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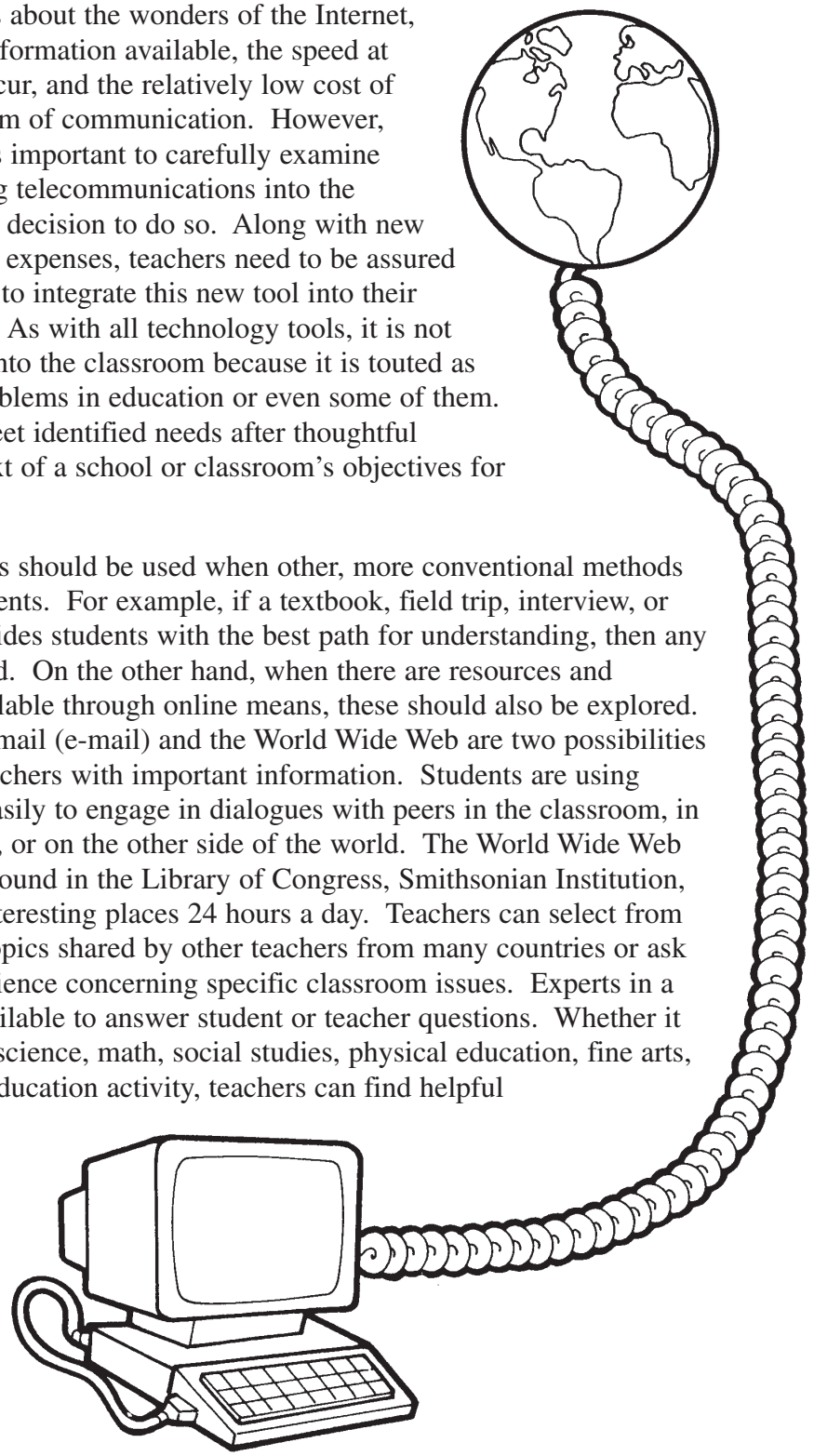
Introduction

Much is being said these days about the wonders of the Internet, such as the vast quantity of information available, the speed at which communication can occur, and the relatively low cost of gaining access to this new form of communication. However, even with the advantages, it is important to carefully examine the possibilities for integrating telecommunications into the curriculum before making the decision to do so. Along with new hardware, software, and other expenses, teachers need to be assured of hands-on time and support to integrate this new tool into their teaching and learning efforts. As with all technology tools, it is not enough to bring the Internet into the classroom because it is touted as something to solve all the problems in education or even some of them. Online resources will only meet identified needs after thoughtful examination within the context of a school or classroom's objectives for students and teachers.

Telecommunications resources should be used when other, more conventional methods do not meet the needs of students. For example, if a textbook, field trip, interview, or manipulative experience provides students with the best path for understanding, then any of those means should be used. On the other hand, when there are resources and experiences that are only available through online means, these should also be explored. Resources such as electronic mail (e-mail) and the World Wide Web are two possibilities for providing students and teachers with important information. Students are using electronic mail quickly and easily to engage in dialogues with peers in the classroom, in the school, across the country, or on the other side of the world. The World Wide Web provides access to resources found in the Library of Congress, Smithsonian Institution, weather stations, and other interesting places 24 hours a day. Teachers can select from lesson ideas on a myriad of topics shared by other teachers from many countries or ask questions of a worldwide audience concerning specific classroom issues. Experts in a large number of fields are available to answer student or teacher questions. Whether it is to support a language arts, science, math, social studies, physical education, fine arts, foreign language, or special education activity, teachers can find helpful information online.

