

Your Guide to Safe Surfing: Learning about the Internet

For Educators:

These materials are the result of a survey given to almost 500 Indiana school children in grades 6-9 in the spring of 2003. The results of that survey showed that middle school students needed more instruction in the basics of how the Internet works, terminology and history, safety concerns, and especially ethical matters.

Your Guide to Safe Surfing: Learning about the Internet is an instructional booklet geared toward middle school students in order to help them learn more about how to use the Internet safely, correctly, and ethically. It is written in the format of a guide for surfing and is themed accordingly. It is divided into three distinct sections: “Treading Water,” “Standing up,” and “Surfing.”

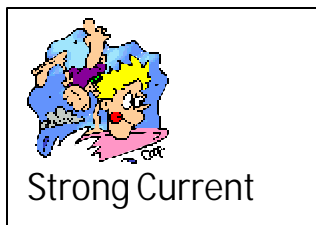
“Treading Water” is separated into three sections: “A Brief History of the Internet,” “How the Internet Works,” and “Common Terms.” “A Brief History of the Internet” is a short timeline that hits the important milestones of the Internet and shows how the system went from a military remnant of the Cold War to the hub of commerce, communication, and information that it is today. “How the Internet Works,” much like the previous section, is a short description of how the Internet works in general terms. “Common Terms” is a short glossary of terminology associated with the Internet, with space given for students to add terms as they come across new ones they might need to remember.

“Standing Up” deals with using the equipment properly and effectively and is also divided into three sections: “Using the World Wide Web Effectively”, “Using Email”, and “Communicating with Others.” “Using the World Wide Web Effectively” contains descriptions of the Web, browsers, and URLs. It also contains a Web search exercise dealing with the students' school, finding directions to their homes, and finding websites about their personal interests. “Using Email” looks at how email works and how it’s sent and received. Included with this section is an activity dealing with encryption and having students write encrypted messages to their friends and having to decipher them. “Communicating with Others” goes to the next level and looks at chatting and messaging programs and some of the language associated with them, such as emoticons and acronyms/abbreviations. There is an activity associated with this part of the unit where students have to make their own emoticons and abbreviations in relation to their interests and school.

“Surfing” involves the everyday use of the Internet and the issues surrounding that. Like the previous two sections, it is also separated into three parts: “The Ethics of

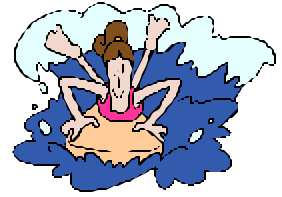
the Internet,” “Protecting Yourself from Shark Attacks,” and “Knowing the Safe Places to Surf.” “The Ethics of the Internet” discusses the student’s role in making sure the Internet is free of unethical behavior and how to behave ethically while online. It lists the Ten Commandments of Computer Use and then has a series of ten short case studies where the students have to identify the unethical action, discuss consequences for the action, who it harms, and then which commandment it matches and why. “Protecting Yourself from Shark Attacks” shows how people can attack your computer and what you can do to prevent it, and it contains a short exercise matching attacks with their countermeasures. Finally, “The Safe Places to Surf” is a list of safe sites where students can get information and visit without fear of inappropriate material.

Throughout the course of the lessons, there is information off to the sides labeled either “strong current” or “shark warning.” “Strong currents” include any secondary information that students might need to know about the subject, typically with Web addresses to sites with extra material, while “shark warnings” deal with the dangers associated with what’s being discussed. The booklet is also written in easy-to-understand terms and contains graphics appropriate to the middle school student.



The materials for the students, which are also included in this packet, are written in the **Verdana** font, while the teacher materials are in the Garamond and Century Gothic fonts as seen throughout these pages. Information for teachers will precede the section and the activities, and some parts will be written out so you will be able to make handouts or overheads as you see fit.

The key element of these materials is that they can be used in three different middle school curriculums—English, history/social studies, and science—according to current Indiana state educational standards. The standards with which each activity or set of materials coincide are included in the teacher materials. Suggestions will also be given as to how they can be integrated into your standard curriculum, as well as other activities that could be used with them.



Objectives:

- Students will learn about the history of the Internet through the use of a timeline.
- Students will learn about how the Internet works from a description of how information is sent online from one computer to another via servers.
- Students will learn key terms related to the Internet with the assistance of a glossary.

Description of Sections:



“A Brief History of the Internet”

This first section of “Treading Water” is a timeline showing the history of the Internet from its inception in the early 1960s to what it has become today. Key terms and important contributors to the creation of the Internet as we know it today are listed in **bold** type.

NOTE: The information in the table of contents has two pages—the page it is in the student materials and the page it is in these materials in bold.

“Strong Current” Information

Carlson’s New Media Timeline—

http://iml.jou.ufl.edu/carlson/professional/new_media/timeline.htm

This website gives a detailed look at the history of the Internet from a more global perspective. The page is split by decade and also split by regions of the world—the UK, the US, Europe, and Asia. It not only looks at the Internet, but also major advancements in technology and multimedia. There are also links within the site that give definitions to some of the more unfamiliar terms.

ARPANET at Webopedia.com—

<http://www.webopedia.com/TERM/A/ARPANET.html>

This site gives the reader a closer look at the history of ARPANET with links to more information. Links include more information about the birth of the Internet, a more detailed history of ARPANET, and another Internet timeline.

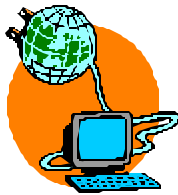
Browser Timelines—

<http://www.blooberry.com/indexdot/history/browsers.htm>

Provides the user with a history of the four most well-known browsers—Microsoft Internet Explorer, Netscape Navigator, Mosaic, and Opera. Not the most exciting of websites, but it is certainly a good source to find out how Web browsers have evolved over the years.

Suggested Activities with “A Brief History of the Internet”

Have the class break into small groups and give each group a different decade. Have the groups find out what was going on in the world historically as the Internet was evolving and create their own timeline to display in the classroom. Have the students use the Web to find pictures of events and people to put on the timeline as well., then have each group present their information to the class.



“How the Internet Works”

This section describes what it means to be connected to the Internet and how information gets from your computer to someone else’s.

“Strong Current” Information

The Animated Internet—

<http://www.learnthenet.com/english/animate/animate.htm>

In less than 50 clicks of your mouse, you can learn how the Internet, the Web, email, mailing lists, search engines, newsgroups, streaming

media, encryption, and online shopping actually work. It is explained graphically as well as with text, so it will be easier for more visual learners to understand. Flash is required to view this page, which can be found at www.macromedia.com. While Flash is usually downloaded onto most schools' computers, there is a chance it might not, so always be sure to check the website to make sure it works before you try it in class. If you can't download the program to your school's computers, ask the librarian or an administrator for assistance with getting it installed.



“Common Terms Associated With the Internet”

This is a glossary of words related to the Internet that students might have heard before but not known what they meant. Space is also provided at the end of the glossary so students can write in more words and definitions as they come across them.

Suggested Activities with “Common Terms Associated with the Internet”

Add a term or two each week to your weekly vocabulary list.

Ask students where they have heard these terms before or if they have come across them out in the real world.

State Standards

The information and suggested activities found within “Treading Water” meet the following state standards:

English

7.2.1 Understand and analyze the differences in structure and purpose between various categories of informational materials.

Science

6.1.9 Explain how technologies can influence all living things.

7.1.5 Identify some important contributions to the advancement of science, mathematics, and technology that have been made by different kinds of people, in different cultures, at different times.

- 7.1.9 Explain how societies influence what types of technology are developed and used in fields such as agriculture, manufacturing, sanitation, medicine, warfare, transportation, information processing, and communication.
- 7.1.10 Identify ways that technology has strongly influenced the course of history and continues to do so.
- 8.1.8 Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.

History:

- 6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.



Your Guide to Safe Surfing: Learning about the Internet

What's inside...

Your Guide to Safe Surfing: Learning about the Internet is designed to help you learn more about what it means to be online today and the dangers and issues associated with being online.

Treading Water, Standing Up, and Surfing

The booklet is split up into three main sections: Treading Water, Standing Up, and Surfing. These sections are divided as follows:

- Treading Water

• A Brief History of the Internet	3	9
• How the Internet Works	6	12
• Common Terms Associated with the Internet	8	14

- Standing Up

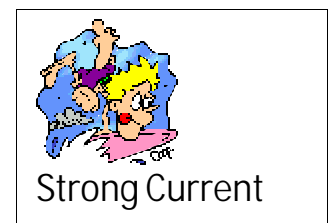
• Using the World Wide Web Effectively	10	26
• Using Email	14	40
• Communicating with Others	20	46

- Surfing

• The Ethics of the Internet	23	48
• Protecting Yourself from Shark Attacks	48	73
• The Safe Places to Surf	52	77

Strong Currents and Shark Warnings

Along the way you will see strong currents and shark warnings in the margins. Strong currents lead you to sites on the Internet for further information about a subject, while shark warnings tell you about common dangers associated with the topics being discussed.



Activities

Throughout the booklet you'll find activities and exercises related to the topics being discussed. These are designed to give you hands-on experience with the Internet and ways to associate problems online with problems in the "real world." Space is also provided at the end of this booklet for you to write down any important additional information that you'd like to keep as you learn how to surf the net.

For Further Information

CERIAS, the Center for Education and Research in Information Assurance and Security at Purdue University in West Lafayette, Indiana has further information and activities for you and your parents:

<http://www.cerias.purdue.edu>



Part 1: Treading Water

Although I'm sure most of you have already used the Internet before to play games, talk to friends, or do homework, you might not know why the Internet was created, just how it works, or some of the terms commonly used regarding the Internet itself.



A Brief History of the Internet

Very few people know that the Internet can be traced back as far as the early 1960s! Take a look at the timeline below to find out that it wasn't Bill Gates or Al Gore who invented the Internet, but actually the Department of Defense.

1962 - 1969

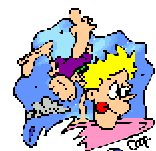
The United States Department of Defense's (DOD) Advanced Research Project Agency (ARPA) plans to create a small network of computers called **ARPANET** in order for scientists and researchers to share information.

1969 - 1971

ARPANET connects the first four universities in the United States, the **Stanford Research Institute, UCLA, UC Santa Barbara, and the University of Utah**. By the early 1970s, the ARPANET has become quite popular with many universities, twenty-three total by 1971, with sending email being its favorite use by the researchers.

1972

The InterNetworking Working Group becomes the first organization to keep an eye on ARPANET. **Vinton Cerf** is elected the chairman and later becomes known as a "**Father of the Internet.**"



Strong Current

Carlson's New
Media Timeline—

http://iml.jou.ufl.edu/carlson/professional/new_media/timeline.htm

A detailed look at the history of the Internet from a more global perspective.

1974

The commercial version of the ARPANET goes online as it becomes less military and more public oriented.

1979

Two grad students at Duke University and a student at the University of North Carolina establish the first **USENET** newsgroups.

