on the Internet. However, after the projects are graded, I give ample opportunity for all groups to refine and improve their product so that they have a chance to make it to the Web.

Gem From George:

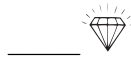
Student publishing: What does it take?

If you want your students to place their work on the Web, you will have to study the art of Web design. There is much to learn when choosing to go this route, and while it is time-consuming, I encourage you to try it. There are many great Web design tutorials on the Internet that can teach you how to develop your own Web pages. Some Web publishing software is easy enough to learn to use that even elementary students can put together interesting Web sites. Without getting into too much detail, here's what you'll need:

- An Internet Service Provider that allows you to store Web pages on their Web server. This may even be your school system's own Web server at the central office.
- Web page editing software. Netscape 4.0 (Communicator) comes with a Web page editor called Composer. Internet Explorer 4.0 for Windows comes with a Web editor called FrontPage Express. These editors are called WYSIWYG (pronounced "whiz-e-wig") editors, which stands for "what you see is what you get." You don't need to know any HTML code to use them. The editor displays the page looks like it will appear in the browser.

  If you want to learn HTML, the code that makes up Web pages, you can pick up a number of books on the subject at your local bookstore. These books will also teach you how to design effective Web sites for your school's Web site. There are a number of code-based Web page editing programs. HTML Assistant http://www.brooklynnorth.com is a code-based Web page editing program that I have used.
- Once you learn how to make your own Web pages, you'll need to share these skills with your students. It will take some time away from the subject area that you teach. Be ready to set aside several days to show students how to use the software, save information from the Internet, or download (legally obtainable) images

from the Web. Students can also make their own images using inexpensive Shareware such as Paint Shop Pro from JASC, Inc., at http://www.jasc.com.



Internet Teleconferencing

Internet teleconferencing requires the greatest level of technical expertise. If a class wants to engage in video teleconferencing, special cameras and video cards are needed to send digitized images over the Internet. If voice exchanges are the mainstay of the project, sound cards and speakers are needed. Even text-based chat requires chat software and the knowledge to correctly use it. If you want to know more about how to carry out an Internet project that uses video-teleconferencing, visit the Global SchoolNet Foundation's CU-SeeMe page at http://www.gsn.org/cu/index.html.

Helpful Web Sites for Teachers

Can you give me addresses and quick overviews of Web sites that are excellent resources for teachers?

Here is a list of just a few of the exemplary Web sites I have encountered in my "cyber-travels." A number of these sites are like an on-line classroom teacher. Many of these sites are starting points for locating more extensive lists of resources. Others have been included just for fun.

This list should not be seen as a definitive directory of Web sites. There are so many excellent resources on the Web that many books are now available that have no other purpose than to list and organize Web sites. There is just too much to cover for a listing here. New Web sites are being added every day. Still, I hope this sampling will lead you to find many great Web sites, both on a professional and personal level, so that your time on-line is fruitful and meaningful.

In the on-line version of this *Guide*, you can click on any of the following addresses and go directly to the site. The on-line version can be found at http://www.genium.com/ipgt/.

Fine Arts

Yahoo's Performing Arts Index

http://www.yahoo.com/Arts/Performing_Arts/

A wide-ranging list of links is found at Yahoo's Performing Arts index.

Siskel & Ebert's Movie Reviews

http://www.tvplex.com/BuenaVista/SiskelAndEbert/

The two world-famous movie critics have their comments on-line. If you need a professional's view on the latest films, the Web site of the late Siskel and Ebert can help. Shockwave samples of the films being reviewed can be seen as long as you have the plug-in.

World Wide Web Virtual Library: Art

http://www.fisk.edu/vl/Literature/Overview.html

Links to on-line art exhibits, museums, and art publications are at this site. Pointers to literary publications also abound.

Musee (Museums On-line)

http://www.museums-online.com/

This site contains a wonderful modern art collection. You'll need the Shockwave Flash animation plug-in for dynamic interactive effects.

General Teaching Resources

AskEric Lesson Plan Database

http://ericir.syr.edu/

This database, located at Syracuse University, started out as a bank of on-line lesson plans. It has grown into a diverse site for teacher resources. Teacher mailing list discussions are archived at the site.