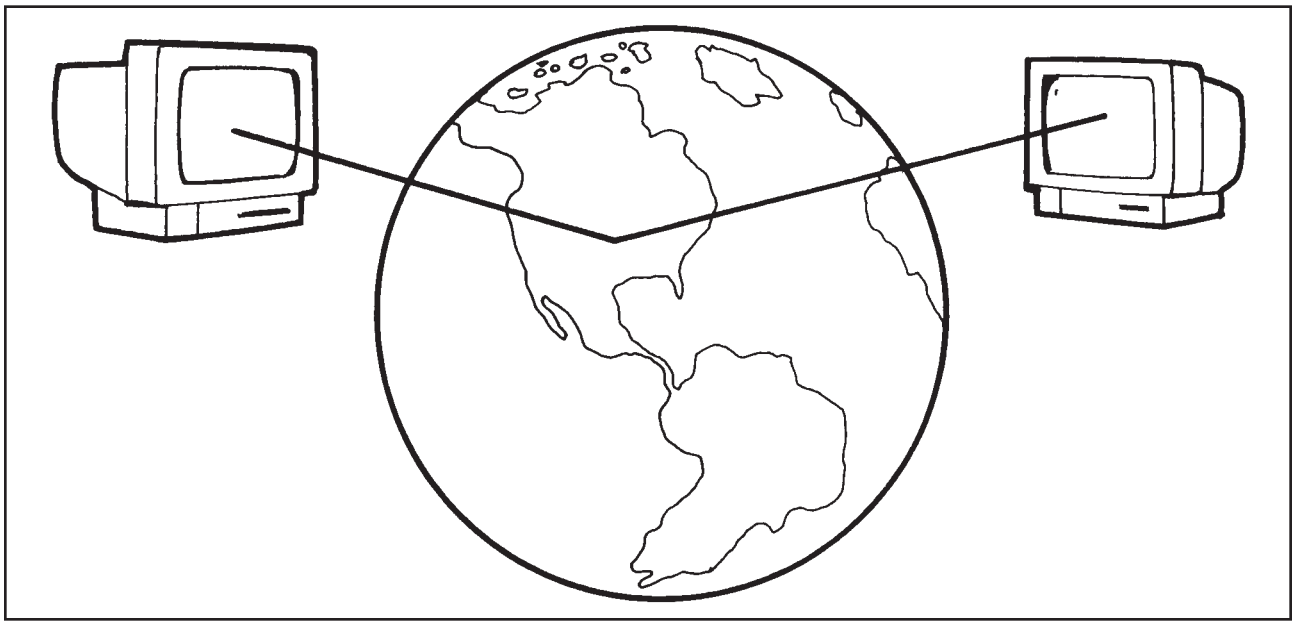


What Is the Internet?

Before diving into curricular applications of telecommunications and the Internet itself, a bit of history is offered. In the 1960s and 1970s, the Advanced Research Projects Agency (ARPA) of the United States Department of Defense began exploring ways communication could continue to exist in case of nuclear attack. It seemed logical that there should be no centralized site from which all communications were issued because the site could be identified and wiped out on the first strike. No one controlled the system that was set up among government agencies and research institutions, and, luckily, there has not been a need to test its accessibility. From this beginning, educational institutions became interested in the possibilities of collaborative work by researchers in remote sites, and they joined the network. Funded primarily through federal money, what is now known as the Internet grew and changed in purpose. Educators began to participate and were struck with the power of the medium for themselves and their students, and they spread the word. Today, it is estimated that there are over 100 million users in North America alone.

Currently, there is no centralized control over the network, which can be good news and bad news. It is good news because anyone can gain access, take information from, and share materials with the online community. However, because there is no controlling organization, it may be difficult to find exactly what one is looking for among the multitude of resources available.

Perhaps the Internet can best be thought of as a net or web covering the world with no beginning and no ending. Computers are connected to the web or net at intersecting threads. The intersecting threads enable people to communicate via computers connected with other computers. Visualizing this net or web with thousands of connecting threads, millions of computers, and million of users may be a starting point in trying to conceptualize the intriguing system of the Internet.



Going Online

After one or more successful online experiences, many educators discover that teaching will never be the same again. Some find most useful the discussions with other educators from all over the world who are addressing similar concerns in the field of education. Others find most useful the wealth of information they are able to access which has immediate relevance in their lessons. Educators are beginning to advocate the use of the Internet as a teaching tool, as well as a means for personal and professional growth. The people encountered online and the information located enhances teaching and classroom resources.

Students also feel empowered by the Internet. They are able to access people, information, graphics, and sounds that may not be available through other means. Being able to seek out information is an important skill for the twenty-first century. Students are not going to be expected to know everything but will be expected to know where and how to search for appropriate information. Internet interchanges reach students at many different levels. Such exchanges allow them to grow in personal and academic areas of interest and bring learning to life.

It is easy for people to contribute to the world bank of knowledge through the Internet. Students are provided with opportunities to experience a global society, meet people from places they themselves have never been, learn about other cultures, and discover other points of view. Up-to-date information is available more readily than ever before, so problem-solving activities can be directly applied to real-life situations.

•• Getting Started in the Online World

To join the online world an online service must be selected. There are commercial service providers, such as *America Online* or Internet service providers. The major differences between these two types of services include cost, available resources, and ease of access. After initial research, decide whether to start with the range of options included in a commercial service or to accept some added responsibility for acquiring and installing the necessary software from an Internet provider.

The hardware most people still use to get online is a computer, phone line, and modem. The most unfamiliar device may be the modem. A modem is a device which connects a computer to a phone line and translates the digital information of the computer into the analog information phone lines can transmit and vice versa. The word modem is a contraction of two words: modulate and de-modulate. If purchasing a modem, the baud rate (speed of transmission rate) is important. The higher the BPS, the faster the transmission. Other faster options are becoming more cost effective and widely available, including T-1 lines, ISDN lines, DSL lines, and cable services. Although many Internet service providers charge a standard monthly fee for unlimited time, be sure to check the terms for your provider so there will be no surprise fees.

