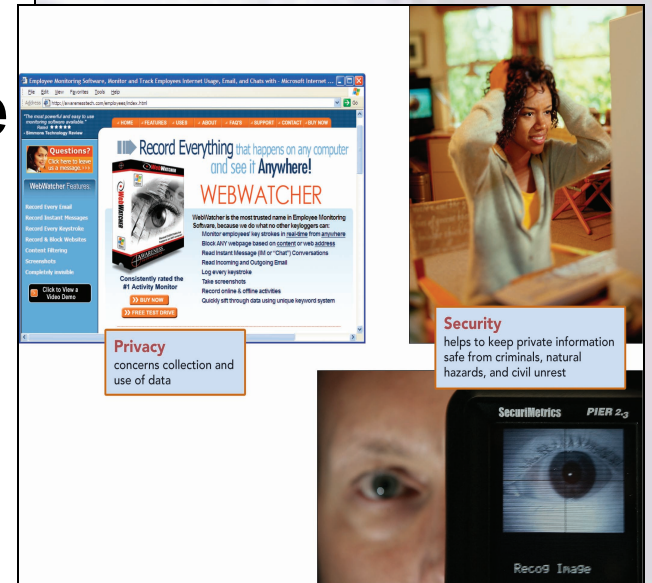


Chapter 10

Privacy and Security

Competencies (Page 1 of 2)

- Discuss the **privacy** issues related to the presence of large databases, private networks, the Internet, and the Web
- Describe and control cookies, web bugs, and spyware
- Describe the **security** threats posed by computer criminals, **computer crime**, and other hazards



Competencies (Page 2 of 2)

- **Discuss ways that individuals and organizations protect their security**
- **Describe the common types of physical and mental risks associated with computer use and ways to protect yourself against these risks**
- **Discuss what the computer industry is doing, and what you can do, to protect the environment**



Introduction

The ubiquitous use of computers and technology prompts some very important questions about use of personal data and privacy.

This chapter will cover issues related to the impact of technology on people and how to protect ourselves on the Web.

Information Systems Concerns for People

- **Privacy** – What are the threats to personal privacy and how can we protect our selves?
- **Security** – How can **access** to sensitive information be controlled and how can we secure hardware and software?
- **Ergonomics** – What are the physical and mental risks to technology and how can these risks be eliminated or controlled?
- **Environment** – What can individuals and organizations do to minimize the impact of technology?

Computer Ethics

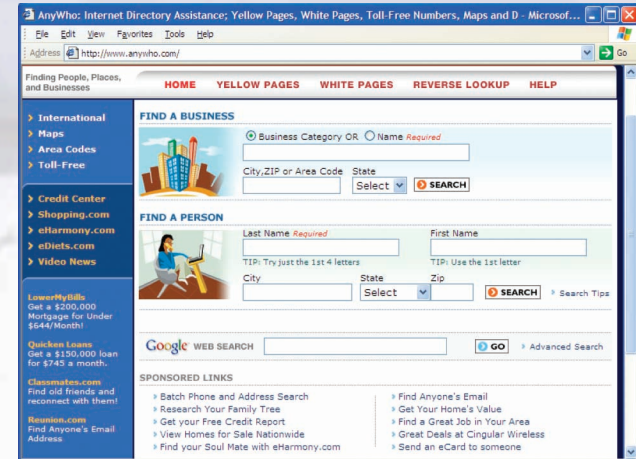
- **Computer ethics provide guidelines for computer use**
- **Ethics: Standards of moral conduct**
 - What is **moral** and **right**; not what is “legal”)
 - Not what is “legal”; not what others are doing
- **Ethics issues include:**
 - Privacy** – Collection of data about individuals
 - Accuracy** – Data should be correct & secure
 - Property** – Who owns the rights to data & software
 - Access** – Must control access and use of data
- **Technology is moving faster than the legal system**

Privacy

- **Privacy relates to the collection and use of personal information; concerns include:**
- **Large databases**
 - **Private networks**
 - **Internet/Web**
- **Privacy laws exist, but privacy remains primarily an ethical issue**

Large Databases

- Data collected daily
- Data gatherers
 - Information resellers or information brokers
 - Electronic profiles are created
- Concerns
 - Spreading information without consent
 - Identify theft
 - Spreading inaccurate information
 - Mistaken identity
 - Freedom of Information Act