Classroom Connect

http://www.classroom.net/

This Web site was born out of the periodical, which gathered Web projects and resources for wired teachers. Classroom Connect now specializes in conferences where the computer-savvy of American education can exchange ideas and train each other in classroom-based telecommunications.

Education Week On the Web

http://www.edweek.com/

Education Week on the Web is published by Editorial Projects in Education Inc. The publishers have stated that their goal is "nothing short of being *the* place on the World Wide Web for people interested in education reform, schools, and the policies that guide them."

Global SchoolNet Foundation

http://www.gsn.org

Global SchoolNet Foundation is one of the premier Web sites for projects and on-line activities. Teachers and parents can track down like-minded partners for a variety of projects that allow for Internet integration into the curriculum.

Teaching and Learning on the Web

http://www.mcli.dist.maricopa.edu/tl/

Here is a selective site that tracks down useful resources for teachers. The site claims to have posted "565 examples of how the Web is being used as a medium for learning."

Encarta Lesson Plan Collection

http://encarta.msn.com/schoolhouse/lessons/default.asp

A part of Microsoft's Encarta schoolhouse. This lesson plan collection covers all curriculum areas. Microsoft gathers lesson plans from teachers who compete for prizes. I submitted one entitled "Teaching the Holocaust from a Personal Perspective." You can find it at http://encarta.msn.com/alexandria/templates/lessonFull.asp?page=727.

Houghton-Mifflin's Education Place

http://www.eduplace.com/

The textbook publisher has put together a pleasantly interactive Web site for teachers in order to get them thinking about using their books. Curriculum resources in the areas of Mathematics, Reading/Language Arts, and Social Studies are freely available.

Intercultural e-mail Classroom Connections

http://www.stolaf.edu/network/iecc/

Started by two professors at St. Olaf's College in Minneapolis, Minnesota, the site provides opportunities for interaction between potential e-mail project participants.

Kathy Schrock's Internet Guide For Educators

http://discoveryschool.com/schrockguide/

This is one of the best Web sites I've found for teachers who want to become familiar with the Internet. Kathy Schrock is a school media specialist, and she has created a wide-ranging database of educational Web sites and helpful resources. Take some time and visit this site. It's well worth it.

Mid-continent Regional Educational Laboratory (McREL)

http://www.mcrel.org/

This organization has assembled a massive array of links to accompany the educational standards for K-12 curriculum that are posted on the site. Any educational institution that needs ready-made curricular benchmarks to develop a set of learning goals should visit this site.

The Mining Company

http://miningco.com/

With thousands of interest areas to choose from, The Mining Company is almost as broad as Yahoo in its scope. A guide, who assembles the resources and answers e-mail on those topics, moderates each area.

Northwest Regional Educational Laboratory Resource: Library-in-the-Sky

http://www.nwrel.org/sky/Library/Materials_Search/Lesson_Plans/Lesson_Plans.html

Here is a well-organized site with a variety of lesson plans and links to lesson plans. It is great for the teacher who is just looking for the right thing to do with students, but who may not have time to reinvent the wheel.

Teachers Helping Teachers

http://www.pacificnet.net/~mandel/

An excerpt from the Web site states that the goals of this service are:

"To provide basic teaching tips to inexperienced teachers; ideas that can be immediately implemented into the classroom.

To provide new ideas in teaching methodologies for all teachers.

To provide a forum for experienced teachers to share their expertise and tips with colleagues around the world."

Technology and Learning

http://www.techlearning.com/

The editors of *Technology and Learning* magazine bring you this Web site. They preview their current issue with software reviews, Web-building tips, the annual teacher of the year competition, and more.

The Technology Education Lab: K12 Educational Resources

http://www.techedlab.com/k12.html

This site contains numerous links to major education and educational technology Web sites.

Yahoo: K-12

http://www.yahoo.com/education/k_12/

Yahoo's index of K-12 Web sites is broad and wide-ranging. Students and teachers will be able to find something of use or interest within its hierarchical indexes.

Language Arts

The English Server

http://eserver.org/

Here is the definitive resource for teachers and students of the English language. Since 1990, The English Server at Carnegie-Mellon University has been providing scholars with access to over 20,000 works of art and literature spanning centuries of writings.