Most classroom telecommunications use falls into two major categories: e-mail and World Wide Web use. Some Web browsers such as *Netscape Navigator* include e-mail features. A commercial service, such as *America Online*, includes a Web browser as well as e-mail capabilities. Both types of online services offer options, such as chat rooms, educational information, the ability to purchase airline tickets, weather services, and a host of other choices. With a commercial service, preselected options are available; whereas, with an Internet service provider, the user might have to search for locations of particular services. It is possible to try out a commercial service or two to determine interest and need. Most commercial providers offer a trial period at no cost.

•• Making the Connection

Each school will have its own specific procedure to follow for going online. These procedures can range from dialing into a provider to being "live" on line all the time. Teachers are urged to be very familiar with the process for going online at their schools, and spend time prior to teaching this unit ensuring that students are familiar with this process.

Depending on the kind of access you have (number of machines online, number of accounts, time available for using the machines, etc.), you will have to decide such issues as schedules for online work, whether students will work in pairs or alone, and whether students will have their own e-mail accounts or all accounts will be managed through a single class account. Although there are many factors to take into consideration which take time and effort, the benefits of online exchanges and access to Internet resources outweigh any disadvantages.

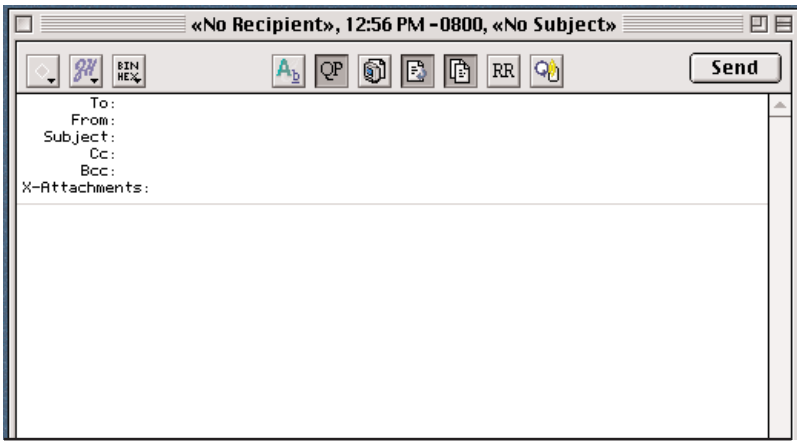
Using Electronic Mail (e-mail)

It is still true that a majority of online activity is made up of e-mail exchanges. The people-to-people connections are the primary purpose of most exchanges and have become a quick and easy way for friends, relatives, acquaintances, and business colleagues to interact. The hardware, whether it is Macintosh or Windows, does not matter when using telecommunications. E-mail messages can be sent between the different systems—Macintosh to Windows and vice versa. Now more than ever, software for composing, sending, reading, and responding to e-mail is easier to use and generally consistent across systems and service providers. Educators often have an advantage with regard to access and use of online software. For example, a popular e-mail program, *Eudora* (Qualcomm, Inc.), is available free to educators, as is *Netscape Navigator* (Netscape Communications), the most widely used World Wide Web browser software.

As with any new medium, there are aspects to consider before using. For example, privacy of e-mail is an important issue to address. When letters are sent through the mail, it is assumed they will not be opened by anyone except the addressee. The same can be assumed of e-mail, but it is not always the case. It is true that at some level, there is someone—probably a system administrator—who could read all or any mail that passes through the system. Most administrators do not have the time or inclination to do so, but it is possible. Horror stories have circulated about employees making uncomplimentary comments about bosses, which somehow found their way to the bosses' desks. Court cases are now pending regarding whether or not employers have a right to read e-mail sent or received by their employees.

Do not ever assume e-mail is totally private. Students need to be instructed not to write anything their parents or the teacher would not want to read. Incidentally, services which offer student accounts often monitor them more strictly than they monitor adult services. If students are found using improper language, they will be asked to stop or risk losing their accounts. Loss of access is usually a powerful deterrent. If teachers or students find themselves the target of unwanted, unsolicited, or offensive material, the system operator (the person who has responsibility for monitoring whatever telecommunications system is subscribed to), can be informed and action taken. Usually, the writer of the questionable material is warned and then denied access if the behavior continues.

•• Writing a New Message



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In this section, we will discuss the following parts of a message: heading, to, from, subject, cc, bcc, attachment, body, and save.

To begin a new message, select "New Message" from the message menu option. Click on "To" and enter the e-mail address of the person or persons who will receive this message. If you want to send a message to more than one person, enter everyone's addresses, separated by a comma and a space (e.g., info@apple.com, info@microsft.com). Your return address will already be placed in the "From" section of the heading since it was set up when you configured the software for your computer. The "Subject" area is very important. It provides the recipient with succinct information about the content of the message. If you want to send a copy of a message to someone, include his or her e-mail address in the "Cc" area. If you want to send a copy of the message, but do not want anyone listed in the "To" area to know, enter that address in the "Bcc" area. Attachments can also be added to your message; this feature is discussed in a separate section. These features make up the heading of your message.

You are now ready to enter information in the body portion of the message. The purpose of e-mail is clear communication. It makes sense to assume as little as possible, and to make sure the recipient understands your intent as well as the content of what you are sending. As with paper and pencil communications, you will want to include a salutation (Dear Gail), appropriate closing remarks, (Thank you!), and then your name. Even though your recipient will see your e-mail address in the heading and can figure out who sent the message, it is better to give what seems to be too much information than not enough.