Private Networks

- **Employers monitor e-mail**
 - Legally done
 - **Snoopware Software**
- **Online services right to censor content**
 - Screen and reject messages
 - Terminate user accounts



The screenshot shows a web browser window displaying the homepage for WebWatcher software. The browser's address bar shows the URL <http://www.awarenesstech.com/employees/index.html>. The page features a navigation menu with links for HOME, FEATURES, USES, ABOUT, FAQ'S, SUPPORT, CONTACT, and BUY NOW. A prominent headline reads "Record Everything that happens on any computer and see it Anywhere!" followed by the product name "WEBWATCHER" in large, bold letters. Below this, a list of features is provided, including monitoring emails, instant messages, keystrokes, and websites. A "BUY NOW" button and a "FREE TEST DRIVE" button are visible at the bottom of the main content area. The page also includes a "Questions?" section with a "Click here to leave us a message" link and a "Click to View a Video Demo" button.

The Illusion of Anonymity

The *“illusion of anonymity”* is that if you are on the Internet and selective about disclosing names or other personal information, then no one knows who you are or how to find you.

This is false.

Many cases of people tracing other people through Internet activity. When you browse the Web your activity is monitored.

When you visit a Web site your browser stores critical information onto your hard disk – usually without your permission or knowledge.

Later, other (colluding) servers can access this information.

The Internet and the Web

- **Illusion of anonymity**
 - Not concerned about privacy when surfing the Internet
 - Not concerned about privacy when sending e-mail
- **History file**
- **Cookies – two basic types**
 - Traditional
 - Ad network or adware cookies
- **Cookie-cutter programs**
- **Spyware**
- **Spy removal programs**
- **Financial Modernization Act**



Cookies

**A chunk of data, stored on your computer's disk
Created and sent to your browser by some websites
(e.g. Amazon.com)**

Saves information about you that the server wants

**Shopping cart contents, your preferences,
VISA card number, password, address, etc.**

Makes it easier to deal with that website

It seems like the website "knows" you.

Allows websites to track you and your behavior.

Cookies – The Dark Side

They are not viruses or spyware.

But they can be used to track you.

They can record your browsing behavior.

Privacy Concerns

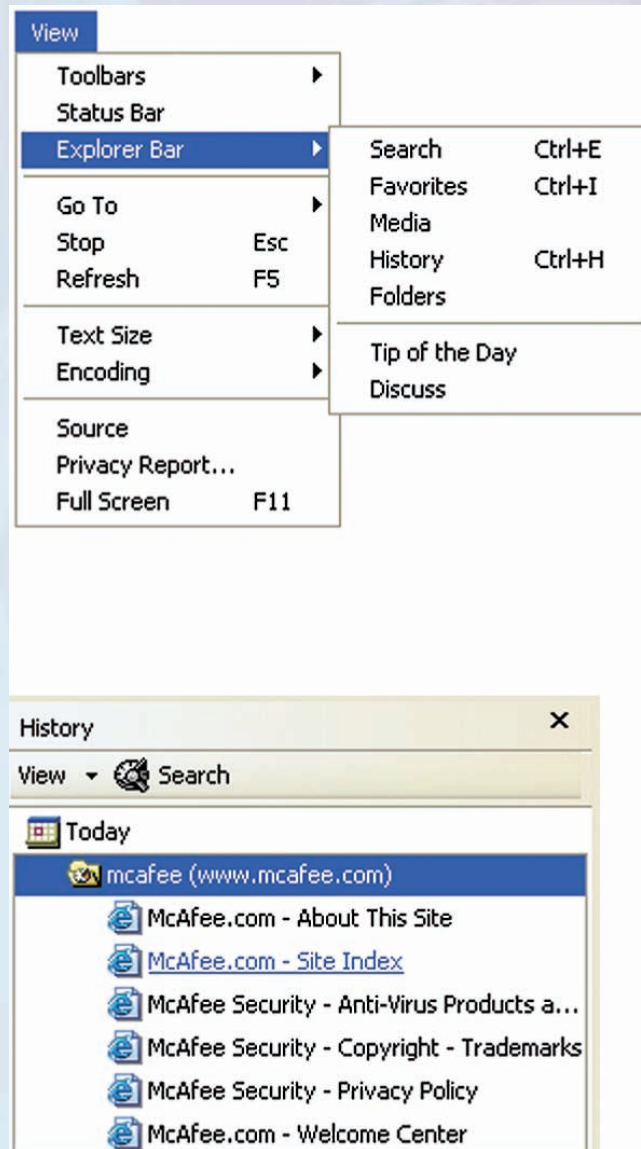
“Tracking Cookies”