1982

TCP/IP, the language of all computers connected to the Internet, is created and becomes the standard language of the Internet by 1983. For the first time the loose collection of networks which made up the ARPANET is seen as an "**internet**", and the Internet as we know it today is born.

1984

The term "**cyberspace**" is used for the first time in William Gibson's novel *Neuromancer*.

1988

On Nov. 1, 1988, the computer virus was born when a malicious program called the "**Internet Worm**" temporarily disabled 6,000 of the 60,000 Internet hosts. The term "**hacker**" is created. The Computer Emergency Response Team (CERT) is created to address security concerns raised by the Worm.

1990

The ARPANET is shut down for good, leaving the Internet in its place.

1991

The **World Wide Web**, a system of servers that support specific documents, is born. The documents are formatted in a script called **HyperText Markup Language** (HTML), which supports links to other documents, as well as graphics, audio, and video.

The National Science Foundation lifts the restriction on commercial use of the Internet, clearing the way for the age of electronic commerce.



Strong Current

ARPANET at
Webopedia.com—

<http://www.webopedia.com/TERM/A/ARPANET.html>

A closer look at the history of ARPANET with links to more information.



Shark Warning!

Viruses are still around today, and the only way to prevent them is to have good virus protection software and knowledge on what might be a virus. This will be looked at more in Standing Up.



Shark Warning!

The World Wide Web and the Internet are NOT the same things! Not all Internet servers are connected to the WWW.

1992

The first audio and video broadcasts take place over a portion of the Internet known as the "MBONE."

1993

Mosaic, the first graphics-based Web browser, becomes available. America Online releases its PC version.

1994

Marc Andreessen and **Jim Clark** form **Netscape**. Pizza Hut gets an order for a mushroom, pepperoni with extra cheese over the net.

1995

Sun Microsystems releases an Internet programming language called **Java**, and the Yahoo search engine is created.

1996

Approximately 40 million people are connected to the Internet, and more than \$1 billion worth of merchandise is bought online.

1999

Shawn Fanning and Sean Parker create the **Napster** peer-to-peer **MP3** file-sharing system, which is used to swap songs for free across the Internet.

2001

America Online passes the 32 million subscriber mark, adding 1 million in 2-1/2 months. MSN has 7 million and Earthlink has 4.8 million. NetZero counts for 6.1 million users.

Today

Today the Internet is used by tens of millions of people in almost 200 countries across the world. The web is a vast library of information accessible to anyone, anywhere, at any time.



Strong Current

Browser
Timelines—

<http://www.blooberry.com/indexdot/history/browsers.htm>

A history of the four most well-known browsers—Microsoft Internet Explorer, Netscape Navigator, Mosaic, and Opera.



Shark Warning!

Although file-sharing programs have been around for some time, it's still illegal and a violation of copyright to download music, video, and programs from programs such as these.



How the Internet Works

Whether you connect from home, school, or outer space, the Internet works the exact same way:

The Internet itself is a global network of separate computers all linked together. It could be looked at as an imaginary space where people can meet up through instant messaging programs or email, or share information or data through their computers and come and go as they please.

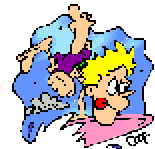
The computer uses a modem to connect to an Internet Service Provider (ISP), such as America Online, Microsoft Network, or your local cable company. Sometimes the computers are already connected to an ISP, such as in the case of cable or DSL connections or like your computers at school. At home you sometimes have to call the ISP using a dialup modem.

The ISP's computer is already connected to the Internet, and your computer becomes linked to all the other computers that are connected to that ISP.



Once you're connected, you use a Web browser to navigate the Internet, which communicates with other servers and sends back the information you request when you type an address in the top bar or click on a link to a page.

With the Internet, you have instant access to any piece of information at any time from anywhere. You can communicate with people you would never have had the chance of communicating with before through email or chatting programs. You can listen to music, watch videos, and play games at the click of a mouse. You can go on virtual field trips to other countries or other times in history.



Strong Current

The Animated Internet—

<http://www.learnthe.net.com/english/animate/animate.htm>

In less than 50 clicks of your mouse, you can learn how the Internet, the Web, email, mailing lists, search engines, and several other online tools actually work. Flash is required to view this page, which can be found at www.macromedia.com.

But the Internet is also not without its dangers. Hackers will try everything to get information on your computer, while others will send viruses or talk to you on chat programs to get personal information about you and your family. With the help of this guide, you'll soon learn how to protect yourself from these dangers.

Common Terms Associated With the Internet



Bandwidth—The amount of data that can be passed along a communications channel in a given period of time.

Broadband—Of or relating to or being a communications network in which the bandwidth can be divided and shared by multiple simultaneous signals (as for voice or data or video). It is also faster in speed than dialup. Sometimes referred to as “high speed Internet.”

Browser—A program that allows people to navigate specific areas of the Internet.

Cable Modem—High-speed Internet service that is run through your local cable company’s lines to your computer.

Database—A computer holding a collection of material arranged for ease and speed of search and retrieval.

Dialup Internet Connection—A network connection which requires that a telephone number be dialed.

Digital Subscriber Lines (DSL)—DSL is a high-speed Internet line that runs through regular phone lines. Also referred to as an “always on” connection because you do not have to disconnect from it in order to use your phone.

Directory—A list of files on an Internet site.

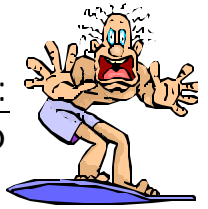
Download—To take a file from another computer and put it on your computer.

Email—A system for sending and receiving messages electronically over a computer network, as between personal computers.

Frequently Asked Questions (FAQ)—A list of frequently asked questions and their answers about a given subject.

File Transfer Protocol (FTP) Site—A publicly-available Internet site where files can be shared.

Gopher—A menu-based system used to find files on the Internet.



Objectives:

- Students will learn how to use the Web effectively with the assistance of an exercise on using search engines correctly.
- Students will learn about how email works and is sent securely with the use of an exercise on encrypting messages.
- Students will learn about instant messaging and how to chat in that universe with an activity on emoticons and abbreviations.

Description of Sections:



“Using the World Wide Web Effectively”

This first section of “Standing Up” contains descriptions of what the Web is and how it works, the elements of a website, how browsers and search engines work, and it includes any key terms listed in **bold** type. It also contains a Web search exercise dealing with your students' school, finding directions to their homes, and finding websites about their personal interests.

“Strong Current” Information

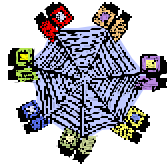
Dejavu.org, the Web as we remember it—
<http://www.dejavu.org>

This website shows how Web browsers used to work in the “good old days” of the mid 1990s. The emulator includes classic examples of a line-mode browser, Mosaic, Netscape Navigator 1, Lynx, Internet Explorer 1, and HotJava. The site also contains a timeline showing the history of Web browsers.

NOTE: Do NOT type dejavu.COM into your web browser on accident. This leads to a website that has nothing to do with Web browsers.

How Web Pages Work by Marshall Brain—
<http://computer.howstuffworks.com/web-page.htm>

This site gives a more detailed description of how Web pages are programmed, used, and found on the Internet. This site is very technical, going as specific as HTML tagging, but it does include some graphics and good descriptions of what the tags specifically do.



Activity: “Navigating the Web”

“Navigating the Web” is an exercise made for students to learn how search engines use keywords to find the information they are looking for. They first use four search engines in the assignment to find out how many ‘hits’ they can get about their school, then the students use a search engine to find out information about some of their interests and important sites, then they use it to find out about Boolean phrasing and how they can use it to find information for classes.

Materials

Computers with Internet connections and Web browsers are required for this assignment. If you’re going to assign the exercise for homework, make sure all students have Internet capabilities at home or can go to a library or friend’s house to work on it.

Procedures

The activity can be done in pairs or alone. If done in pairs, it might be best to pair students so those with more knowledge of the Internet work with those who have less knowledge.

The first part of the assignment asks students to look for information about their school through four different search engines. If your school does not have a Web site, or if your school doesn’t have many hits online, have the students look for their favorite college or something associated with what you’re currently teaching in class.

The second part has the students find the official sites of the President of the United States, their favorite television show and recording artist, the state’s department of education, and the type of computer they’re using. With television shows and

recording artists, the site is typically the name and then .com at the end, but this is not always true. Having them type the name they're looking for and then "official site" into the search engine usually finds the site they're looking for. If they don't have a favorite TV show or recording artist, change it to sports team, toy, car, movie, etc.

NOTE: Whitehouse.COM is definitely NOT the home page of the President of the United States. Remember that all government organizations end in .gov and NOT .com.

The final part of the activity deals with Boolean phrasing, which is when you use words like 'and' and 'or' or 'not' and quotes in the search boxes to help narrow the search.

Additional Information on Web Page Suffixes

Web pages are created by a variety of organizations, and the type of organization where a page resides often indicates how trustworthy the information on the page will be.

.com – A commercial site. It may be a trustworthy news source that provides current information, or it may be sponsored by a commercial organization attempting to sell you something.

.edu – A site controlled by an educational institution. Usually these sites are carefully monitored and thus trustworthy.

.gov – A government site, often a good source for data or factual information.

.mil – A military site.

.net – A network site, made available to its subscribers with little or no oversight. People who put pages on these sites may or may not be affiliated with an academic or scholarly institution, so be wary of the truthfulness of the information.

.org – The site of a private or non profit organization. Some groups may attempt to influence public opinion, but others are good sources of information.

~ **(tilde) followed by a name** – A personal home page, published by an individual. Remember, some educational institutions permit individuals to publish home pages with little or no monitoring of the contents, so be careful with these pages as well.

.ca .de .uk .au—These sites are sites from other countries-- .ca is Canada, .de is Germany, .uk is England, and .au is Australia. There are Web pages from countries all over the world, but you'll probably come across these most often. There is a .us, but it's not used unless with international organizations.

Suggested Activities for “Navigating the Web”

Have your students see if they can find themselves online. Have them type their names into a search engine and see what comes up. If they do find themselves online and it's really them and they didn't know that information was online, they could be a victim of invasion of privacy.

Have students look up information on a subject you're discussing in class using a search engine.

Put a topic into two different search engines to see what sites come up first in the results. Point out to the class that companies pay search engines to come up first in searches, even to come up in the top ten.

State Standards

“Using the World Wide Web,” its corresponding activity “Navigating the Web,” and any additional suggested activities meet the following state standards:

English

- 6.2.1 Identify the structural features of popular media (newspapers, magazines, online information) and use the features to obtain information.

- 6.4.6 Use organizational features of electronic text (on computers), such as bulletin boards, databases, keyword searches, and e-mail addresses, to locate information.

7.2.2 Locate information by using a variety of consumer and public documents.

8.2.1 Compare and contrast the features and elements of consumer materials to gain meaning from documents.

8.4.4 Plan and conduct multiple-step information searches by using computer networks.

Science

6.1.9 Explain how technologies can influence all living things.

7.1.5 Identify some important contributions to the advancement of science, mathematics, and technology that have been made by different kinds of people, in different cultures, at different times.