In this Introduction to Internet, you will become familiar with Smileys and other netiquette issues when appropriate (see page 11). Remember that sarcasm and irony can be misunderstood without facial expressions and other body language we count on in face-to-face interactions. It is worth talking with students about situations in which they may have been only kidding, for example, but a friend didn't realize it, and feelings were hurt. The potential for this kind of error is greater on the Internet than on the phone or when both people are physically present.

• • Attachments

It is possible to attach a document to your e-mail message. You might write to a colleague, telling him or her that you have developed a lesson you want to share (which you composed using your word processing software). After writing your e-mail message, go to the message menu and highlight "Attach Document." When you release the mouse button, you will see an open document message box. Simply locate your file and click on the "Open" button. The file is automatically attached to your e-mail message and will be sent with it. In the heading of your e-mail message will be some identifying information and the name of your file. Students and teachers may use this feature to send copies of documents to friends or colleagues. Collaboratively planned units of instruction and pen pal letters with enclosed pictures are just two examples of resources that can be "attached" to an e-mail message.

When you receive an e-mail message with an attachment, it will be downloaded into an area on your computer you have designated through the e-mail program. Usually there is an e-mail preferences section in which you can specify where you want the attachments to go. After you go offline, locate the attachment and open it as you would any other file.

• • Sending a Message

There are at least two ways for sending mail. Most e-mail software has the ability for you to send the message immediately or "queue" it to be sent later. If you are going to have students write messages at the same time, you will probably want to "queue" the messages. The messages will then be stored in the Out box until you send them.

• • Replying to a Message

When you receive a message that you want to answer, simply click on the message menu, and highlight "Reply." You will see a screen similar to the "New Message" screen, but with the "To," "From," and "Subject" parts already filled in and the message in the body highlighted. If you want to include the original message, click outside the text box so that the message remains. If you do not want to include the original message, simply start typing and the highlighted message will disappear as your new message is created.

•• Forwarding a Message

If you receive a message that you want to send to someone else, open the message menu option and highlight "Forward." You will see a box similar to the "Reply" screen, with the "From" and "Subject" spaces filled in. You will see the flashing cursor in the "To" section, where you type in the e-mail address of the person you want to receive a copy of the original message. You can type in a note before or after the forwarded message, or edit it in any way.

This introduction to some of the features found in *Eudora* should get you started after your Internet connection is established. You can download a user manual from the *Eudora* site. *Eudora,* in the form of *Eudora Light,* is available free to educators. If you decide to purchase a copy of *Eudora Pro* you will receive a user manual in the package.

The Unofficial Smiley Dictionary

Smileys have been around for a long time, even before the advent of the World Wide Web. It is almost impossible to track down the originator(s), but there are a large number of people who post the very same dictionary on their home pages. Guy Kawasaki, author and early computer and Internet user, documented smileys in one of his books, *The Computer Curmudgeon* (Hayden Books, 1992). Thus, it seems fair to credit him, as did one Web page maker who used the Dictionary. The following selection was originally downloaded several years ago from a site designed by Jeffrey Samarziya.

Recently, a newspaper described some of the purported hazards of working with computers—electromagnetic radiation, strained limbs, and strained eyes. Not mentioned are crooked heads. That is what you get from trying to read the expressions of a new hieroglyphic language that computer addicts have invented to enliven messages.

Like prehistoric cave dwellers, the devotees of electronic bulletin boards and e-mail have struggled to find new ways to express themselves. Wall painting would not work. Words, it seems, are not enough. Inarticulate sounds cannot be displayed on screens. To make their messages feel more like personal contacts, they use the punctuation marks on an ordinary keyboard in order to make faces at each other. To read these signs, the user must tilt his or her head to the left.

• • The Smiley Collection

:-) Your basic smiley—This smiley is used to inflect a sarcastic or joking statement.

;-) Winky smiley—The user just made a flirtatious and/or sarcastic remark.

:-(Frowning smiley—The user did not like that last statement or is upset or depressed about something.

:-I Indifferent smiley—This is better than a frowning smiley but not quite as good as a happy smiley

Those are the basic ones. Here are the somewhat less common ones:

(-:	User is left handed	:^)	User has a broken nose
%-)	User has been staring at a screen	:<)	User is from an Ivy League school
8-)	User is wearing sunglasses	:-&	User is tongue tied
::-)	User wears normal glasses	-:-)	User is a punk rocker
:-{)	User has a mustache	-:-(	Real punk rockers do not smile
:-{}	User wears lipstick	|-I	User is asleep
{:-)	User wears a toupee	|-O	User is yawning/snoring
}:-(	Toupee in an updraft	:-Q	User is a smoker
:-[	User is a vampire	:-?	User smokes a pipe
:-E	User is a bucktoothed vampire	:-S	User just made an incoherent statement
:-7	User just made a wry statement	:-D	User is laughing (at you!)
:-*	User just ate something sour	:-X	User's lips are sealed
:-)~	User drools	:-C	User is really bummed
:-~)	User has a cold	:-/	User is skeptical
:'-(	User is crying	:-o	Uh-oh!
:'-)	User is so happy, he or she is crying	:-9	User is licking his/her lips
:-@	User is screaming	<:-I	User is a dunce
:-#	User wears braces		

Note: Many of these can be typed without noses to make smaller smileys.