Victorian Web

http://www.stg.brown.edu/projects/hypertext/landow/victorian/victov.html

This site contains everything a scholar would want to know about the Victorian Era. The literature of the day, its authors, and their attitudes are all neatly presented at this award-winning Web site.

Inkspot: Writer's Resources on the Web

http://www.inkspot.com/

Teachers of English and writing will not want to miss this Web site. It contains tips for more effective writing, marketing one's skills, and discussion groups on the art of writing. Critiques of manuscripts and publisher's guidelines complete this helpful guide to getting published.

The Complete Works of William Shakespeare

http://the-tech.mit.edu/Shakespeare/works.html

From *All's Well that Ends Well* to *A Winter's Tale*, this site was the first complete collection of Shakespeare's works on the Web. Every work is included in full and in hypertext for easy reference.

Galaxy's Literature Index

http://galaxy.tradewave.com/galaxy/Humanities/Literature/Writing.html

Galaxy has gathered a number of general links on writing, essay collections, and on-line magazines for writers.

Teaching the American Literatures

http://www.georgetown.edu:80/tamlit/tamlit-home.html

Georgetown University has created a site dedicated to the teaching of literature. Most of the site comprises discussions regarding methodology in this field.

Mathematics

Big Sky Math Lesson Plans (Gopher)

gopher://bvsd.k12.co.us/11/Educational_Resources/Lesson_Plans/Big Sky/math

This is a gopher menu of math lesson plans for all grade levels.

Gallery of Interactive Geometry

http://www.geom.umn.edu/apps/gallery.html

This site consists of a series of graphically oriented geometry computer applications.

MathMagic

http://forum.swarthmore.edu/mathmagic/

From the opening MathMagic page, here's a description of the project:

"MathMagic is a K-12 telecommunications project developed in El Paso, Texas by Alan A. Hodson. It provides strong motivation for students to use computer technology while increasing problem-solving strategies and communications skills. MathMagic posts challenges in each of four categories (k-3, 4-6, 7-9 and 10-12) to trigger each registered team to pair up with another team and engage in a problem-solving dialog. When an agreement has been reached, one solution is posted for every pair."

The site also contains links to other math-related resources on the Internet.

The Technology Laboratories

http://www.tjhsst.edu/TechLabs/

This is a series of technology-oriented projects housed at the Thomas Jefferson High School of Technology in Fairfax, Virginia.

Yahoo's Math Resources

http://gnn.yahoo.com/Science/Mathematics/Education/K_12

Need more math sites on the Web? Run, do not walk, to Yahoo's math index!

Media Sites

CNN Interactive

http://cnn.com/

CNN's on-air content is converted into text and video on this well-organized Web site. It provides numerous resources that can be used for history or current-events discussions.

CTW—The Official Home of Sesame Street

http://www.ctw.org/

A great Web site for both parents and children. The site is rich in activities that young people can enjoy. Fast modems will help when playing Java-based games and activities with familiar Sesame Street characters. Information for parents and teachers is also available.

The Discovery Channel

http://www.discoveryschool.com

This colorful, informative site contains activities and lesson plans that correspond to the educational programs shown on the cable channel or available for purchase. Teachers moderate discussion boards on a wide range of topics connected with the TV broadcasts and develop the site's curricular content.

The Electronic Newsstand

http://www.enews.com/

This Web site has links to every magazine imaginable as well as services that allow users to subscribe to magazines.

The Internet Movie Database

http://www.imdb.com/

The site contains a searchable database of over 150,000 movies and also contains movie ratings and reviews.

MSNBC

http://www.msnbc.com

The computing resources of Microsoft and the news broadcasting talents of NBC have joined forces to develop this site, which parallels the on-air content of the news cable channel. This site archives all major news topics in the form of interactive multimedia expositions on current world, national, and local news and weather.

National Geographic

http://www.nationalgeographic.com/main.html

The excellent photography and stories that you find in the famous magazine can also be found on the Web site, but with the added flare of interactive and multimedia displays. No geography teacher, student, or geography enthusiast should miss this Web site.