7.1.10 Identify ways that technology has strongly influenced the course of history and continues to do so.

8.1.8 Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.

History

6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.



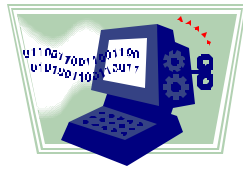
“Using Email”

“Using Email” looks at how email works and how it’s sent and received. Included with this section is an activity dealing with encryption and having students write encrypted messages to their friends and having to decipher them.

“Strong Current” Information

How Viruses Work by Marshall Brain—
<http://computer.howstuffworks.com/virus.htm>

This site explains how viruses attack your computer and how to prevent them from ever attacking. It is very detailed and very technical, but it does look at how many of the more “famous” viruses worked and how to prevent them today. Be sure to give this site to your students who want to learn everything about the more technical side of the Internet because it has links to just about every element of the net.



Activity: “Encrypting Messages”

“Encrypting Messages” shows students how email messages are put into codes so only people with the correct access can read them. Students are given two blank spaces to write two encrypted messages to a partner with space given at the bottom of the page to decrypt the messages given to them.

Materials

No materials are necessary besides the worksheet. Students might want scrap paper to write their messages on first to make sure they’re correct.

Procedures

Break the class up into partners. Read the material as a class and have the partners write an encrypted message to each other. It might be a good idea to write one on your own and put it on an overhead or write it on the board before class starts. If they want to use numbers in their messages, 0-9 would go at the end of the alphabet and then wrap back to A. Have the students tell their partners first if they have numbers in their messages.

Suggested Activities for “Using Email” and “Encrypting Messages”

If students don’t have an email account, set one up for them on a free email service like hotmail.com. Use the students’ email addresses to send messages, assign homework, or use as an advanced organizer.

Encrypt assignments on the board so students will have to decrypt them in order to know what their homework is.

Have students email you written homework assignments as attachments so they can practice sending them.

State Standards

“Using Email,” its corresponding activity “Encrypting Messages,” and suggested additional activities meet the following state standards:

English

- 6.2.1 Identify the structural features of popular media (newspapers, magazines, online information) and use the features to obtain information.
- 6.4.6 Use organizational features of electronic text (on computers), such as bulletin boards, databases, keyword searches, and e-mail addresses, to locate information.
- 7.2.1 Understand and analyze the differences in structure and purpose between various categories of informational materials (such as textbooks, newspapers, and instructional or technical manuals).

Science

- 6.1.9 Explain how technologies can influence all living things.
- 7.1.10 Identify ways that technology has strongly influenced the course of history and continues to do so.
- 7.1.11 Illustrate how numbers can be represented by using sequences of only two symbols, such as 1 and 0 or on and off, and how that affects the storage of information in our society.
- 8.1.8 Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.

History

6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.



“Communicating with Others”

“Communicating with Others” goes beyond mere mail-based communication and looks at chatting and messaging programs and some of the language associated with them, such as emoticons and acronyms/abbreviations. There is an activity associated with this part of the unit where students have to make their own emoticons and abbreviations in relation to their interests and school.



Activity: “Using Emoticons and Abbreviations”

Using emoticons or smileys is a simple way of expressing yourself and adding humor to your emails and IM conversations. These are small graphics created by typing a “face” with text characters sideways. Keeping your email or IMs short and sweet is a good online habit. A good way to do that is by abbreviating phrases or making acronyms of things you’d typically say. This activity helps students make up their own emoticons and abbreviations for things that represent their interests and school.

Materials

No materials are necessary besides the worksheet. Students might want scrap paper to write their emoticons and abbreviations on first to make sure they’re correct.

Procedures

Students can work on this assignment alone, in pairs, or in small groups.

Suggested Activities Associated with “Communicating with Others” and “Using Emoticons and Abbreviations”

It is important to stress to the students that Internet shorthand is not the preferred standard of communication when writing papers, business letters, thank you notes to grandma, etc. Keep it in the IM window and not on the research paper.

Have the students speak with the abbreviations they’ve created:

“IMHO, the movie was so funny that I couldn’t help but find myself ROTFL (rolling on the floor laughing). If you see it you’ll LOL as well. Well, TTFN.”

The difficulty of doing this is a good way to show students that this is really only appropriate for instant messaging and not for the real world.

State Standards

“Communicating with Others,” its corresponding activity “Using Emoticons and Abbreviations,” and suggested additional activities meet the following state standards:

English

- 6.2.1 Identify the structural features of popular media (newspapers, magazines, online information) and use the features to obtain information.
- 7.2.1 Understand and analyze the differences in structure and purpose between various categories of informational materials (such as textbooks, newspapers, and instructional or technical manuals).

Science

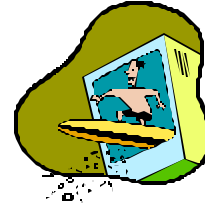
- 6.1.9 Explain how technologies can influence all living things.
- 8.1.8 Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.

History

- 6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.



Part 2: Standing Up



Using the World Wide Web Effectively

Just what is the Web?

The World Wide Web is definitely the most popular part of the Internet today, and it's easy to become overwhelmed by the vast amount of information and material that you can find on it. The Web can be seen as the more exciting part of the Internet due to all the bells and whistles of text, graphics, animation, photos, sound and video.

So what makes up the Web? The Web consists of your computer, **Web browser** software, a connection to an **Internet service provider (ISP)**, computers called **servers** that host data, and **routers** and **switches** to direct the flow of information. The Web itself is also called a **client-server** system. Your computer is the client; the remote computers that store electronic files are the servers. Here's how it works:

Let's say you want to visit your school's website. First you enter the address or **Uniform Resource Locator (URL)** of the website in your **web browser**, such as Netscape Navigator or Microsoft Internet Explorer. Your browser then requests the web page from the web server that hosts your school's site. The server sends the data over the Internet to your computer. Your web browser reads the data and then displays it on your screen.

Your school's website also has links to other school websites in your school district. When you click on that link, you access the web server for that school.



Strong Current

Dejavu.org, The Web as we Remember It—

<http://www.dejavu.org>

A website showing how Web browsers used to work in the "good old days." Also contains a timeline showing the history of Web browsers.


The "glue" that holds the Web together is called **hypertext** and **hyperlinks**. This feature allows files on the Web to be linked so you can jump easily between them, and the Web pages themselves are written in a computer language called **Hypertext Markup Language** or **HTML**.

The Elements of a Website

As we just learned, a **website** is a document written in a computer language called **HTML**, short for **Hypertext Markup Language**. Each web page has a unique address, called a **URL** or **Uniform Resource Locator** (1) that identifies what **server** it is connected to on the network.

A website can have one or more web pages depending on how it was made. If there isn't much information, the **home page** (2) may be the only page, but usually you will find at least a few other pages. Much like the table of contents in a book, the home page gives the visitor an overview of what he or she will find on the website. Web pages on a site are linked together by **hyperlinks** (3), which allow you to jump back and forth by clicking on a link.

Although websites vary in format and information, they typically follow the same format. At the top of the page is the title of the website, then a list of items, such as other pages, often with a brief description. The items in the list link to other parts of the site or to new sites. These links are highlighted words or images in the body of the text, or they are put in a menu. The text links appear in a different color from the rest of the text and are often underlined. When you move your cursor over a link, it will change from an arrow to a hand, and sometimes words will say what you will link to.

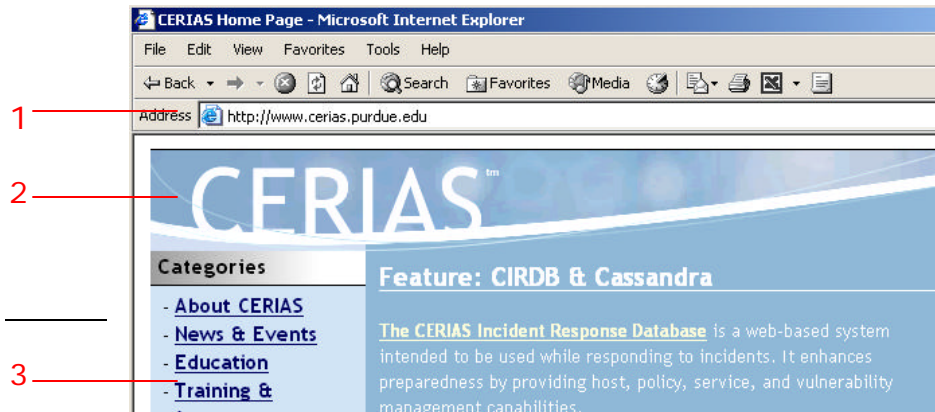


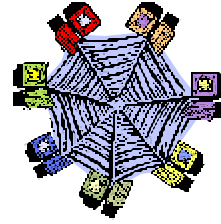
Strong Current

How Web Pages Work by Marshall Brain—

<http://computer.howstuffworks.com/web-page.htm>

This site gives a more detailed description of how Web pages are programmed, used, and found on the Internet.





Navigating the Web

You will need an Internet-connected computer with a Web browser to complete this activity.

A **Search Engine** is a Web page where you type into a box the **keywords** related to the information that you want. Within seconds the search engine will give you a list of Web sites to try to see if they have the information you're looking for. Not all search engines work in the same way, and you'll often find different pages and totals of pages with each search.

The most Popular Search Engines:

Google http://www.google.com	Yahoo http://www.yahoo.com
Alta Vista http://www.altavista.com	Search.Com http://www.search.com

Do a search for your school using the four different search engines. List the number of website hits for each search engine. That number appears near the top of the search engine.

Search engine: _____ #of hits _____

Search engine: _____ #of hits _____

Search engine: _____ #of hits _____

Search engine: _____ #of hits _____

With the help of your search engine, find the official sites for the following:

The President of the United States

<http://> _____

Your favorite television show

<http://> _____

Your favorite musical group/ artist

<http://> _____

Your state's department of education

<http://> _____

The computer you're using right now

<http://> _____

Use your search engine to look up the definition of Boolean phrasing. Write the definition below:

Give an example of how you would use Boolean phrasing in your own Web searches:



Using Email

As you saw in the timeline, **email** has always been the most popular part of the Internet, and why shouldn't it? It can take days, even weeks to receive a letter in the mail, also referred to as **snail mail**; however, you can email someone on the other side of the world in a matter of seconds.

But what exactly is email? In its simplest form, email is an electronic message sent from one computer to another. You can send or receive messages with attachments, such as pictures, school papers, music or even videos.