Using the World Wide Web

A fast-growing aspect of Internet use is the World Wide Web. The Web is an area of the Internet which offers graphics, music, sounds, animations, video, and a variety of information through hypertext links. Hypertext links are links to other sites or locations. They are usually underlined, often in another color, and by clicking on them, new sites will open up. Resources can be linked to others so that it is possible to travel from the town library, to an Australian museum, to a library in Paris, to a collection of lesson plans at a university in Indiana, in the time it takes to click the mouse. HTML (hypertext markup language) is the Internet language, which allows the links between sites. It is a fairly easy language to learn, making it possible to share information through a Web page and thereby becoming part of the global online community. However, for those beginning the exploration, locating resources to enhance classroom lessons may be a good place to start.

•• Navigation

How does one find information on the World Wide Web? There is an accepted protocol for addresses of different sites. Although there are gopher sites (a gopher program is software that makes it easy to download text files), FTP sites (file transfer protocol, the process by which all kinds of files can be downloaded and uploaded to computers through the Internet), and telnet sites (a software tool by which users can log into other systems and use them with approval), all of which are accessible through the Web browser, at this point only Web sites will be addressed. A Web site address begins with http://. The "http" stands for hypertext transfer protocol and refers to how information moves from one Web site to another. In the address, or URL (Uniform Resource Locator), whatever follows http:// is the address of the specific site. References to these addresses are now on billboards, television screens, and a variety of other places. Typing the address into a Web browser and hitting the return (Macintosh) or enter (Windows) key will open up a Web page.

In the lessons that use Web browser software, students will learn to navigate around the Internet by entering a URL, or site address. On the screen of every browser is an address or location space. Sometimes it is named "Location" or "URL" or "Go to." Usually the address of the site that currently occupies the screen is displayed. The current address can be erased by highlighting it and typing in a new URL.

Navigation buttons on what is called the Tool Bar generally include ones that say "Back" and "Forward." These buttons enable you to return to a page you have just visited, or to go forward, one page at a time. The "Home" button takes you back to the Web site designated as your Home Page in your Web browser preferences. You can also click on a button with a label similar to "Find" which will open a dialog box into which you can type a URL. The "Search" button will open a page offering several search tools.

Most of these actions can also be accomplished by pulling down menus and using key equivalents. For example, in Macintosh versions of the software a dialog box appears when you press the Command and L keys. This is another way to enter a URL for the next site you want to explore.

Another way to navigate through the Internet is by following hypertext links. When you visit a site, you will most likely find words or phrases of text that are underlined and/or in a color other than black. Links are most often blue, but can appear in any color. When the mouse is clicked on underlined/colored text, you will be taken to another page at that site, or to a different site altogether. By following hypertext links you can begin to understand the non-linear nature of the Internet.

•• Saved Sites

One difference among Web browsers is the name for the menu option that enables you to save the path to an Internet site on your hard drive. *Netscape Navigator* lets you collect Bookmarks by highlighting "Add Bookmark" from a pull down menu. This results in a list of sites that are saved on your hard drive. The next time you go online, you can highlight one of those sites from the pull down menu, and you will be taken there without having to type in the URL. *Internet Explorer* names their list Favorites. The browser component of commercial services (America Online, Prodigy) also has features to save sites.

•• Search Tools

The Internet offers a plethora of information. The biggest challenge is locating this information with ease. Tools called search engines and search directories help find information on specific topics. To access a number of search tools press the "Search" or "Net Search" button on the Web browser.

There are a number of strategies to find information on the Internet. Keywords, when properly formulated, can narrow the search from a huge number of hits (possible sites) to a manageable number. The more specific the keyword, the better the chances of finding what is needed. Searching with keywords is introduced at Level 3.

A keyword can be a word, several words, or a phrase. If the term is longer than a word, enclose it in quotation marks (" "). The search tool treats what is within the quotation marks as a single term. Searches can be refined with words and symbols, including Boolean modifiers (such as "and," "or," and "not"). Lessons at Level 5 and 6 introduce these refinements.

Search tools can be divided into two types according to how they work. Search engines, such as Alta Vista and Excite, use a computer program to conduct regular searches of a large number of Web sites for the purpose matching the keywords or phrases you enter with words or phrases on Web sites. These lists are displayed as direct links to the sites.

Search directories such as Yahoo, Yahooligans, and Magellan, are composed of sites divided into categories by people. There are fewer sites in this type of collection, but the categorizing often leads to more direct hits than search engines that simply match characters.

An interesting pair of search tools, Ask Jeeves and Ask Jeeves for Kids, allows users to enter a question. The user is presented with sites that answer possible interpretations of the question from a number of search tools. This information can be used to further the search.

Metasearch tools, such as Dogpile and MetaCrawler, send the query to several search tools at the same time. The results list the name of a search tool and its first few hits with an option to see more or go to the next search tool's results.

All search tools offer advanced search techniques and opportunities to narrow the search. It is unusual for one search tool to provide the best results all the time.

The Web is a dynamic medium. Sites come into existence overnight and disappear just as quickly. If a link provided by a search tool no longer exists, a message error will display. If the site still exists at a new address, the link to the new site is usually automatic.

•• Information Literacy

Today, with such a large number of information sources available, it is important to determine what information is useful and trustworthy. In the past, this burden rested with the librarians who selected the reference materials. They were entrusted to develop and use appropriate criteria to determine which books, magazines, and other materials to put on the shelves. However, with the advent of the Internet and Web sites that can be created and posted by anyone, at any time, on any subject, our focus must be on developing critical thinking skills to analyze the validity of all information.