Online NewsHour

http://www.pbs.org/newshour/

The Public Broadcasting Service Web site http://www.pbs.org is a wonderful supplement to the TV broadcasts. Viewers see no commercials on air and no banner ads on line. Only high-quality content and Web design. The Online News Hour contains the major stories being covered by the TV News Hour over the past week. This site is great for in-depth investigations into contemporary issues.

Philadelphia Online

http://www.phillynews.com/

The Web site is centered on news about the Philadelphia area because it contains the content of the *Philadelphia Inquirer*. Still, there are numerous resources that anyone can use. One area of special interest to on-line teachers is the Tech.Life area, written by Joyce Valenza, a secondary school media specialist. Among other things, this section covers technology and the Internet in education.

Time-Warner's Pathfinder On-Line (Time, Life, and others)

http://www.pathfinder.com/welcome/

Numerous magazines have their on-line content posted here in rich multimedia presentations. Links to CNN can also be found.

TV Guide

http://www.tvgen.com/

You will find a hypertext version of *TV Guide's* listings as well as reviews and articles on popular TV shows.

Washington Post

http://www.washingtonpost.com

Get the scoop on all the happenings inside the Beltway even if you are nowhere near Washington, DC. The *Washington Post's* Web site is a thorough, on-line rendition of the daily newspaper, which has won awards for investigative journalism. Excellent multimedia Web pages round out the site's content and delivery.

Science

The Exploratorium

http://www.exploratorium.org/

The Web site contains this description:

"The Exploratorium is a museum of science, art, and human perception with over 500 interactive 'hands on' exhibits. Each year more than 600,000 visitors come to the Exploratorium, over 95,000 students and teachers come on field trips, and more than 2,000 teachers attend professional development programs which focus on inquiry-based teaching and learning in the K-12 classroom."

The Web site is an on-line reflection of the current exhibitions at the museum. A great science and technology Web site for older children and adults.

The Franklin Institute Science Museum

http://sln.fi.edu

The Franklin Institute maintains a Web site with numerous links to the museum's exhibits. A wide variety of science topics are covered.

Greenpeace

http://www.greenpeace.org

Get the latest news on environmental legislation and activism from this leading environmental watchdog group. This site contains useful information for your own interdisciplinary lessons combining science and government.

Intellicast

http://intellicast.com

Here you'll find weather links around the world. This site provides forecasts for cities around the world.

National Aeronautics and Space Administration

http://www.nasa.gov

Always changing, NASA maintains thousands of pages on space exploration along with numerous lesson plans and activities for students.

National Oceanic and Atmospheric Administration

http://www.noaa.gov

This site is home base for government agencies relating to environmental science. Weather data and satellite images are just a part of what can be found here.

The Weather Channel

http://www.weather.com

Very cool use of JavaScript and Java applets make this site fun, but it's the weather data that makes it informative. This site reflects the on-air content of the cable channel of the same name.

Virtual Frog Dissection Kit

http://george.lbl.gov/ITG.hm.pg.docs/dissect/info.html

Using virtual reality (VR), MPEG movie clips, and HTML, the designers at Lawrence Berkeley National Laboratory have assembled an interactive site on frog anatomy. If you don't have real frogs to dissect, it's the next best thing.

Volcano World

http://volcano.und.nodak.edu

A well-established site on the Internet, Volcano World contains movies, games, and video clips about volcanoes and volcanism. The University of North Dakota maintains the site.

Yahoo's Science Resources

http://www.yahoo.com/Science/

You will find an extensive list of science resources from acoustics to zoology at Yahoo's science listings.

Search Sites and Portals

Alta Vista

http://www.altavista.com/

While its features are not as diverse as some of the other portal sites, I like its search engine. Alta Vista also has a translation service that will convert any section of text into a number of different languages.

AOL

http://www.aol.com/

This portal is nowhere near as extensive as its commercial on-line service counterpart. However, this site has a search engine, subject areas called "web centers," and numerous other services such as links to apartment and job hunting. It also has another interesting feature. At its Netmail center (http://www.aol.com/netmail/home.html), you can download a Netscape plug-in that makes it possible for AOL members to check their own AOL e-mail without signing on to AOL. Just enter your username and password at the prompt, and you can read and respond to your own AOL mail.