Follow the Currents

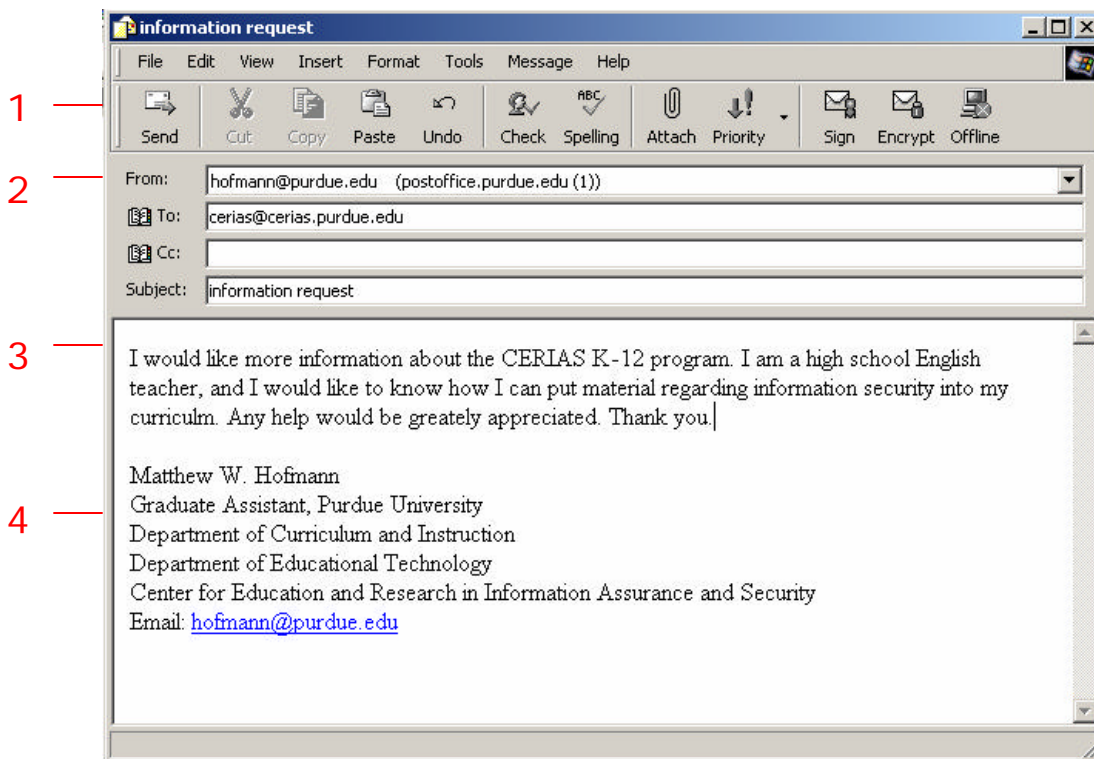
Just as a letter makes stops at different postal hubs along its way, email passes from one computer, known as a **mail server**, to another as it travels over the Internet. Once it gets to where it's going, it's stored in an electronic mailbox until it's opened, and this is all done in a matter of seconds.

Sending and Receiving Email

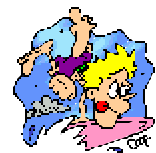
To receive email, you must have an account on a mail server, which is like having a home address or PO Box. One advantage email has over regular mail is that you can retrieve your e-mail from any location once you connect to your mail server rather than having to be at home to get letters.

To send email, you need a connection to the Internet through an ISP and access to a mail server. When you send an e-mail message, your computer routes it to a server. The server looks at the e-mail and then forwards it to the recipient's mail server, where it is stored until the recipient retrieves it.

The Anatomy of an Email Message



1. The menu bar. This is where you can send the message, check spelling, attach files, and encrypt the message.
2. This section shows where the message is coming from, who it's going to, where you'd like to send a carbon copy of the message to if you'd like, and the subject line, where you write what the email is about.
3. This is the body of the email. This is where you write your message.
4. This is a signature file. These can be created so you don't have to write the endings of your emails over and over again if you always write them the same way.

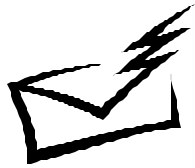


Strong Current

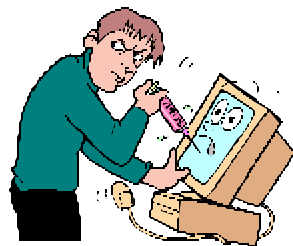
You will learn more about encryption in the activity to follow.

When Sharks Attack Your Email

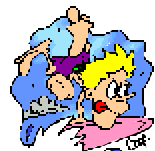
With email becoming a more common means of communication for everyone, it's important to be aware of all the risks associated with it. Even if you've been using email forever, you might not always be aware of ways that it can be used to attack your computer.



Email spoofing is a common attack that occurs when an email message looks like it's come from one person, usually someone you know, when it actually was sent from another source. Spoofing is often an attempt to trick you into sending information like passwords. It can range from harmless pranks like email chain letters to social engineering ploys. One example of social engineering includes email that appears to have come from a system administrator requesting users to change their passwords to something suggested by the sender. Another example would be an email claiming to be from a person in authority requesting users to send them a copy of a file or other information. Remember that while ISPs like America Online may occasionally request that you change your password, they usually will **not** specify what you should change it to. Also, most ISPs would **never** ask you to send any password information or file via email. If you think that you may have received a spoofed email from someone, you should contact your service provider's support personnel immediately.



Viruses and other types of malicious code are often spread as attachments to email messages. Before opening any attachments, be sure you know where the attachment came from and what type of file it is. Many email viruses are known to use hidden file extensions. The files attached to these messages may appear to be harmless text, MPEG, AVI or other file types, but the file is actually malicious script or executable virus programs—.vbs, .exe, or .bat files, for example. Always read the entire file name before opening attachments.

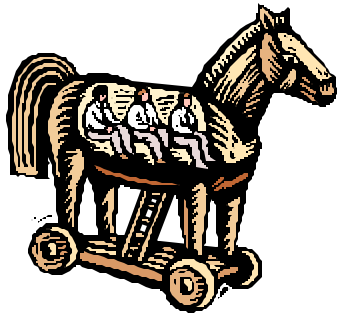


Strong Current

How Viruses Work
by Marshall Brain—

<http://computer.howstuffworks.com/virus.htm>

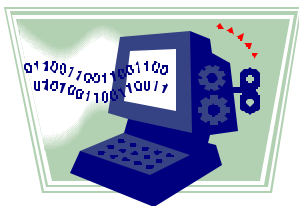
This site explains how viruses attack your computer and how to prevent them from ever attacking.



Trojan horse programs are a common way for hackers to trick you into installing "back door" programs, which can allow them easy access to your computer without you knowing. They can reprogram your OS or infect your computer with a virus. Hackers will also frequently use these infected

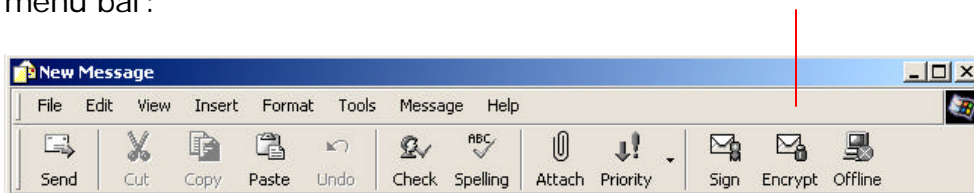
computers as launching pads for attacking other computers by installing an "agent" that runs on the infected computer and waits for further instructions. Then, when a number of agents are running on different computers, a single "handler" can instruct all of them to launch an attack on another system, making the end target of the attack not your computer but someone else's -- your computer is just a convenient tool in a larger attack.

The safest thing to do when you receive an attachment or file from someone that you're not expecting is to email that person back and ask him if he sent you a file. If he didn't, then delete it. If you receive an attachment from someone you don't recognize at all, don't even think twice. Delete the file immediately.



Encrypting Messages

One of the ways to make sure no one can read your email is using what's known as **encryption**. Encrypting a message means to change a file or message using a secret code so people that you don't want to read it can't. When you send an email to someone, you can encrypt the message by clicking on the encrypt button at the top of the menu bar:



Once you click on the encrypt button, the mail program will turn the message into a secret code when you send it, and only the person receiving the email will be able to read it.

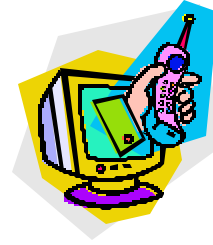
Although this sounds like new technology, encryption has been used for centuries, as early as ancient Rome. Julius Caesar would code his messages by using character shifting. The message is encrypted by shifting forward each character of the alphabet a fixed number of characters.

For example, shifting by 1 changes **a** to **b**, **b** to **c**, and so on. Letters at the end the alphabet are encrypted by starting at the beginning. In other words, **z** becomes **a**. If it shifts by 3, **a** becomes **d**, **b** becomes **e**, etc. Going backwards with the procedure is called **decryption**.

Activity:

Encrypt a message to a partner. Be sure to put the number you wish them to encrypt by or they won't be able to figure out what you wrote!

Now try it with a different number:



Communicating With Others

The Miracle of Instant Messaging

Instant Messaging (IM) has exploded in popularity. It's more immediate than e-mail and cheaper than a phone call. Almost one billion instant messages are sent across the Net each day using the four most popular IM services: AOL Instant Messenger, ICQ, MSN Messenger and Yahoo Messenger, and they all work in the same way.

After signing up for the service by creating a user name and password, you build what is known as a "buddy list," which contains the people that you want to talk to online. When any of the contacts on your list are online, you can initiate a private chat with that person.

So how does the IM software know who's online? When you start the program, it connects with the service's IM server and logs you on. The server then checks your buddy list to see if any of your contacts are also logged on, and your list updates to show you who is currently online. At the same time, your contacts' lists update to indicate that you're online as well. By clicking on a name you can send text messages to that person. After you type your message and hit return, the message travels to the IM server, then immediately forwards to your buddy's computer.



Shark Warning!

Members of one instant messaging service can't communicate with those using another. If most of your buddies use the same service, however, it's not a problem. There's also nothing to stop you from using more than one service, but it does make things a little more complicated at times.



Shark Warning!

Instant messages can not be encrypted, so conversations can be watched by attackers. This means that any information you wouldn't want strangers to know should never be talked about on IM programs.