Different website can share cookies (share info)

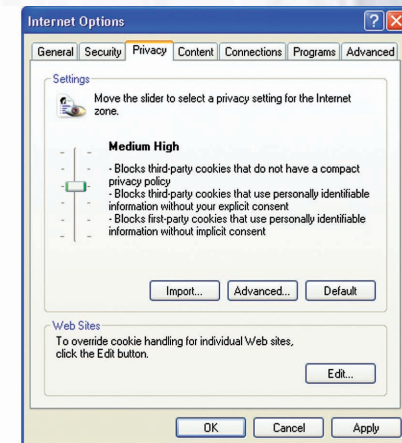
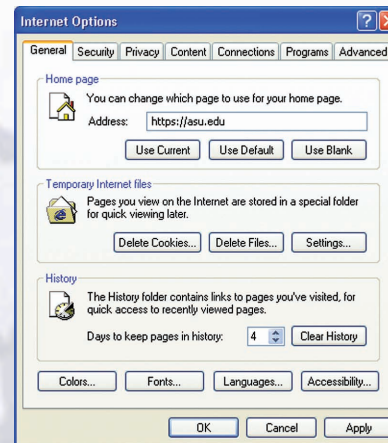
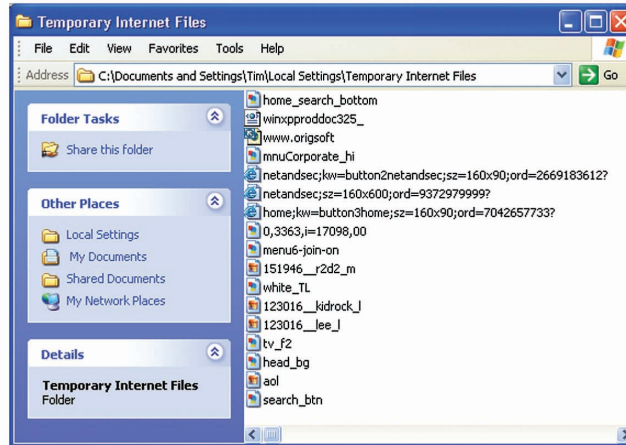
Allows the servers to know things like...

- Which sites you’ve visited**
- Which ads you’ve been shown**
- What you’ve clicked on**

Viewing History Files



Viewing and Blocking Cookies



Spyware Removal

- **Anti-Spyware is used for:**
 - Finding and removing spyware
 - Automating spyware removal
 - Staying up to date



Program	Web Site
Ad-Adware	www.lavasoft.com
CounterSpy	www.counterspy.com
Spy Doctor	www.spydoctor.com
Spy Sweeper	www.spysweeper.com



Ad-Aware

“Ad-Aware is an anti-malware program developed by Lavasoft that detects and removes spyware or adware on a user's computer. It detects spyware, viruses, dialers, Trojans, bots, rootkits, data miners, aggressive advertising, parasites, browser hijackers, and tracking components.” [Wikipedia]



Major Laws on Privacy

- **Federal laws governing privacy matters have been created**

Security and Computer Criminals

- Threats to computer security are criminals, computer crime, and hazards
- Computer criminals are of five types:
 - Employees
 - Outside users
 - **Hackers** and **crackers**
 - Organized crime
 - Terrorists



Natural hazards



Civil unrest



Computer theft

Computer Crime

Computer Crimes have tripled in the past two years

- **Malicious Programs**
 - **Viruses**
 - **Worms**
 - **Trojan horse**
 - **Denial of service (DoS)**
 - **Internet Scams**
- **Theft**
 - **Hardware** or software
 - **Data**
 - **Computer time**
 - **Data Manipulation**
 - **Computer Fraud and Abuse Act**

Commonly Encountered Viruses

Name	Description
Apology-B	Follows every outgoing e-mail with a second e-mail containing a virus
KuKworm	Automatically attaches to outgoing e-mail
Love Bug	Recreates itself through Microsoft Outlook; renames files
Stages-A	Copies itself on all available network drives
Thus	Deletes data on December 13th