Ask Jeeves

http://www.askjeeves.com/

This site is designed to assist students and teachers doing scholarly research. Enter a real-language question into the search field, and the result is a series of suggested sites and related topics. Ask Jeeves is a surprisingly efficient information gathering tool.

Excite

http://www.excite.com/

Excite has a wide variety of features including a page that can be customized by users. You'll find just about everything you might need in what can become your home-away-from-home on the Web.

Hotbot

http://www.hotbot.com/

A well-designed search utility. Hotbot is Wired magazine's attempt to reach the Generation X crowd on the Internet.

Infoseek

http://infoseek.go.com/

Infoseek is part of the Go network of web sites, which makes it a vibrant and dynamic site as long as you have registered as a member. Some of its features require that you subscribe by using a major credit card. Even if you choose not to join, the site maintains a myriad of categories from automotive to women's information.

Lycos

http://www.lycos.com/

Lycos has links to news, chat, and subject area directories, all of which are available in a number of different European and Asian languages. Lycos also maintains its own easy-to-use free home page generators.

Metacrawler

http://www.go2net.com/search.html

Born from its predecessor, Webcrawler (http://www.webcrawler.com/), Metacrawler contacts up to six search engines or web directories at once. It assembles the results into one results page. This tool is useful for information seeking because it casts a wide net over the Internet.

Microsoft Internet Start

http://home.microsoft.com

This portal uses the resources of the Microsoft network for web searches. E-mail is provided by Hotmail. All you need to read your e-mail is web access. The e-mail link is accessible from the shortcuts along the menu bar of Internet Explorer, which means the site works better using some version of Internet Explorer.

Netscape Netcenter

http://my.netscape.com/

When you click on the **My Netscape** button on the Communicator 4.0 browser toolbar, you arrive at Netscape's Netcenter, which is very similar to Microsoft's Start portal. Web-based e-mail, stock quotes, and news headlines are all available at this site. Netscape provides its own search engine, but in my opinion it is not as useful as Alta Vista or Hotbot.

Yahoo

http://www.yahoo.com/

Yahoo was one of the first major web portals. It began as a web directory, which means it is a listing of registered web sites. This means there may be less web sites that meet your search criteria, but the ones that are returned may be closer to what you are looking for. Yahoo offers a wide variety of services in a number of international languages.

Social Studies

3D Atlas

http://www.3datlas.com/

Part of Compton's On-line Library, 3D Atlas contains volumes about nations and cities of the world. Maps are available for downloading, and text is presented neatly for student research. Numerous geography links will keep you and your students clicking around the world.

American History in Hypertext

http://grid.let.rug.nl/~welling/usa/revolution.html

George M. Welling and Garry Wiersema have posted the full scope of American History on this wonderful site. The site includes primary documents as well as analysis on the major events in the American chronology.

The British Royal Family

http://www.royal.gov.uk

The Windsor family has caught the on-line bug, and they have a well-stocked Web site to please the masses. Although there are links to royal history and information on today's royal family, the most popular elements of this site are the pages dedicated to Diana, Princess of Wales.

Color Landform Atlas of the United States

http://fermi.jhuapl.edu/states/states.html

Johns Hopkins University has set up a site where any location in the United States can be viewed by satellite. The site contains a shaded relief map, satellite image, and historical maps for each state in the US.

Historian's Index at University of Kansas

http://history.cc.ukans.edu/history/index.html

The University of Kansas has amassed a huge list of resources for history educators on this Web site.

History/Social Studies Web Site for K-12 Teachers

http://www.execpc.com/~dboals/boals.html

Dennis Boals maintains this exhaustive compendium of sites that can be used by Social Studies educators. Lesson plans, media sites, research sites, school projects, and more are listed here.

Hyperhistory On-line

http://hyperhistory.com/online_n2/History_n2/a.html

Here is an excellent site where all of world history has been mapped on a clickable time line. Maps, events, and people are all featured on the site. Students will enjoy the interactivity of history when visiting this site.

The Inaugural Classroom

http://www.pbs.org/inaugural97/

I helped create this site for PBS and the 53rd Presidential Inauguration. It provides lesson plans on the presidency and the inauguration. Other content on the site includes a teenage reporter's story about the Inaugural.

