

Why technology literacy?

- Because in a world where computers are used to communicate, store and manipulate information, you need to be fluent in the basic technologies for information management
- Because the State of California requires that all students be competent in information management
- Because knowing how to manage information is one key to a successful and rewarding personal and professional life
- Because knowing how to manage information is one key to a successful school experience

Computer Hardware

Hardware is the physical parts of a Computer, such as a monitor, central processing unit or printer.

Computer Software

Software is the programs that run your Computer system and the applications (word processing, email, etc.) you use on a Computer.

- Word Processing: software for creating text, such as letters, research papers. Examples: Microsoft Word, Open Office and Corel WordPerfect
- Spreadsheet: software for number crunching (budgets, statistics, research data), and organizing data in ways for sorting in columns and rows. Graphic displays of data are often the most useful part of spreadsheet software for strong, visual presentations of numbers. Examples: Microsoft Excel, Corel QuattroPro and IBM's Lotus 1-2-3.
- Presentation: software for creating slides for presentations. Examples: Microsoft PowerPoint, Corel Presentations.
- Graphics: software for creating/manipulating images. Examples: simple Microsoft accessory Paint software and complex Adobe PhotoShop.
- Media: software for accessing a variety of media--music, video, online meetings or facilitating storage of media to CD or DVD. Examples: RealPlayer, Windows Media Player, Apple iTunes.
- Database Management: software for managing large amounts of data that allows data to be searched or queried. Examples: Microsoft Access, Corel Paradox, Lotus FilemakerPro.
- Bibliographic Management: software for managing and formatting citation data for books, articles, web pages, interviews and more. Examples: EndNote, RefWorks
- Web Editing: software that enables you to create web pages without knowing code, displaying your page much like it looks on the Web. Examples: Microsoft FrontPage, Adobe Dreamweaver
- Security/Privacy: software that helps prevent cookies, viruses and other nasty bugs from invading your Computer when you are connected to the Web. Virus

- protection software from McAfee, Norton and Sophos are purchases via subscription. Ad-Aware is free (open source) anti-spyware software like Ad-Aware or Spybot are just two of the anti-spyware software programs you can purchase and download to protect the privacy of information on your Computer.
- Speech Recognition: software that allows you to speak or dictate what you want entered into the Computer. Example: Nuance's DragonNaturallySpeaking.

Types:

- Commercial: Software developed by large companies that you pay for--often paying lots of money for a single piece of software. Some of the big names in commercial software are Microsoft, Corel, Adobe.
- Shareware: Software developed by individuals or small software companies that offer their products as a free trial download, so you can evaluate their product for a set period of time, then purchase it. Prices are much less than commercial, but upgrades and support are often less as well. One source of shareware is www.shareware.com.
- Open Source/Freeware: Software that is offered as free by the developers in the belief that all software should be available to everyone, regardless of ability to pay for a piece of software. A note of caution: some freeware is full of viruses! Check www.cnet.com for downloading freeware generally trusted to be virus free.

Network Basics

Networks play an important role in the use of computers. Networks provide the communication channels that allow the transmission of data and information from one place to another. Whether you're using a computer or a 3g cell phone, the information you send and receive travels through a network.

Because there are so many places that data (including your personal email) travels as it moves through a network and not all networks are secure, it is important to be aware of something about network security.

What's a network?

A network is a system of connections that allows data to go from a computer in Plattsburgh to a web page somewhere on the Web and back again. As the data travels through the network, it goes through servers, routers, wide and local area networks. Data travels in packets as it moves across a network.

Wired vs. wireless networks

Wired networks use actual, physical wires to send data from one place to another. Telephone lines, cable TV lines, fiberoptic cable are all used to connect your computer with other computers.

Wireless networks use radio signals to nodes placed in a building or other structure. Once your laptop's data is sent to the wireless receiver, however, the data travels on the same physical wires used to transmit data on a wired network.

Parts of a Network

Servers: As the name suggests, this hardware serves data to and from the network. At Bullard Talent, there are a number of separate servers that link different types of network

traffic. There's a student server for student email, a library server for library database traffic, a proxy server to check to see if you're really a member of the FUSD community, a faculty web site server for all the faculty web sites you access.

Your computer can also work as a server on a local network or a peer-to-peer network (sometimes used for music file-sharing)

Routers

Routers tell the data which way to go as it moves through a network. When you try to connect to a drive and get no response, the problem is sometimes a router that's been given the wrong information about where the data should be sent. In that case, you won't get to the drive, you'll just get an error message.

Network cards

In order for a computer or laptop to access a network, it needs some kind of network card. Ethernet cards are installed in computer's to give them the ability to access wired networks. Wireless access cards installed on laptops allow access to wireless networks. At Bullard Talent, each computer has an "address", so the network recognizes the computer and can use Bullard Talent's wireless network.

Internet Service Providers/ISP's

These companies provide you with access to the Internet or to a local wired or wireless network. Examples of ISP's are AT&T and Comcast

Protocols

Network protocols are standards agreed upon by computer experts, companies and countries to set up and manage the data that moves around on the Internet or on a local network.

Network Security

A variety of software provides levels of security within a network. BUT, no network security system works if you don't take active steps to ensure that the system works!

Passwords

Passwords provide you with a personal level of security. Only you can access certain information that is password protected. That means that one of the primary ways to be sure your own information is secure is to protect personal passwords by not sharing them with anyone else!

When you enter a password into a network, that tells the server that you are the individual entitled to that information or that you are a member of a group that is entitled to access certain types of information.

Firewalls

This type of software inspects all incoming data and rejects suspicious seeming packets of information. Firewalls help to prevent spam or spyware or viruses from entering a network. Firewall software has to be constantly maintained to keep up with new ways that are invented to enter a network undetected.

You may have firewall software installed on your computer to keep certain kinds of traffic from entering your computer.

Encryption

Software that encrypts data that is traveling the network so that the data cannot be seen and possibly taken by others. Banks, many companies and governments use encryption software to help ensure the privacy of the data that they send. As with firewall software, it must be constantly monitored and updated, as new ways are found to un-encrypt the data before it reaches its destination.

This may all sound a bit like science fiction. More and more of our information resides on networked servers, our own networked computers or laptops or cell phones. The possibility of personal, institutional and governmental information being taken by those who will use the information in undesirable or criminal ways grows all the time.

Understanding a bit about what makes up our networks and what's used to secure them can help you keep your own information secure.

[Sources: *How Networks Work* by Frank J. Derfler, Jr. & Les Freed, Que Publishing, 2000; *Easy Computer Basics* by Michael Miller, Que Publishing, 2005; *The Network, Network Servers and Clients*, retrieved 8/26/2006 from www.webclasses.net/Courses/demos/MediaLight/Novell_Netware_5.1/Content38476.htm]