Common Internet Scams

Type	Description
Identity theft	Individual(s) pose as ISPs, bank representatives, or government agencies requesting personal information. Once obtained, criminal(s) assume a person's identity for a variety of financial transactions.
Chain letter	Classic chain letter instructing recipient to send a nominal amount of money to each of five people on a list. The recipient removes the first name on the list, adds his or her name at the bottom and mails the chain letter to five friends. Almost all chain letters are fraudulent and illegal.
Auction fraud	Merchandise is selected and payment is sent. Merchandise is never delivered.
Vacation prize	"Free" vacation has been awarded. Upon arrival at vacation destination, the accommodations are dreadful but can be upgraded for a fee.
Advance fee loans	Guaranteed low rate loans available to almost anyone. After applicant provides personal loan-related information, the loan is granted subject to payment of an "insurance fee."

Other Hazards

- **Natural hazards**

- Fires & floods
- Winds
- Hurricanes
- Tornadoes
- Earthquakes



- **Civil strife and terrorism**

- Wars, riots and terrorist acts

- **Technological failures**

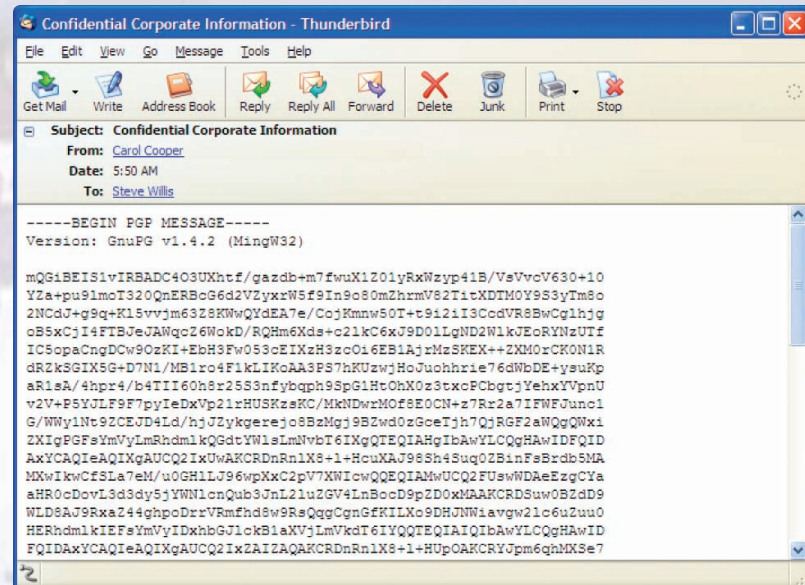
- **Voltage surge**

- Use **surge protector**
- Hard disk crashes

- **Human errors**

Measures to Protect Computer Security

- **Encrypting messages**
- **Restricting access**
- **Anticipating disasters**
- **Backing up data**