Lesson Plan of the Day

http://www.fred.net/nhhs/lessons/lpotd.htm

This site is my contribution to helping colleagues use the Internet. You'll find eighteen weeks of US Government and Computer Applications lessons at this site.

The Library of Congress Main Page

http://lcweb.loc.gov/

Here is a great way to see your tax dollars at work. The Library of Congress has assembled a number of exhibits that make excellent starting points for presentations or research. The best known of these is the American Memories exhibit at http://memory.loc.gov/ammem/.

Parliament of the United Kingdom

http://www.parliament.uk/

Links to the House of Commons and House of Lords will give students a look at British democracy. Students of comparative government will find this site valuable.

The National Council for the Social Studies

http://www.ncss.org

The main page describes this as "an information service for Social Studies educators." Internet-related and non-Internet teaching resources abound at this must-see Web site. The site is the on-line organ for the 20,000-member organization.

Social Studies School Service

http://www.socialstudies.com/

Here is a commercial site containing resources for teachers who want to integrate text, video, and the Internet. The site also contains sample lessons and on-line resources.

The US House of Representatives

http://www.house.gov/

Find out who your representative is, what committees are doing, and what legislation is being considered in the Lower House of the American federal legislature.

The US Senate

http://www.senate.gov/

A listing of senators brings you to their individual home pages. "Learning About The Senate" http://www.senate.gov/learning/index.cfm will bring you to a virtual reality tour of the Senate.

The Virtual Tourist

http://www.vtourist.com/

This site is an extensive geography source with links to countries and cities worldwide. The site makes a point to inform the user that the service does not contain information about nations and cities, but a link to http://www.city.net/ is provided, where that information can be found.

The White House

http://www.whitehouse.gov/WH/Welcome.html

The White House's Web site has been on-line since 1994 in a number of incarnations. The site outlines the history of the presidency and the president's residence. It also outlines the accomplishments and agenda of the current administration.

The World of Social Studies

http://www.fred.net/nhhs/html/cassutto.html

This site is my contribution to the field of on-line Social Studies education. Included are links to lesson plans, on-line resources, and Internet project tips.

World Wide Web Virtual Library: Geography, Anthropology, Recreation

http://www.fisk.edu/vl/LibraryOfCongress/geoar.html

Based in Nashville's Fisk University, the Virtual Library contains links to wide-ranging Web-based geographical and cartographic resources.

For Students

Yahooligans

http://www.yahooligans.com/

Yahoo's hierarchical setup has been replicated in this directory of Web sites for kids. With its searchable database, it is a great starting place for research or recreational surfing.

Cyberkids

http://www.cyberkids.com

"Where creative kids click" says the main Web page. Contests, games, and a reading room encourage creativity. This site is a great place for parents and their kids.

Web Design

Web66

http://web66.coled.umn.edu/

Here is a classic resource for teachers who want to weave their own Web, so to speak. Web66 includes a directory of all the schools that have come on-line with a Web site and that have registered the site. On the site's opening page, the project's Webmaster, Stephen Collins states, "The goals of this project are:

1. To help K12 educators learn how to set up their own Internet servers.
2. To link K12 Web servers and the educators and students at those schools.
3. To help K12 educators find and use K12 appropriate resources on the Web."

Setting Up A Web Site for Your School

http://www.fred.net/nhhs/html2/present.htm

This tutorial covers issues such as getting connected to the Internet and school Web management. It also contains a number of useful documents for educators to download and edit.

ThinkQuest

http://io.advanced.org/thinkquest/

ThinkQuest is an annual Web design competition in which students ages 12 to 19 compete for scholarships of $25,000 or more. The projects are designed to "challenge students to use the Internet as a collaborative and interactive teaching and learning tool."

Use This Space to List Other Helpful Web Sites

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Glossary

The Internet is constantly evolving. New terms are being created all the time, so it's hard to keep up with Internet jargon. It is also hard to find a definitive list of terms on the Web because each list varies greatly with what it emphasizes.

Acceptable use policy (AUP). A document developed by a school that defines appropriate use of the Internet while at the school. ISPs also typically have their own AUPs.

Address book. A place in an e-mail program to store e-mail addresses of people that you frequently communicate with. The e-mail program can easily access the address book so that you don't have to type in the e-mail address every time you use it.