Using Emoticons and Abbreviations

Using emoticons or smileys is a simple way of expressing yourself and adding humor to your emails and IM conversations. These are small graphics created by typing a sideways "face" with text characters. Here's a short list of examples:

:-) Basic smiley	8-) Nerdy smiley	5:-) Elvis smiley
;-) Winking smiley	O:-) Angel smiley	:-X Not talking
:-(Sad smiley	:-* Kissing smiley	(-: Left handed
:-D Laughing smiley	:-& Tongue tied	:-> Sarcastic

Come up with five smileys of your own that you might use to represent your heroes or your school or your interests and put them in the blanks below and write what they are:

_____ -- _____

_____ -- _____

_____ -- _____

_____ -- _____

_____ -- _____

Keeping your email or IMs short and sweet is a good online habit. A good way to do that is by abbreviating phrases or making acronyms of things you'd typically say. Here are a few examples:

TTFN—Ta Ta For Now	LOL—Laugh Out Loud
BF—Boyfriend	OIC—Oh I See
IMHO—In My Humble Opinion	BRB—Be Right Back

Come up with five abbreviations of your own that you might use to represent things you normally say or your school or your interests and put them in the blanks below and write what they mean:

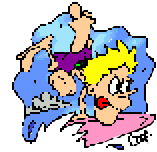
____ -- _____

____ -- _____

____ -- _____

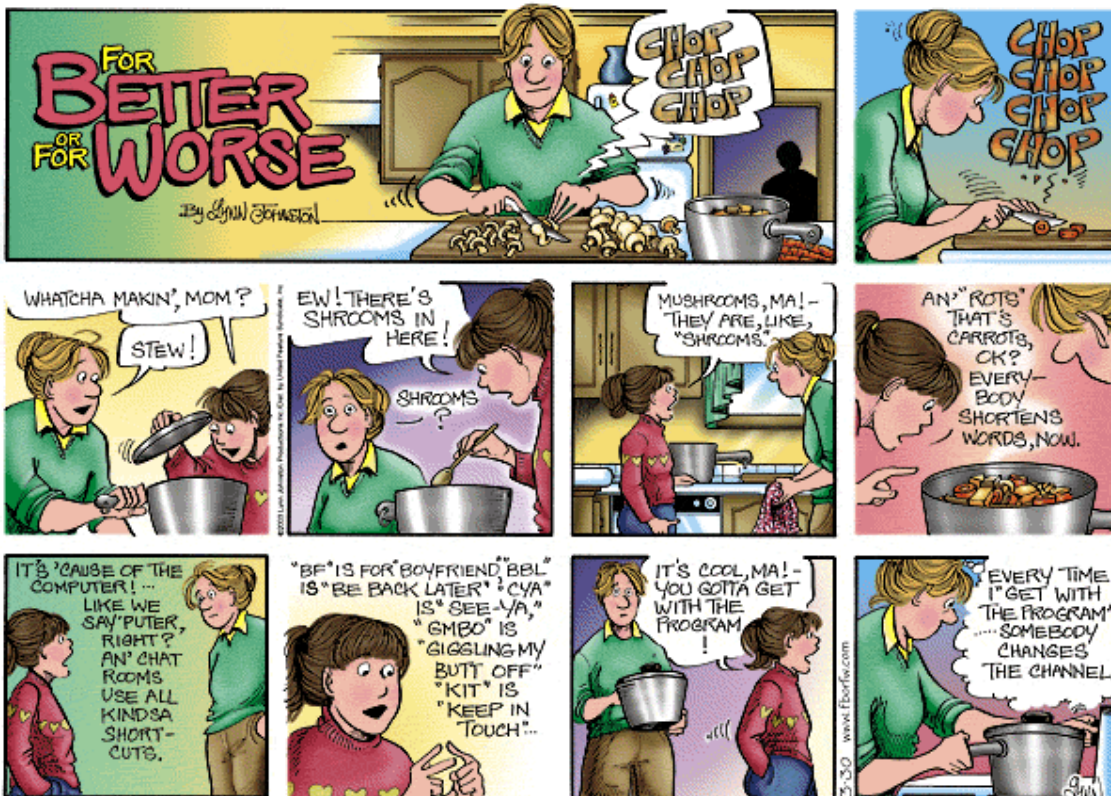
____ -- _____

____ -- _____



Strong Current

Using abbreviations or acronyms is also a good way to make passwords. Instead of using your pet's name or your birthday, take a line from a song and take the first letter from each word and use that for your password instead. Use a zero instead of the letter O or a one instead of an I to make it harder to figure out!





Objectives:

- Students will learn about the ethics of the Internet with the assistance of mini case studies.
- Students will learn about the four common attacks to computers and the three common countermeasures to them with the assistance of a matching exercise.

Description of Sections:



“The Ethics of the Internet”

“The Ethics of the Internet” discusses the student’s role in making sure the Internet is free of unethical behavior and how to behave ethically. It lists the Ten Commandments of Computer Use and then has a series of ten short case studies where the students have to identify the unethical action, discuss consequences for the action, who it harms, and then which commandment it matches and why. **NOTE:** There is a copy of the Ten Commandments of Computer Use at the end of this section that is appropriate to make into copies or an overhead for use with the activities.

Activities: Mini Case Studies

This is a series of ten short, one-paragraph case studies dealing with different elements of cyber ethics. Questions look at what the unethical action is, who’s at fault, which of the Ten Commandments of Computer Use the actions match up with, possible punishments for the unethical action, real world examples of the action, who the action affects, etc.

Materials

No materials are required besides the activity sheets and a writing utensil.

Procedures

The activities can be done alone, in pairs, in small groups, or as a class. It might be a good idea to do the first one or two as a class so students can hear different opinions about what others believe to be the unethical action or appropriate punishments for the actions.

“Strong Current” Information

“Ethics in the Age of Digital Photography” by John Long—
<http://www.nppa.org/services/bizpract/eadp/eadp.html>

This site looks at the issue of photo manipulation and the ethical issues surrounding it. It has several more examples of how the media uses photo manipulation in order to make images more exciting, cleaner, or just able to fit on the page. This is an excellent source to discuss how ethical issues affect us every day and debate when photo manipulation is ethical and not.

Safekids.Com—
<http://www.safekids.com>

Produced by the Online Safety Project, Safekids.com has a discussion of safety issues, including privacy issues. It contains guidelines and tools for parents on how to make online activities safer for their families, a quiz that tests students’ online safety knowledge, and links to sites with additional information.

The Software & Industry Information Association Anti-Piracy Page—
<http://www.spa.org/piracy/default.asp>

This is an excellent source for finding out about anti-piracy laws and reporting software theft. It includes a FAQ for answering your questions about anti-piracy issues and also lists locations for further information about piracy and its prevention.

The Purdue University Online Writing Lab—
<http://owl.english.purdue.edu>

The OWL is the single greatest source online for learning how to cite sources for papers. It contains information on MLA and APA documentation, tips for dealing with plagiarism, writing resumes and cover letters, and just about anything else associated with writing.

“The Napster Cantata” by M.A. Kabay—
<http://networking.earthweb.com/netsysm/article.php/625221>

A point-by-point discussion about downloading music and responses to all the excuses you use for downloading music. This is a great source to fight the student who seems to have all the answers about why it’s alright to download music.

“Purdue Cracks Down on Downloading” by Jenny Jones—
<http://www.purdueexponent.org/interface/bebop/showstory.php?date=2003/02/24§ion=campus&storyid=illegaldownloads>

An article concerning how Purdue University is dealing with the music downloading issue and the steps they take to discipline the students who do. This shows students that there are actions taken against those who do illegally pirate music from the Internet.

Association of Shareware Professionals—
<http://www.asp-shareware.org/>

This website has an excellent FAQ to answer all your questions about shareware.

Suggested Activities Associated with “The Ethics of the Internet” and the mini case studies

Introduce the section at the beginning of the school year in your class and do activities throughout the year as the assignments seem fitting. For example, use “A Rose by the Same Name” when talking about writing research papers so students know what plagiarism is and how to site sources correctly. Use “Kiera’s Downloading Dilemma” when talking about current events or controversial topics. Use in association with debates or discussions about the positives and negatives of technology in society.

State Standards

“The Ethics of the Internet,” its corresponding mini case study activities, and suggested additional activities meet the following state standards:

English

6.2.8 Note instances of persuasion, propaganda, and faulty reasoning in text.

- 6.7.9 Identify persuasive and propaganda techniques used in electronic media (television, radio, online sources) and identify false and misleading information.
- 7.2.1 Understand and analyze the differences in structure and purpose between various categories of informational materials (such as textbooks, newspapers, and instructional or technical manuals).
- 7.2.3 Analyze text that uses the cause-and-effect organizational pattern.
- 7.4.5 Identify topics; ask and evaluate questions; and develop ideas leading to inquiry, investigation, and research.
- 7.4.6 Give credit for both quoted and paraphrased information in a bibliography by using a consistent format for citations.
- 8.2.2 Analyze text that uses proposition (statement of argument) and support patterns.

Science

- 6.1.9 Explain how technologies can influence all living things.
- 7.1.5 Identify some important contributions to the advancement of science, mathematics, and technology that have been made by different kinds of people, in different cultures, at different times.
- 7.1.9 Explain how societies influence what types of technology are developed and used in fields such as agriculture, manufacturing, sanitation, medicine, warfare, transportation, information processing, and communication.
- 7.1.10 Identify ways that technology has strongly influenced the course of history and continues to do so.
- 8.1.7 Explain why technology issues are rarely simple and one-sided because contending groups may have different values and priorities.

8.1.8 Explain that humans help shape the future by generating knowledge, developing new technologies, and communicating ideas to others.

History

6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.

8.2.3 Identify and explain the relationship between rights and responsibilities of citizenship in the United States.

8.2.4 Define and explain the importance of individual and civic responsibilities.

8.2.13 Research and defend positions on issues in which fundamental values and principles related to the Constitution of the United States are in conflict, using a variety of information resources.



“Protecting Yourself from Shark Attacks”

“Protecting Yourself from Shark Attacks” shows how people can attack your computer and what you can do to prevent it, and the section contains a short exercise matching attacks with their countermeasures.

“Strong Current” Information

How Firewalls Work by Jeff Tyson—

<http://computer.howstuffworks.com/firewall.htm>

This site explains what firewalls are and how they block attacks to your computer. Like the other “how stuff works” sites, this one is also very technical and not for the casual passerby.



Activity: “Attacks and Countermeasures”

“Attacks and Countermeasures” takes the information learned from “Protecting Yourself from Shark Attacks” and puts it into a matching

exercise where the students must think critically in order to match the attack with what type of attack it is and the countermeasure needed to combat it.

Materials

The only materials needed are the information before the activity, the activity itself, and a writing utensil.

Procedures

Activity can be done alone, in pairs, small groups, or as a class. After reading the directions, it might be a good idea to do the first one as a class. Several of them have more than one possible solution, so stress that to the class as well.

Answers

Attack	Type of Attack	Countermeasure
Little brother keeps accidentally using sister's account	Human unintentional	Policy —rules and consequences for using others' accounts Procedural —password-protected accounts
Power surge	Environmental manmade	Technical —surge protector
Someone asks you for your password	Human intentional	Policy —never give your password to anyone
Extreme summer heat	Environmental natural	Technical —air conditioner Policy —don't use computer outside if a laptop or shut off during the day
Inappropriate email	Human intentional	Policy —never open email from people you don't know
Hackers	Human intentional	Technical --firewall
Mom keeps erasing disks without checking them	Human unintentional	Policy —making it a rule to always check disks before erasing them with appropriate punishment for doing so
You're sent a file that attacks Windows	Human intentional	Technical —purchase anti-virus program Procedural —set up the program Policy —set up rules and consequences for not checking files
Your sister keeps leaving the computer connected to the net	Human unintentional	Policy —make rules and consequences for staying connected to the Internet when not at the computer
You forget to run the anti-virus program	Human unintentional	Procedural —have anti-virus program auto-run at set times

Suggested Activities Associated with “Protecting Yourself from Shark Attacks” and “Attacks and Countermeasures”

Have the students go home and see what kinds of attacks they’re vulnerable to at home. Have them come up with what kinds of attacks they are and the countermeasures needed to control them.