It shouldn't be surprising that librarians and other media specialists have taken the lead in sharing ideas about evaluating information. For example, Janet Alexander and Marsha Tate, librarians at Widener University's Wolfgram Library, have provided online information focused on evaluating Web sites based on their experience with print materials. Their five criteria—authority, accuracy, objectivity, currency, and coverage and intended audience—can be applied to Web sites as well as other media. Their book, *Web Wisdom*, goes into depth on the topic of evaluating Web sites, and may be a valuable reference to review and use in the classroom. At their Web site there are examples, explanations, and even PowerPoint presentations to download which explain the criteria. Jamie McKenzie, a former superintendent of schools has evaluation information at his From Now On educational journal Web site, as does Kathy Schrock, a library media specialist who has developed and maintained an extensive site with many links for educators. (See http://www.teachercreated.com/books/tw3 to link to any of these Web sites.)

•• Online Support and Technical Help

As discussed, access to people and places opens new doors for students in the classroom. Of equal importance, teachers are locating personal and professional resources and support online. Through online services, educators can work together to meet the challenge of teaching. Not only are there many conferences set up for educators on a myriad of topics, but the number of teachers helping each other through shared information is rapidly growing.

Technical help is also available. Educators can find answers to hardware and software problems through technical support offered by many services and companies. New editions, utilities, and fixes from software publishers are often available online. Special sections of some services are set aside specifically for educators to ask and answer questions of each other.

Online Issues for Education

The Internet is a popular topic these days. With the popularity comes a number of exciting stories about integrating telecommunications into the curriculum, as well as a number of stories that raise concerns about the Internet. The following section addresses these concerns.

•• Acceptable Use Policies

You can introduce the topic of appropriate online behavior by talking about Acceptable Use Policies (or AUPs). An Acceptable Use Policy is defined as a statement made and agreed upon for the benefit and protection of everyone in class who will be using the Internet in school.

In order to become responsible users of the Internet, it is important that students understand issues of online use. If students participate in discussions about online safety, taking responsibility for the sites they choose to visit, and understand appropriate e-mail messages, they are more likely to handle themselves online.

The lessons discussing Acceptable Use Policies seek to involve students at a level they can understand and participate in. Parents and other school personnel are also included as part of the process so that awareness and understanding are shared among all involved.

•• Netiquette

On the Internet, there are codes of behavior similar to offline golden rule expectations. Online etiquette or netiquette includes an expectation of treating others as one would like to be treated. However, because there is not an opportunity to communicate intent through facial expressions or gestures, it can be difficult to make sure clear communication is taking place. A number of techniques for online exchanges have evolved. For example, in e-mail exchanges, if a message is typed in capital letters, it may appear to others that the sender is shouting. Enclosing the word or words with an asterisk (*) is similar to underlining for emphasis.

Messages should be as short and succinct as possible so that those reading the message do not have to spend much time downloading. In fact, most people download their e-mail messages, close the online connection, compose answers offline, and then upload them. Information on how to do this is in the e-mail software manual. In this way, time will be saved, and there is a chance to write and edit messages at one's leisure without worrying about tying up the phone lines.

People may use abbreviations for words or phrases in their online communications. For example, BTW actually stands for "by the way." Other examples include:

BG	big grin	LOL	laughing out loud
VBG	very big grin	TTFN	ta ta for now

Since acronyms seem to be used by any group, and teachers and students are no exception, it might be fun to have students make up some acronyms for their online use.

Ethical and Equity Issues

With the advent of this powerful medium of exchange, telecommunications brings up issues that must be addressed regarding ethics and equity. Ethical issues include copyright infringements of online materials, gender-free bias online, and equity of access.

•• Using Online Sources

If students find a wonderful graphic online, one which perfectly illustrates their point in a report, they can they download it, print it, and include it in their reports. What about taking information from an online encyclopedia? Or downloading software that is offered? The law is evolving, but a good rule to go by is to consider the creators of the material. In preparing reports, students are expected to list their sources in some sort of bibliography. Graphics, sounds, animations, and video segments can be used if their sources are cited. Information from an online encyclopedia should be referenced in the same way as a print encyclopedia. See the site called Copyright and Citations: What Educators Need to Know at http://www.teachercreated.com/books/tw3 for further information.

•• Downloaded Materials

Software that is downloaded (saved to the hard drive or floppy disk) from Internet sites most likely falls in one of two categories: public domain or shareware. Public domain materials are free to those who want and can use them. Shareware programs generally include the programmer's name, address, and terms for use. Some programmers want a nominal fee if the user likes the program; others ask for some token, such as a postcard from the town in which the user lives. Respect for others and the property of others is essential. Students can become aware of issues relating to intellectual property through role playing different situations. When ownership of a creation (software program, Web page, art work, or written material) is acknowledged, creators are encouraged to continue creating, and acknowledgment demonstrates to students that their work will be valued as well.

•• Equity Issues

Everyone should have access to the powerful tools of the online world. Many schools and districts are working hard at providing access. As members of a worldwide community we should all be engaged in the challenge of offering equal access to all. For some schools, it may be a question of funding. It is heartening to see how different communities work out solutions. For example, March 9, 1996, was initially set aside as the day in which all schools in the state of California would be wired for telecommunications access. Called "Net Day," the proposal counted on volunteers spending a Saturday helping out at schools, using donated materials under the supervision of skilled volunteers. It is true that not all schools in the state had Internet capability at the end of the day, but many did. And many more started making plans with parents and communities for future access. A number of Net Days have been held across the country and many

schools and libraries have been wired. The Net Day volunteers have wonderful stories to tell about a successful effort, a time of people coming together for a purpose that would benefit their children and their community's children, and promises to get more involved in education.

Every community must address issues regarding equity of access. Schools do not have to do it alone. Businesses, community colleges, universities, nonprofit organizations, and many other entities are happy to get involved in a positive effort to work and share in building a global community.