Blocking software. Software that can be configured to prevent users from accessing Internet resources that may contain inappropriate, objectionable material.

Bookmarks. Called "Favorites" in the Internet Explorer browser, and "Bookmarks" by Netscape, they allow you to keep a "hotlist" of Web sites for future reference. Selecting a site for later recall is called "bookmarking" a site.

BRB. *Be Right Back.* Used in text-based chat to let people in your chatroom know that the baby is crying or that you must take a "necessary room break."

Browser. Software that is used to view documents on the World Wide Web.

Call for participation. A message that describes a proposed student project and invites all appropriate classes and age levels to be a part of the project.

Chatroom. A place to talk (or type) live to other network users. To chat on the Internet you need an Internet Relay Chat (IRC) client, such as mIRC or Microsoft Chat.

Client. A program that you, the user, put to work to get information from a computer on the Internet (called a server). Clients include browsers, e-mail programs, newsreaders, and file transfer programs. Eudora is one example of a Post Office Protocol (POP) e-mail client.

Commercial on-line service (COS). A company such as AOL or CompuServe that provides its customers with access to the Internet as well as to features that are unique to that service. The on-line service allows users to send messages to users of other Internet services, but people who are not members do not have access to chat rooms and discussion boards found only within the proprietary software of that service.

CPU (Central Processing Unit). The computer's "brain." This is the part of the computer that does all of the work.

Dial-up networking. Accessing the network via a dial-up phone line. Also, the built-in Internet communication facility in Windows 95 and Windows 98 used to configure dial-up networking.

Digest. A compilation of individual messages that have been posted to a mailing list.

Domain. All computers on the Internet are called "hosts." Each host has a domain name. The domains on the Internet form a hierarchy starting at the root domain (represented by a "."). For instance, www.genium.com is a host in the genium.com domain, which is in the com ("commercial") top-level domain.

Download. Transferring information from a server to a client. The action of getting information from a computer on the Internet. Opposite of upload.

E-mail. Electronic mail. Sending electronic messages to anyone else on the Internet is possible by e-mail.

E-mail discussion list. A system managing a list of e-mail addresses of people who are interested in discussions about a specific topic. The system allows you to easily distribute one message to the entire list.

Emoticons. Used in e-mail and chat; characters used to describe your mood in an electronic communication as a substitute for body language and voice intonation. To see a list of emoticons, check out http://www.windweaver.com/emoticon.htm.

FAQ. *Frequently Asked Question.* Lists of commonly asked questions and their answers about a particular topic, often posted in newsgroups to reduce the number of novice questions. It's proper etiquette to read the FAQ before asking a question so that you don't ask a question that has been answered many times before.

Flaming. Picking a fight with public e-mail. The act of insulting someone because you don't agree with them. This is not proper netiquette. Don't do it!

FTP. *File Transfer Protocol.* A standard method for sending and retrieving files to and from other computers on the Internet.

GIF. *Graphics Interchange Format.* A platform-independent file format developed by CompuServe, the GIF format is commonly used for graphics on the Web.

Gopher. An early information retrieval system used on the Internet. It was created by the University of Minnesota. The Web has made this mostly obsolete.

Home page. The first page you see after launching your World Wide Web browser software. Also, the main page of a Web site.

HTML. *Hypertext Mark-up Language.* The language used to mark up text files with styles and links for use with World Wide Web browsers.

Hypertext. A non-linear way of presenting information. It enables the reader to move from one topic or section to another through "links" that allow the reader to choose the sequence in which they view the document. World Wide Web browsers are hypertext-based, allowing the user to jump from one topic to another throughout the Internet.

IMHO. *In My Humble Opinion.* Also seen as IMO and IMNSHO (In My Not-So-Humble Opinion). These terms are used in e-mail and text-based chat to denote that the writer is expressing an opinion rather than fact.

Internet. A global network of computer networks linked together by transmission lines. This network uses a variety of programs to allow for the exchange of all types of information.

Internet Service Provider (ISP). A commercial entity that provides access to the Internet.

Java. A computer language developed by Sun Microsystems. Because Java programs can run on any modern computer, Java is designed to be able to deliver application programs over the Internet.