State Standards

“Protecting Yourself from Shark Attacks,” its corresponding activity “Attacks and Countermeasures,” and any additional activities meet the following state standards:

English

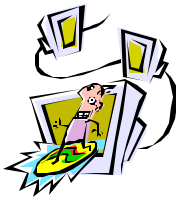
7.2.3 Analyze text that uses the cause-and-effect organizational pattern.

Science

6.1.9 Explain how technologies can influence all living things.

History

6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe and the Americas, and examine their impact.



“The Safe Places to Surf”

“The Safe Places to Surf” is a list of Websites that are appropriate and safe to use by middle school students. A more thorough list of Websites can be found online at <http://www.cerias.purdue.edu/k-12/>. Be sure to look at the full list yourself to see if there are sites there that you can integrate into your curriculum as well.

The Computer Ethics Institute's Ten Commandments for Computer Ethics

- 1. Thou shalt not use a computer to harm other people.**
 - This includes not just hacking into another computer, but also using websites or email to send out hateful information about someone else, a school, or place of business.
- 2. Thou shalt not interfere with other people's computer work.**
 - This would be any sort of interruption in someone's normal routine online or at his computer.
- 3. Thou shalt not snoop around in other people's files.**
 - Any time you look at someone else's files without permission or reason, you're in violation of their right to privacy.
- 4. Thou shalt not use a computer to steal.**
 - Never take anything off someone's computer without permission.
- 5. Thou shalt not use a computer to bear false witness.**
 - Don't use your computer in order to lie.
- 6. Thou shalt not use or copy software for which you have not paid.**
 - You are permitted to make one copy of a program for personal use, as long as neither copy will be used at the same time.
- 7. Thou shalt not use other people's computer resources without authorization.**
 - Ask before you use someone else's space on his computer, web page, or email.
- 8. Thou shalt not appropriate other people's intellectual output.**
 - You cannot steal anyone else's copyrighted material regardless of whether or not you think it's right, what you want to steal is too expensive, or if you don't think you could possibly ever get caught.
- 9. Thou shalt think about the social consequences of the program you write.**
 - Laws in cyberspace apply just as much as they do in the real world, and harassment is harassment anywhere.
- 10. Thou shalt use a computer in ways that show consideration and respect.**
 - You should always use your computer in a way that is never harmful to anyone else, whether it's by word or deed.



Part 3: Surfing



The Ethics of the Internet

When you do anything online, whether it's sending email, buying things, talking on instant messenger, or simply looking at websites, you can sometimes feel like nothing can stop you from doing anything to anyone else, whether it's wrong or not. Just as much as there are rules for saying and doing certain things in the real world, there are rules for conducting yourself properly on the Internet. The problem with this is that even though you're taught in school and at home how to say please and thank you and that words hurt just as much as actions, you're not taught the ethics of the Internet. However, as the Internet becomes more and more an element necessary for survival, it is more important than ever to think about the concept of ethics and apply it to the Internet.

The idea of cyber ethics, or the responsibility of appropriate Internet behavior, is a rather new one. Think of it in terms of what you choose to do online when no one else is looking. If you do the same things online by yourself as you would if a parent or teacher were sitting right next to you, you probably have very good cyber ethics. If you're constantly minimizing windows or quickly shutting down programs as your mom or dad enter the room, your cyber ethics might need to be worked on a little.

The Computer Ethics Institute has defined The Ten Commandments for Computer Ethics, and they are:

- 1. Thou shalt not use a computer to harm other people.**
 - This would include not just hacking into another computer, but also using websites or email to send out hateful information about someone else, a school, or place of business.
- 2. Thou shalt not interfere with other people's computer work.**
 - This would be any sort of interruption in someone's normal routine online or at his computer. Although you'd probably like to put pop-up ads in this category, you really can't.
- 3. Thou shalt not snoop around in other people's files.**
 - Any time you look at someone else's files without probable cause, you're in violation of their right to privacy.
- 4. Thou shalt not use a computer to steal.**
 - Never take anything off someone's computer without permission.
- 5. Thou shalt not use a computer to bear false witness.**
 - Don't use your computer in order to lie about other people or events.
- 6. Thou shalt not use or copy software for which you have not paid.**
 - You are permitted to make one copy of a program for personal use, as long as neither the original nor the copy will be used at the same time.
- 7. Thou shalt not use other people's computer resources without authorization.**
 - Just as you should ask first before you use someone else's things in the real world, you should ask before you use someone else's space on their computer, web page, or email.
- 8. Thou shalt not appropriate other people's intellectual output.**
 - You cannot steal anyone else's copyrighted material regardless of whether or not you think it's right, what you want to steal is too expensive, or if you don't think you could possibly ever get caught.

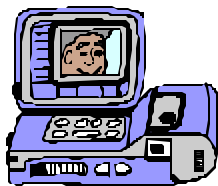
9. Thou shalt think about the social consequences of the program you write.

- Anything that anyone could potentially see needs to be looked at in terms of whether or not it could hurt others emotionally or threaten someone in some way. Laws in cyberspace apply just as much as they do in the real world, and harassment is harassment anywhere.

10. Thou shalt use a computer in ways that show consideration and respect.

- You should always use your computer in a way that is never harmful to anyone else, whether it's by word or deed.

The following is a series of ten situations dealing with different ethical problems related to the Internet. Read each of the short situations and answer the questions after them. You will have to refer back to the Ten Commandments of Computer Ethics for these exercises as well.



Peter's Digital Camera Hijinks

The Situation:

Peter has been using his parents' digital camera to take pictures for his family's Web page. While cropping and resizing pictures, Peter has found that he can use the same program to change certain elements of his pictures. He has since made himself look thinner, his dad bald, and has also removed his little sister completely from all pictures. Peter has since put these pictures up on the family's website.

Questions:

1. What is the unethical action? Who is at fault?

2. What discomfort might Peter cause? To whom?

3. What sort of punishment should Peter be given for this action?

4. Are there real world incidents that are similar to this?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

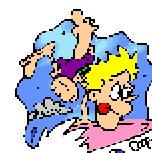
Examples of Photo Manipulation:

Many people think that photo manipulation only occurs when kids have too much free time and a really good computer, but it happens in all sorts of places.

The first set of photos comes from an issue of *Time* magazine during the OJ Simpson trial. The picture on the right is the actual police photo, while the one on the left is what was run on the cover of *Time*. Notice how the photo was manipulated so Simpson was given more of an unshaven look and the background made darker to give him a more sinister, guilty look. Also notice how his number was made smaller so the bottom line could be put into frame.



The following photo was digitally altered as well. It was made to look like the person in the photo and the other person taking the photo were on top of one of the World Trade Center towers right before one of the planes hit it on September 11, 2001. It was later discovered that the photo was taken by a Hungarian man in 1997 at the World Trade Center and that the plane, which is actually the wrong plane and coming from the wrong direction, was added by using Photoshop.

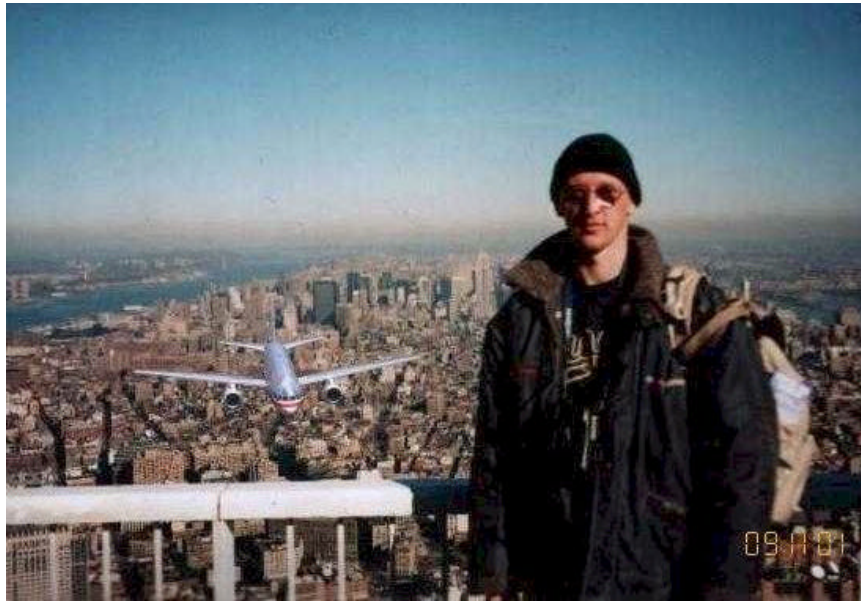


Strong Current

“Ethics in the Age of Digital Photography” by John Long—

<http://www.nppa.org/services/bizpract/eadp/eadp.html>

This site looks at the issue of photo manipulation and the ethical issues surrounding it. It has several more examples of how the media uses photo manipulation in order to make images more exciting, cleaner, or just able to fit on the page.



If you still don't believe that the picture could possibly be fake, perhaps instead of a plane New York could be attacked by aliens on a hazy day:



Or perhaps the man in the hat could be on the Moon:



Closing:

While Peter's actions might seem like good, clean fun, integrity is a serious issue which even young people need to be aware of. Deliberate tampering of events may harm both those involved in the event as well as the reputation of the one who tampered. The purpose of a family Web site is to have a lasting record of the activities and appearance of individuals, not to be a place to make fun of your own family.

Just because magazines and news organizations change photos doesn't mean it's right. Take steps now to be honest and true to your work, and you know that you'll be doing the right thing in the future.



James and the Giant Joke Site

The Situation:

James has found a Web site containing jokes about African Americans, Hispanics, and women. He prints the pages out and shares them with his friends and also sends several jokes to people via email.

Questions:

1. What is the unethical action? Who committed it?

2. What discomfort might James's action cause?

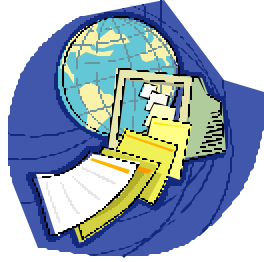
3. What would be an appropriate punishment for such an action?

4. Can you think of real world incidents that would be similar to this?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

Not all “bad stuff” on the Internet is pornography, but a good deal of it is certainly offensive and not all that educational. It’s important to realize when something becomes inappropriate for use. If you think that something you found on the Internet could be offensive to anyone, don’t share it.



Anthony's Internet Survey

The Situation:

Anthony fills out a survey on a gaming page. The survey asks for his email address, his home address, and a list of what types of games he plays. He readily fills in this information. In the following weeks, he receives junk mail at home as well as dozens of emails about new games.

Questions:

1. Whose privacy is at risk? What discomfort has filling out the survey caused?

2. Do you fill out surveys like this while online? Why or why not?

3. What are the advantages and disadvantages of a business knowing your personal likes and dislikes?

4. Is there a parallel in the real world to this situation?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

Businesses and organizations use personal information to market products. Sometimes this information is collected without your permission or awareness that it is being collected at all. An organization that is given information may even sell it to other organizations.