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Introduction to the Level 3 Kit

Access to technology, as well as the maturity of your students, your schedule, and curriculum commitments will determine how many activities you and your students will choose to undertake. There are three sets of activities in this section. One set relates to using a word processing program. We will use Eudora by Qualcomm as the model, since it is accessible at no cost to educators using Macintosh or Windows environments.

The second set of lessons involves accessing the World Wide Web with a Web browser. Both of the most popular Web browsers—*Netscape Navigator* by Netscape Communications, and *Internet Explorer* by Microsoft—have similar navigation features. A major difference is how sites are saved so you can get to them again without having to re-enter a URL. *Netscape* saves its sites in a Bookmark file, and *Internet Explorer* saves its files in a Favorites file.

A third set of lessons are project-based, using Web resources. You may have to adjust suggestions, timelines, and expectations, based on your particular group of students and your goals for them. Through the range of lessons, you are provided with an introduction to the variety of possibilities for integrating e-mail and Web resources into your curriculum. The effective use of search tools & Web page evaluation are addressed as well.

•• Introduction to Lessons Using E-mail Software

Most e-mail programs these days have similar features. The e-mail software used in this set of lessons is *Eudora* by Qualcomm, Inc. This program is free to educators, well-designed, and popular. If you are using a different e-mail program, such as the proprietary programs provided by a commercial provider, you will find there are some differences. However, the features discussed here are consistently available.

Whatever software you are using you will open it in the same way you do any other application. There is most likely a "mail" section, or the e-mail feature is detailed in the introductory materials you received.

To retrieve an e-mail message, you will again follow the instructions that come with your software or from your provider. Using *Eudora* as an example, after you make the connection to your service provider, you simply pull down the File menu and highlight the "Check Mail" option. Any mail that is waiting will be downloaded to your computer. You may hear a sound or receive some other form of notification when all messages have been received, and you can then open messages in any order you would like to read them. Incidentally, if you have received many messages, you may want to go offline, read and reply to the messages, and then go back online to send them, since cost may be a factor.

When finished reading a message you have a number of choices. You can delete the message, simply by pressing a button or highlighting a menu option, or the message can be saved in "folders" you create so that all messages from a particular person or having to do with a single topic can be kept together for easy reference at a later time. You can also print the message as you see it, or save it to your desktop or specified file. Saving messages in the desktop or file enables you to open them from any word processing program and edit, print or work with them in any way you wish.

•• Introduction to Lessons Using Web Browser Software

Most Web browser software have similar functions and identical icons. The two most common browsers are *Netscape Navigator* by Netscape Communications, and *Internet Explorer* by Microsoft. You open all Web browsers the same way you open any other application: by clicking on the icon or naming the path.

There are a number of Web browser features that are similar to word processing applications. For example, any screen can be saved through a "save as" command, often found in the file menu. Simply highlight "Save As," name the file, and indicate where you would like it placed on your computer. You can then open the file at a later time through any word processor, and edit it or print it. You can also print screens by using the "Print" command.

Another nice feature of Web browsers is the ability to save pictures. By clicking on a picture and holding the mouse button down, you will see several options, one which lets you save the image. Highlight that option, and the picture will be downloaded to your computer. Remember to talk with students about the fact that text and pictures are often the property of the person who put up the page, and can be used by others only with his or her permission. The easiest way to get permission is to contact the person who developed the page. At the bottom of the first page, the author usually puts a link to an e-mail account so people can ask questions, add information, praise the site, etc. This e-mail address can also be used to ask permission to use materials from the page. The author is usually delighted to grant permission, as long as he or she is confident the person asking permission will not misuse the information, and will cite the work properly.

•• Introduction to Project Lessons

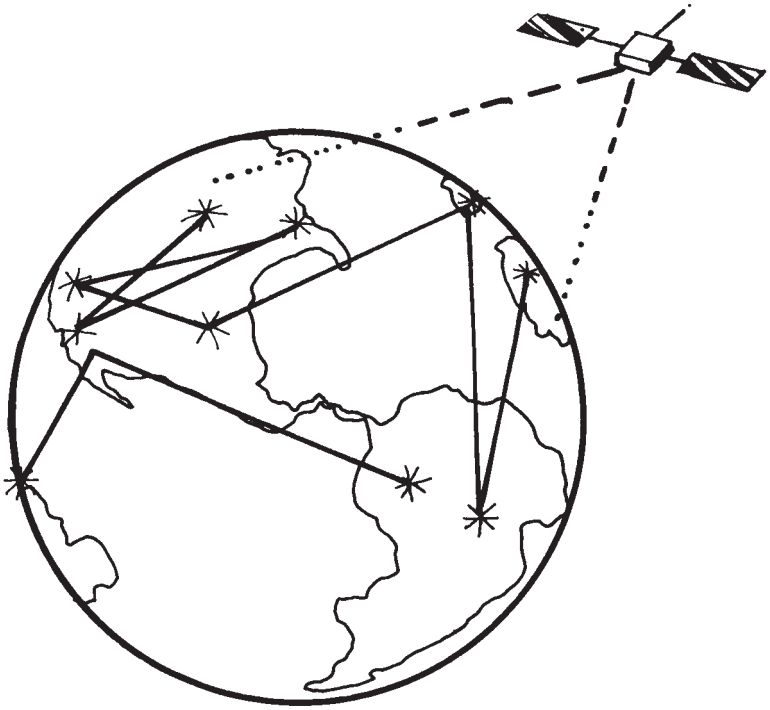
The lessons for Level 3 provide opportunities for students to experiment with and learn features of e-mail and Web browser software. Students then apply what they have learned to create projects. Two of the lessons involve specific Internet sites and activities, while the third lesson is open-ended—student designed in response to a class assignment. Students are expected to develop a plan using online and offline resources. Each project/lesson has objectives asking students to use required software, complete tasks, and use the online resources appropriately.