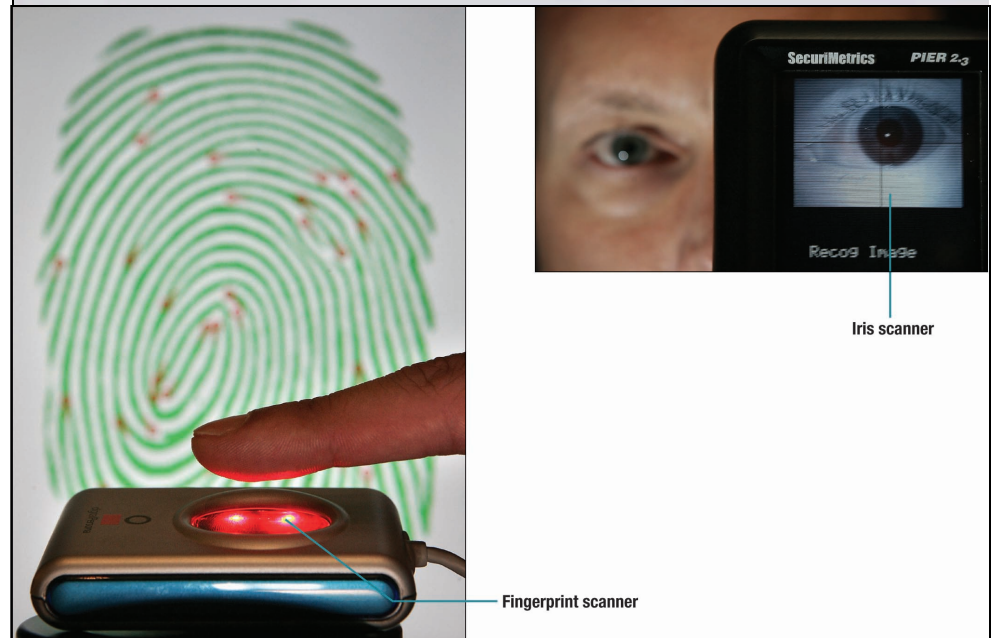


Disaster & Backup Procedures

- **Disaster recovery plan**
 - 9/11, Mississippi floods, California fires, hurricanes, & the unexpected disaster
 - Offsite secure data storage of backup (tapes?)
- **Hot backup site**
- **Cold backup site**
- **Physical Security**
 - Protect the hardware
- **Data Security**
 - Protect the data and the software

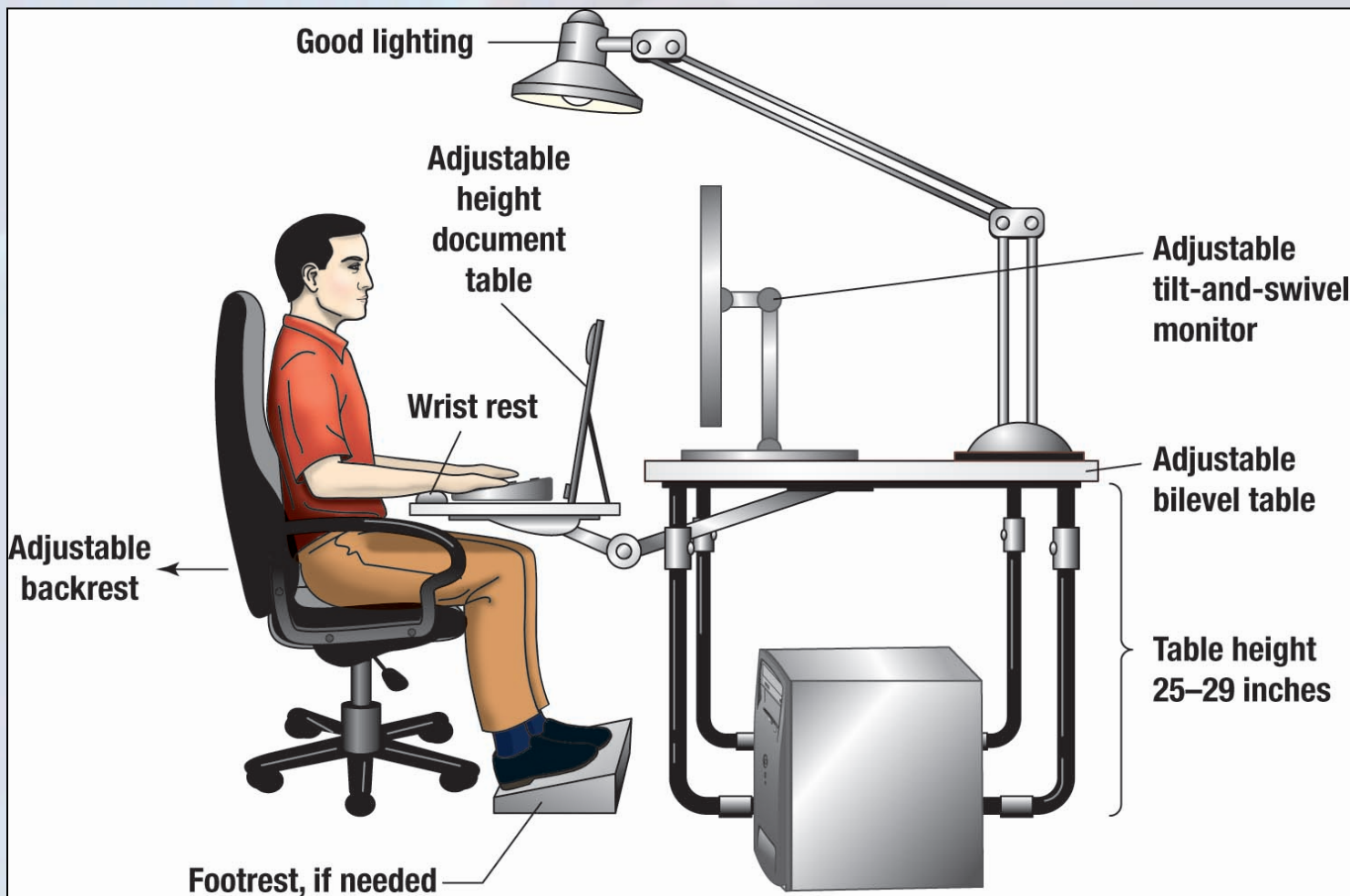
Restricting Access

- **Biometric scanning**
 - Fingerprint scanners
 - Iris (eye) scanners
- **Assigning passwords**
- **Firewalls**
 - Special hardware and software
 - Controls access to internal networks