Shark Warning!

Web sites use what are called "cookies" to track where you're going online. This is another way for the people online to get more information about you and your interests. These can be blocked by changing the settings of your Web browser.



When Carrie Met Mark

The Situation:

Carrie "meets" Mark, who shares her interest in cars, in an Internet chat room. After several conversations over following weeks, Mark asks Carrie for her home telephone number and address.

Questions:

1. Whose privacy is at risk?

2. What danger might Carrie get in if she gives Mark her information?

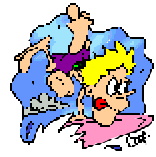
3. Is there a safe plan of action Carrie might take to meet Mark?

4. Is there a parallel in the real world to this situation?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

A stranger is a stranger, whether you meet them in the school parking lot or in a chat room. The same rules about real world strangers apply to online strangers as well. The fact that we cannot get clues about a person from his or her physical appearance (age, race, gender) adds to the difficulty in judging whether that person is safe.



Strong Current

Safekids.Com—

<http://www.safekids.com>

Produced by the
Online Safety Project,
Safekids.com has a
discussion of safety
issues, including
privacy issues.



Kenny's Email Usage

The Situation:

The principal believes that Kenny has been using his school email account to send threatening and inappropriate messages to other students in the school. He asks the school's technical coordinator to give him copies of all of Kenny's emails.

Questions:

1. Whose privacy is at risk? Why?

2. What ethical and legal issues are related to the principal reading Kenny's emails?

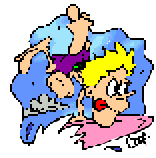
3. What responsibilities do parents and schools have in making you aware of how much privacy you have?

4. Is there a real world example you can relate this to?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

It is still debatable whether schools have the right to search files that are created and stored on an organization's computer hardware like they do lockers or book bags. You're on their property and using their property. Students are more than aware that weapons can be stored in backpacks and lockers, and for the safety of all children in a school officials sometimes need to invade a student's privacy when there is a good reason. Could computer files and emails ever be so dangerous that safety concerns should override privacy concerns?



Strong Current

Your school should have an acceptable use policy regarding how you can use your school's computers. If you have never seen it, ask your teacher or school librarian for a copy.



George's Wandering Eyes

The Situation:

George's teacher leaves her computer to go to the office. While she is gone, George finds she has been working on a test for the class that he's in, and her word processing program is still open. He decides to see what the questions are.

Questions:

1. Whose privacy is at risk? How?

2. What danger or discomfort might the unethical action cause?

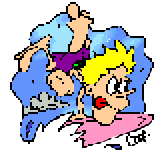
3. What could George's teacher have done differently to keep George from looking at the test?

4. Are there incidents in the real world similar to this situation?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

Just because information accidentally left out does not mean that it is alright to access it. Is forgetting to lock the front door the same as allowing someone to enter it? It's no different than getting in trouble for looking at someone's diary or reading over someone's shoulder. It's an invasion of privacy.

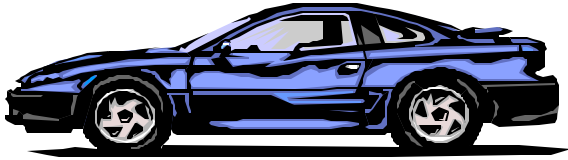


Strong Current

Intellectual
Freedom
Committee of the
American Library
Association—

<http://www.ala.org/alaorg/oif/privacyganda.html>

This site answers all your questions about privacy and confidentiality in reference to being online.



Grand Theft Video

The Situation:

Peter borrows Anthony's copy of *Grand Theft Auto* and installs it on his computer. He tells Anthony that he will either uninstall the game if he doesn't like it or buy his own copy if he does.

Questions:

1. What is the property? Who is its owner?

2. What danger might keeping the game on Peter's computer cause?

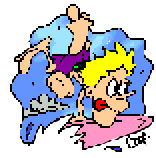
3. Is digital media more likely to be illegally copied than more tangible media like books or videos? Why?

4. Is there a situation in the real world similar to this scenario?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

It is unethical and illegal to make copies of programs without the permission of or payment to the creators of those programs under copyright law. When you buy a game, you're really only purchasing the right to use it. The ownership of the game code itself still stays with the creator of the program, which means that someone cannot change the program or resell it. The general rule is that one copy of a program be purchased for each computer on which it is to be run. And no, being unable to pay for software is not a good excuse for illegally copying any more than the inability to pay for a CD is any justification for shoplifting it from a music store.



Strong Current

The Software &
Industry
Information
Association Anti-
Piracy Page—

<http://www.spa.org/piracy/default.asp>

An excellent source for finding out about anti-piracy laws and reporting software theft.



A Rose by the Same Name

The Situation:

Rose finds information about *Romeo and Juliet* for her Shakespeare project on a CD encyclopedia in the library. She uses the copy function to take an entire paragraph from the entry and then pastes it into her paper word for word. She also doesn't write down the title of the entry or the CD encyclopedia. When she writes her report, Rose doesn't cite the source in her works cited page.

Questions:

1. What is the property? Who is its owner?

2. What harm might this action cause?

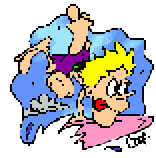
3. Do you think the plagiarism is on purpose or due to a lack of understanding? Why? Does it matter?

4. What real world incidents are similar to this situation?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Closing:

Plagiarism is easier to do today than ever thanks to copy and paste. It is important to learn how to cite sources in both print and electronic formats. Although plagiarism is sometimes done on purpose, much of it comes from a lack of understanding as to what and when to cite as well. Whenever the information in a paper isn't from your own head, you must cite the source.

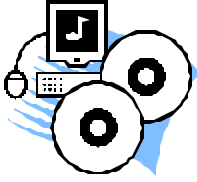


Strong Current

The Purdue
University Online
Writing Lab—

<http://owl.english.purdue.edu>

The OWL is perhaps
the single greatest
source online for
learning how to cite
sources for papers.



Kiera's Downloading Dilemma

The Situation:

Kiera hears a song on the radio that she really likes. She goes home and downloads the song from a file-sharing program. While using the program Kiera thinks of several other songs she likes, downloads them, and burns her own mix CD of her favorite songs.

Questions:

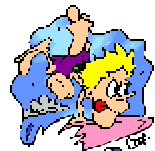
1. What is the property? Who is its owner?

2. What danger does Kiera's unethical action cause?

3. Is downloading music from file-sharing programs an inappropriate action? Why or why not?

4. Can you think of any real world situations similar to this one?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?



Strong Current

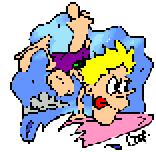
"The Napster Cantata" by M.A. Kabay—

<http://networking.eartweb.com/netsysm/article.php/625221>

A point-by-point discussion about downloading music and responses to all the excuses you use for downloading music.

Closing:

Regardless of what you've heard, downloading music, programs and videos is illegal and a violation of copyright law. Music companies have already cracked down on pirating music, and it's only a matter of time before it's gone for good or you get caught doing it. However, being caught has no bearing on whether an act is moral or legal or not. And you can't use the, "But everyone else is doing it," excuse either. Not everyone is.



Strong Current

"Purdue Cracks Down on Downloading" by Jenny Jones—

<http://www.purdueexponent.org/interface/bebop/showstory.php?date=2003/02/24§ion=campus&storyid=illegaldownloads>

An article concerning how Purdue University is dealing with the music downloading issue and the steps they take to discipline the students who do.



Steve's Shareware Secret

The Situation:

Steve downloads a game from the Internet that is shareware, meaning it can be legally used for only thirty days and then must either be deleted or purchased. If he does purchase the program, special features will be added to the game. If he doesn't purchase it then he can't play the game at all, but Steve also finds out that he can change the date on his computer so he can still play the game for free whenever he wants.

Questions:

1. What is the property? Who is its owner?

2. What happens if Steve decides to keep using the program? If he doesn't?

3. What is the advantage to the user for paying for shareware?

4. Is there something in the real world that is similar to this?

5. Which of the 10 Commandments of Computer Ethics does this relate to and why?

Comments:

Software is divided into three categories: freeware, which can be used without buying it for as long as you want; shareware, which can be used for only a certain period of time before it has to be erased or bought; and commercial software, which must be purchased before you can use it. Learning about shareware is a good way of understanding why buying software actually does benefit you. The profits that software producers make are used to develop more programs, such as expansion packs or sequels to the games you already love. If the money taken in from buying the software is lost from software creation, less software and fewer patches for current software will be made.

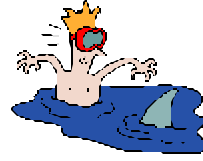


Strong Current

Association of
Shareware
Professionals—

[http://www.asp-
shareware.org/](http://www.asp-shareware.org/)

This website has an
excellent FAQ to
answer all your
questions about
shareware.



Protecting Yourself from Shark Attacks

You're probably wondering just who would really want to attack your computer and why. Hackers may not care about who you are, but they still want to gain access to your computer to use it to attack other computers or take your personal information to use against you. Being able to control your computer allows hackers to keep their locations secret while they attack other computers. Even if your computer is connected to the Internet for only a short time to talk to friends or to send email, you may still be a target. Being online for even a short time gives hackers the chance to take enough information to steal your identity or cause damage to your or someone else's computer.

There are four major types of attacks to your computer: **environmental natural**, **environmental manmade**, **human intentional** and **human unintentional**, as well as the two major vulnerabilities associated with computers, which are **through your operating system (OS)** and **through your Internet connections**.



Environmental natural attacks can best be thought of as attacks caused by Mother Nature, like floods, earthquakes, tornadoes, hurricanes, and lightning.



Environmental manmade attacks occur when people give Mother Nature a helping hand in attacking computers, and include radioactive leaks, fires caused by arson, broken water pipes, fuel line ruptures, gas leaks, and climate control failures.



Human intentional threats occur when someone purposely damages property or data, including identity theft, espionage, and credit card crime.



Human unintentional threats basically include the unauthorized or accidental change of software.

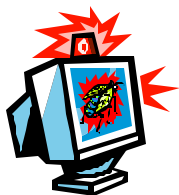
Once you've identified the type of attack, you then need to be able to determine how your computer is vulnerable to those attacks. The two main vulnerabilities to home users are to your **operating system** (OS) and to your **Internet connection**.

An **Operating System**, like Windows and Mac O/S, is the program that controls what happens inside your computer and how it reads outside devices like your mouse, keyboard, monitor, scanner, printer, etc. The older the OS, the more likely the chance it's not as secure, making it more vulnerable to attacks. If someone knows what OS you're running on your computer, they'll be more likely to access your system and attack it. Make sure that you frequently check for security patches and updates on the main Web site of your OS.

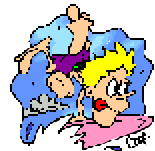
Internet connections, whether through broadband connections like cable modems or Digital Subscriber Lines (DSL) or dialup services, are also vulnerable to attacks to your computer. Broadband connections are more vulnerable than dialups because they're always connected to the Internet, making it easier for people to find you and take your information or send you a virus.