JPEG. *Joint Photographic Experts Group.* A group that has defined a compression scheme that can vastly reduce the size of image files at the cost of potentially reduced image quality. Also, the file format that contains such images.

kbps. *Kilobits per second.* Roughly, thousands of bits per second. Describes how fast data is being transferred.

MHz. *Megahertz.* A unit of frequency. Millions of cycles per second. Used to describe how fast certain computer components run.

Link (or Hyperlink). A hypertext connection that can take you to another document or another part of the same document. On the Web, links appear as text or pictures that are highlighted. To follow a link you click the highlighted material.

LISTSERV. One of a family of programs that automatically manage mailing lists. It distributes messages posted to the list, adds and deletes members, etc.

LOL. Laughing Out Loud. Used in text-based chat to express a humorous response. A more extreme version is ROTFL (Rolling On The Floor Laughing).

Mailing List. An e-mail discussion group.

Modem. A piece of computer equipment that sends and receives data over phone lines. Modem speeds are measured in kilobits per second (kbps), topping out at 56 kbps for standard analog modems.

Netiquette. The unwritten culture and customs of the Internet. One way to become familiar with netiquette is to locate the Frequently Asked Questions (FAQ) document of a particular aspect of the Internet and review it carefully.

Netscape Navigator. A popular Web browser on the Internet. The company Netscape also produces and sells other Internet-related software programs.

Newbie. A newcomer to the Internet. A novice Internet user.

On-line. Related to being connected to another computer; available while connected to a network.

Packet. Information is broken into precisely defined packets, sent over the Internet, then reassembled at its destination.

RAM. *Random Access Memory.* The place where the computer stores programs and information currently in use. Unless saved first, it is lost when the computer is restarted or turned off.

Router. Communications hardware that directs packets from one computer toward their ultimate destination computer on a network.

RTFM. Read The "Fine" Manual! This term is seen on newsgroups and chatrooms when a "newbie" asks questions that can easily be answered by reading the FAQ or documentation that comes with a program or piece of hardware.

ROTFL. *Rolling On The Floor Laughing.* A more extreme version of LOL.

Protocol. The rules that computers must follow to communicate with each other. Internet-based computers use TCP/IP (Transmission Control Protocol/Internet Protocol). Each type of service on the Internet relies on its own protocols. Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP), and Network News Transfer Protocol (NNTP) are other protocols.

Search engine. A program used to search for information on the World Wide Web.

Search query. A search query is performed when you use a search engine to find specific information on the World Wide Web.

Search results. The results of a search query. Lists the locations where the information may be found, sometimes with a short summary describing what is at those sites.

Server. A machine that makes services available on a network to client programs. For example, a file server makes files available; a Web server makes Web pages available through the HTTP protocol.

Spam. Spam is an Internet slang term for unsolicited, usually commercial, e-mail (UCE). It is looked down upon severely by users on the Internet. If you mass e-mail to a list of addresses or newsgroups with the same advertising message, you have spammed those people.

Upload. Transferring information from a client to a server. The action of sending information to a computer on the Internet. Opposite of download.

Usenet. *Usenet News.* A network of thousands of discussion groups on any imaginable topic (and maybe some you can't imagine!).

URL. The standard method of specifying the location of a file on the Internet. There are typically three pieces to a URL. The first piece is the type. Common URL types are http, ftp, and gopher. After the URL type comes a colon (:) and two slashes (//). The second piece is the domain name of the computer that contains the information you are seeking. After the name of the computer is a slash (/). The last piece of the URL is the path to the file you want to access. The path is the series of directory (folder) names, separated by a slash (/). For example, in http://www.genium.com/ipgt/ "http" is the type, "www.genium.com" is the host domain name and "ipgt/" is the path to the file location.

World Wide Web (WWW). The World Wide Web is a system of hyperlinked documents made up of text, graphics, audio, and video files. It allows the user to move easily between documents and media through the point-and-click interface of a Web browser such as Netscape Navigator or Internet Explorer.

WYSIWYG. Pronounced "whiz-e-wig," this term is an acronym for "what you see is what you get." It refers to software that displays a page exactly as it will appear in print, on a Web page, etc.