Since not every classroom is equipped to access the Internet, or a school may have a small number of computers with Internet capability, the lessons usually require a minimal amount of time online for each student. As our classrooms become better equipped, use of the Internet as a tool across the curriculum will become more commonplace. The ideas you and your students develop will benefit the students and teachers in the years ahead.

Concluding Remarks

Marshall McLuhan's 1960s term "global village" takes on a new meaning in the information age. Telecommunications brings together influences from all over the world so students can have the broadest experience of life on the planet. The global village is at our fingertips, and the wealth of information, people, and services is exhilarating.

Arthur C. Clarke once said, "The future isn't what it used to be." Sometimes we think we know what is coming next, but we are often wrong. Perhaps we are right, but so many other events are occurring simultaneously that important opportunities are sometimes missed. The Information Superhighway and the Internet are high interest topics right now. Similar to the enthusiasm about putting computers in classrooms and labs a number of years ago, it is easy to jump on the bandwagon, install lines in classrooms, and assume that everyone is connected and using technology effectively. We all know of schools where computers sit in closets because their purpose in the curriculum was not defined, or teachers were not provided enough time or information to incorporate computer technology into their teaching. Working together to formulate plans for meaningful telecommunications integration into curricula, to build awareness of the appropriate and exciting uses of the technology, to plan for equal access for all, and to engage in projects that make sense and work towards building a better world for everyone is critical to successfully implementing technology in the classroom.



Guide to Internet/Telecommunications Lessons in This Kit

Listed below are the lessons and objectives in the Level Three Kit.

Lesson 1: The student can open an e-mail program. (Objective 1/Introduce, Master, and Extend)
The student can compose, address, and send an e-mail message. (Objective 5/Introduce and Master)

Lesson 2: The student can retrieve and read an e-mail message. (Objective 2/Introduce, Master, and Extend)
The student can reply to an e-mail message. (Objective 3/Introduce and Master)
The student can delete an e-mail message. (Objective 4/Introduce, Master, and Extend)

Lesson 3: The student can use smileys appropriately in an e-mail message. (Objective 7/Introduce and Master)
The student can copy and paste information into an e-mail message. (Objective 8/Introduce and Master)

Lesson 4: The student can open a Web browser. (Objective 11/Introduce, Master, and Extend)
The student can enter a Uniform Resource Locator. (Objective 12/Introduce, Master, and Extend)

Lesson 5: The student can use hypertext links. (Objective 14/Introduce, Master, and Extend)
The student can use the tool bar in a Web browser. (Objective 15/Introduce)

Lesson 6: The student can participate in an Acceptable Use Policy design. (Objective 10/Introduce)

Lesson 7: The student can develop keywords and search using them. (Objective 19/Introduce)
The student can search using directories. (Objective 20/Introduce)
The student can search using search engines. (Objective 21/Introduce)

Lesson 8: The student can evaluate Web sites for appropriateness. (Objective 26/Introduce)

Lesson 9: The student can identify the right search tool for a given task. (Objective 25/Introduce)

Lesson 10: The student can use required software. (Objective 52/Introduce)
The student can complete required tasks for projects. (Objective 53/Introduce)
The student can develop a project using online resources. (Objective 54/Introduce)

Lesson 11: The student can use required software. (Objective 52/Introduce)
The student can complete required tasks for projects. (Objective 53/Introduce)
The student can develop a project using online resources. (Objective 54/Introduce)

Lesson 12: The student can use required software. (Objective 52/Introduce)
The student can complete required tasks for projects. (Objective 53/Introduce)
The student can implement a project using online resources. (Objective 55/Introduce)

Guide to Curriculum Connections—Skill Review Cards

The Level Three Kit contains extra skill review cards for the Internet Section. Each activity is described below along with the skills reviewed.

Activity Card 13: Language Arts
Guess the Character

The student can go online.
The student can open an e-mail program.
The student can address, compose, and send an e-mail message.

Activity Card 14: Language Arts
You're a Great Teacher

The student can go online.
The student can open an e-mail program.
The student can address, compose, and send an e-mail message.

Activity Card 15: Language Arts/Social Studies
Your Biography

The student can go online.
The student can open an e-mail program.
The student can address, compose, and send an e-mail message.
The student can open a word processing program.
The student can enter text in a word processing program.
The student can copy and paste in a word processing program.

Activity Card 16: Language Arts
How's It Going?

The student can go online.
The student can open an e-mail program.
The student can address, compose, and send an e-mail message.

Activity Card 17: Language Arts
Let's Browse

The student can go online.
The student can use a Web browser.

Activity Card 18: Science
The Science Doctor

The student can go online.
The student can use a Web browser.

Activity Card 19: Language Arts
Choose a Book
The student can go online.
The student can use a Web browser.

Activity Card 20: Language Arts
The White House
The student can go online.
The student can use a Web browser.
The student can use hypertext links.

Activity Card 21: Science
Find out the Scoop
The student can go online.
The student can use a Web browser.
The student can use hypertext links.

Activity Card 22: Science
Stop Bugging Me
The student can go online.
The student can use a Web browser.
The student can use hypertext links.

Activity Card 23: Language Arts
Your New Pet
The student can go online.
The student can use a Web browser.
The student can use hypertext links.

Activity Card 24: Social Studies
Winter Holidays Around the World
The student can go online.
The student can use a Web browser.
The student can use hypertext links.

Activity Card 25: Language Arts/Social Studies
Biography
The student can go online.
The student can use a Web browser.
The student can use hypertext links.