Once these attacks can be identified, however, your work is not done because it's up to you at that point to find the vulnerabilities in your computer and find ways to keep these attacks from occurring.

There are three common countermeasures that you can easily implement on your home information system:



Technical: Technical countermeasures mean using some sort of software to protect your system. This could include installing **firewalls** and **anti-virus software**, as well as taking steps like changing the security settings of your Web browser.

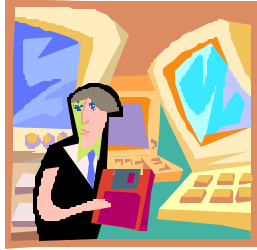


Strong Current

How Firewalls Work by Jeff Tyson—

<http://computer.howstuffworks.com/firewall.all.htm>

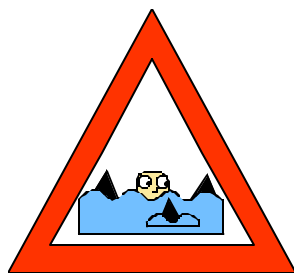
This site explains what firewalls are and how they block attacks to your computer.



Procedural: Procedural countermeasures are any activities that you would create in order to stop attacks on your computer. This would include setting times to run your anti-virus program, password protecting your OS, and storing your important data on disks in a separate location.



Policy: These are rules used to state just how to correctly use your computer. This could be anything from keeping a list of things to do and not to do near your computer to making up your own handbook with your parents of how to properly keep your computer safe.



Attacks and Countermeasures

Directions:

Match the attack first with which of the four types it is and then with the appropriate countermeasure for the attack.

Example:

Attack	Type of Attack	Countermeasure
Email Virus	Human Intentional	Technical

Types of Attacks	Countermeasures
Environmental Natural	Technical
Environmental Manmade	Procedural
Human Intentional	Policy
Human Unintentional	

Attack	Type of Attack	Countermeasure
Little brother keeps accidentally using sister's account		
Power surge		
Someone asks you for your password		
Extreme summer heat		
Inappropriate email		
Hackers		
Mom keeps erasing disks without checking them		
You're sent a file that attacks Windows		
Your sister keeps leaving the computer connected to the net		
You forget to run the anti-virus program		

The Safe Places to Surf

Now that you know more about how the Internet works, how to browse the Web, send email, chat with friends, use the Internet ethically, and protect yourself from attacks, it's time to get out there and surf!

But before you go, here's a list of sites that might interest you or help you out on that next school project or paper. Even more sites can be found at:

http://www.cerias.purdue.edu/education/k-12/6-12_Resources/

History

1st Headlines

This site provides a great collection of current event articles. The site uses several different news sources to provide a detailed look at the day's events.

<http://www.1stheadlines.com/>

David Rumsey Map Collection

This site features an amazing collection of historical maps.

<http://www.davidrumsey.com/>

Ellis Island: A History

This site provides information about how immigrants were treated, the types of conditions they faced, and the motivation for the journey.

<http://www.libertystatepark.com/history1.htm>

History of Costume

Looking for a great costume to use in a play or wear to a party? Then this site is the one for you. It contains graphical images of popular costumes dating from the times of ancient Egypt.

http://www.siu.edu/COS/TUMES/COSTUME1_INDEX.HTML

How Far Is It?

This service uses data from the US Census Bureau and a supplementary list of cities from around the world to find the longitude and latitude of two places, and then calculates the distance between them (as the crow flies).

<http://www.indo.com/distance>

Jefferson's Blood

This is an amazing site that supplements the Frontline documentary on the relationship between Thomas Jefferson and Sally

Hemmings. Full of dramatic video clips and images! Content is for an older student population.

<http://www.pbs.org/wgbh/pages/frontline/shows/jefferson/>

Legends of Pirates

If you are interested in the stories of pirates (both the myths and facts) this is the site for you. It is a collection of great sites on the topic of pirates, buccaneers, and privateers.

<http://www.legends.dm.net/pirates/index.html>

Letters From an Iowa Soldier in the Civil War

See what the war was like through the letters and feelings of an ordinary soldier.

<http://www.civilwarletters.com/home.html>

National Geographic for Kids

This site offers all kinds of fun and interesting things for kids to check out. It is

updated frequently, so check back often.

<http://www.nationalgeographic.com/kids>

PBS: Great American Speeches

On this site, PBS has collected over 80 years of political speeches and contains sound bytes, trivia, and images.

<http://www.pbs.org/greatspeeches/>

POTUS: Presidents Of The United States

On this site you can find out virtually anything you ever wanted to know about US Presidents.

<http://www.ipl.org/ref/POTUS/>

The History Channel

This site provides an outstanding way to connect media and history. Also, this site provides timely trivia quizzes and basic information. Excellent even if you are not looking for a TV based lesson.

<http://www.historychannel.com/>

This Day in History

This location provides a unique collection of historical vignettes.

<http://www.historychannel.com/historychannel/thisday/>

US Supreme Court

This is the official site to the highest court in the United States. Features many great resources and useful links.

<http://www.supremecourt.us.gov/>

USA TODAY Education

The mission of USA TODAY Education is to increase the use of USA TODAY - and its targeted resources as premiere, relevant education tools for students, parents and teachers. As a result of this mission, the site provides an enormous amount of resources for teachers and students.

<http://www.usatoday.com/educate/home.htm>

Vikings!

Sponsored by the Smithsonian Institute, this site features a wonderful collection of images, information, and maps of the lives and adventures of Vikings!

<http://www.mnh.si.edu/vikings/start.html>

Voices of the Oregon Trail

Voices of the Oregon Trail an excellent website that accompanies the PBS documentary on the life of women on the Oregon Trail.

<http://www.opb.org/womensvoices/>

World Skip

A very easy to use index of websites from countries around the world. Choose a country from a specific region to find information about local news, business, economics, travel, and activities.

<http://www.worldskip.com>

Science

A Century of Physics

This site provides a wonderfully detailed timeline of the accomplishments in the world of physics!

<http://timeline.aps.org/APS/index.html>

Amusement Park Physics

This online resource introduces the science of amusement park rides, including weightlessness, hills and dips, and the physiological effects of acceleration.

<http://www.learner.org/exhibits/parkphysics/>

Cells Are Us

How did you grow from one cell? This site explains how we developed from one cell and how our bodies are made of billions of cells. The authors use fun cartoon animations to explain topics such as fertilization and cell division.

<http://www.icnet.uk/kids/cellsrus/cellsrus.html>

eNature

This site is full of information and images that focus on all parts of nature.

<http://www.enature.com>

Math Ideas for Science Fair Projects

This is a great listing of potential science fair or classroom projects.

<http://mathforum.org/teachers/mathproject.html>

NASA Quest

A website "dedicated to bringing NASA people, space, and science to classrooms through the Internet.

<http://quest.arc.nasa.gov>

NASA's Educational Program

NASA's space missions provide much information that can be easily incorporated into a classroom environment.

<http://www.nasa.gov>

Ocean Photos

Do you like fish? Would you someday like to explore the bottom of the ocean? This site will show you what it's like ahead of time.

<http://www.oceanphotos.com>

Solar System Simulator

This site represents a collaborative project of NASA, the Jet Propulsion

Laboratory (JPL), and the California State Polytechnic University. It provides to its users a "spyglass on the cosmos" and can create a color image of any planet.

<http://space.jpl.nasa.gov>

SpaceKids.com

This is a really fun site that will interest and teach kids of all ages about space.

There are several activities, stories, and space facts.

<http://www.spacekids.com>

The Natural History Museum of London

This site, designed for middle and high school students, includes a variety of interactive science activities. This is definitely an "interactive" website!

<http://www.nhm.ac.uk/interactive/index.html>

Volcano World

This site is designed for anyone who has a special interest in volcanoes. While visiting this site you can ask a volcanologist a question, view the most recent eruptions, find out about volcano-related conferences, locate lesson plans, and more.

<http://volcano.und.edu>

English

Bartlett's Quotations

Looking for something to say? Trying to add a little pizzazz to a paper? Try your hand at the words of old.

<http://www.bartleby.com/99/>

Classic Literature Online

Are you looking for some great books to read? This site will help you to find them.

<http://www.acs.ucalgary.ca/~dkbrown/storclas.html>

Folklore, Myths, and Legends

This is a huge collection of stories, legends, and common myths. It also contains a collection of related links.

<http://www.acs.ucalgary.ca/~dkbrown/storfolk.html>

Online Writing Lab (OWL)

If you need help with your writing, Purdue University's Online Writing Lab is available 24 hours a day. The OWL offers resources on writing skills, ESL, and career resources such as cover letter and resume writing. Over 125 handouts on writing skills are available as well.

<http://owl.english.purdue.edu>

Saxon Shore

Do you like the story of King Arthur and Camelot? Then you definitely want to check out this site. It is full of maps, information, and a great picture gallery.

<http://www.pitt.edu/~jegst61/shoreframes.html> -

The Grammar Gorillas

Part of the FunBrain.com network, this site helps students to learn to identify the different parts of speech in a fun, interactive way. Many other activities can also be accessed through this site.
<http://www.funbrain.com/grammar>

Math

ARITHMETIC

Looking for ways to have fun with math? Need a little practice on your math skills? Accomplish both by checking out this site.
http://members.aol.com/ht_a/iongoal/index.htm

Ask Dr. Math

Question and answer service for K-12 students and their teachers.
<http://mathforum.org/dr.math/index.html>

Cool Math

This is a wonderful resource for learning, applying, and having fun with mathematics. The site does an excellent job of emphasizing a fun approach to math.
<http://www.coolmath.com>

Math Ideas for Science Fair Projects

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<http://mathforum.org/teachers/mathproject.html>

The Universal Currency Converter

This site will instantly convert currency in varying amounts and denominations. Great for math or a culture unit!
<http://www.xe.net/ucc/>

Fine Arts

Free Patterns

Are you crafty? Do you like to sew or stitch? This site offers free patterns for an extensive collection of hobbies. Great for classroom projects! NOTE-- this site DOES request personal information.
<http://www.freepatterns.com/>

History of Costume

Looking for a great costume to use in a play or wear to a party? Then this site is the one for you. It contains graphical images of popular costumes dating from the times of ancient Egypt.
http://www.siue.edu/COS/TUMES/COSTUME1_INDEX.HTML

Internet Movie Database

This is an excellent site for finding out more about movies or actors.

Information includes: filmographies, awards, plot summaries, trivia, box office grosses, and everyone who was involved in the making of that movie.
<http://www.imdb.com/>

Rock and Roll Hall of Fame

This is a great site to visit to check on the roots of Rock and Roll.
<http://www.rockhall.com/>

Sapphire Swan Dance Directory

This site contains a wonderful collection of links to sites that focus upon all types of dancing.
<http://www.SapphireSwan.com/dance/>

Worldwide Internet Music Resources

This site is maintained by the William and Gayle Cook Music Library of the Indiana University School of Music. Visitors can access information from a variety of topics.
http://www.music.indiana.edu/music_resources/