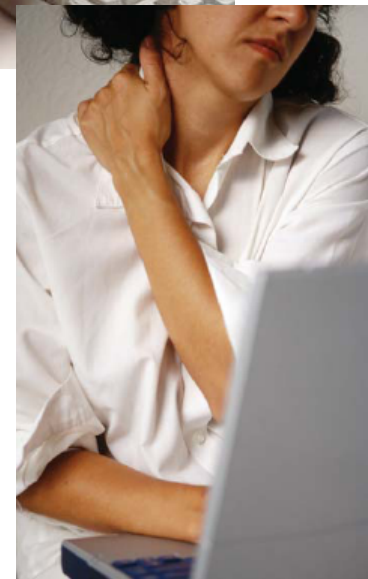
Ergonomics (Page 1 of 3)

Study of human factors related to things people use



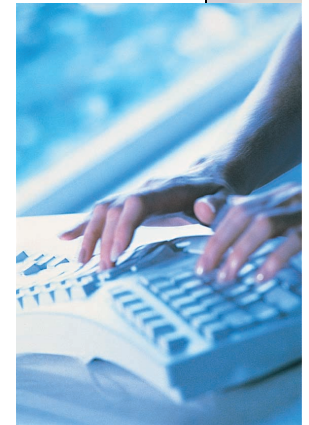
Ergonomics (Page 2 of 3)

- **Physical Health**
 - **Eyestrain and headache**
 - **Back and neck pain**
 - **Repetitive strain injury (RSI)**
 - **Carpal Tunnel Syndrome**
 - **Damage to tendons in the wrist**
- **Take regular breaks**
- **Use good posture**
- **Use well-design furniture**



Ergonomics (Page 3 of 3)

- **Computer technology offers ways of improving productivity but can create irritants other than physical**
 - Noise
 - **Electronic monitoring**
- **Technostress**
 - **Stress associated with computer use**



Problem	Remedy
Eyestrain and headache	Take frequent breaks, avoid screen glare, place object at fixed focal distance
Back and neck pain	Use adjustable equipment
Repetitive strain injury	Use ergonomically correct keyboards, take frequent breaks
Noise	Use head-mounted microphones and earphones, install acoustical tile and sound-muffling covers, tighten system unit components
Stress from excessive monitoring	Remove electronic monitoring

Environmental Protection

Microcomputers use most of the electricity in work environment.

Turn off when not IN USE

Account for 5% of the electricity used

Sleep Mode

The **EPA (Environmental Protection Agency)**

The **Energy Star** program

To discourage waste in the various industries

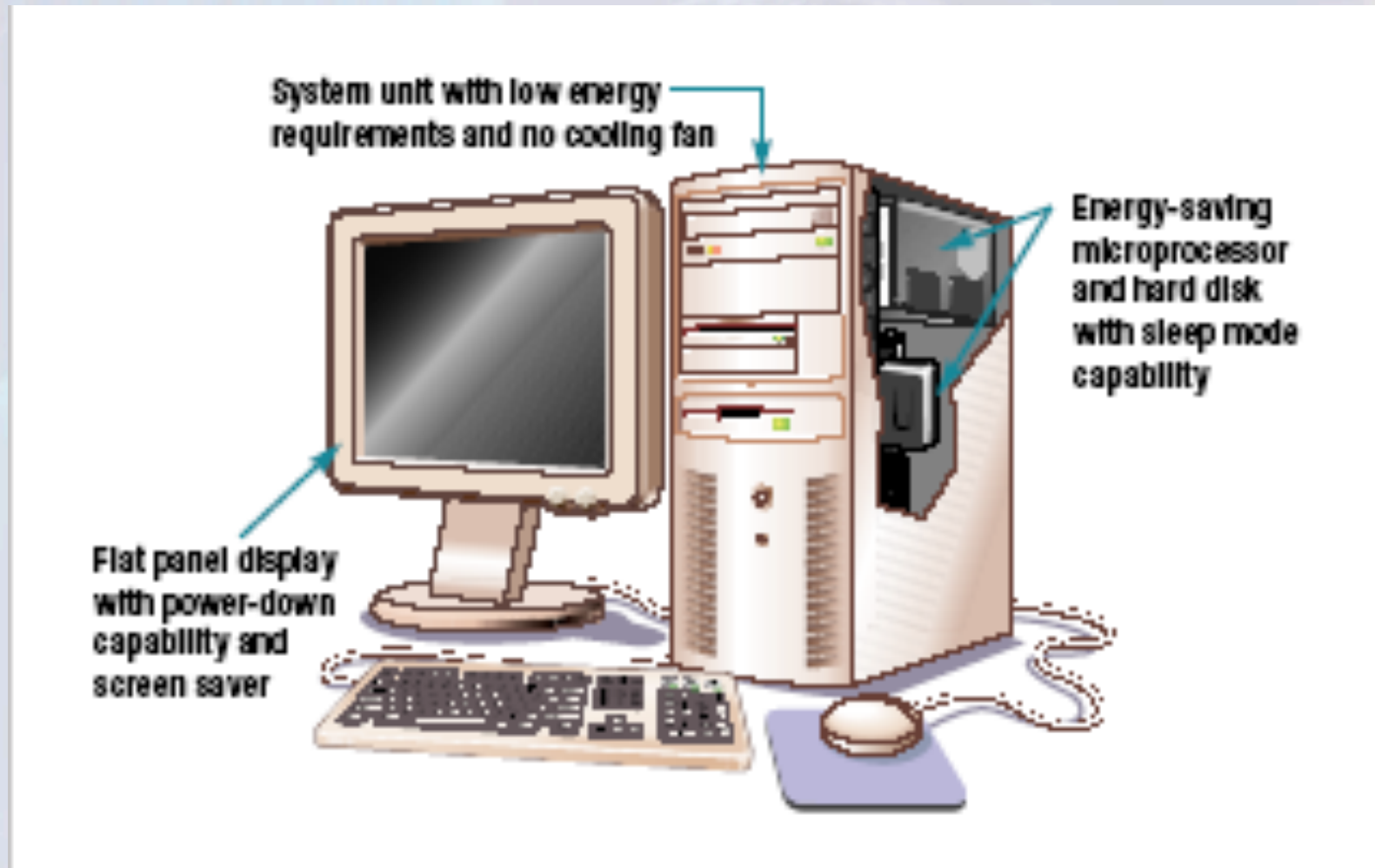
The Green PC

System Unit – energy saving microprocessor,
eliminates cooling fan, has sleep mode

Display – flat panels, power-down monitors, screen-saver
software that clears the display when not in use

Manufacturing – use of fewer harmful chemicals
particularly **chlorofluorocarbons (CFCs)**
in solvents and cleaning agents

Environmental Protection



The Green PC

Personal Responsibility to Help Protect the Environment



- **What can computer users do?**
- **Conserve**
- **Recycle**
- **Educate**

Organization	Web Site
Computers for Schools	www.csforschools.org
National Cristina Foundation	www.cristina.org
Retire-IT	www.retire-it.com
Share Technology	www.sharetechnology.org

Careers in IT

- **Cryptography is the science of disguising and revealing encrypted information**
- **Usually refers to keeping any intercepted information private**
- **Cryptographers** are mathematicians who specialize in making and breaking codes
- **Annual salary is usually between \$60,000 to \$101,000/year**



A Look to the Future

Presence Technology

- **Presence technology alerts you that someone is trying to reach you**
- **People can locate you**
- **People can tell which device is best to contact you**
- **Could become a standard feature of new cars, phones, and appliances**



Discussion Questions (Page 1 of 2)

- **Discuss the impact of large databases, private networks, the Internet, and the web on privacy.**
- **Discuss the various kinds of computer criminals.**
- **What are the principal measures used to protect computer security? What is encryption? How is it used by corporations and individuals?**

Discussion Questions (page 2 of 2)

- **What is ergonomics? How does computer use impact mental health? Physical health?**
- **Describe the basic elements of the Green PC and what you can do to protect the environment.**