Basic Computer Hardware and Software

Overview:

This lesson is an introduction to basic computer hardware and software. If possible, have one or more types of computers available to show students the hardware components found on different computer models. A multimedia projector can be used to show students the different types of software described in the lesson.

Depending on the time available and grade level, extensions to this lesson could include asking students to research how computers are used in various occupations or the history of computers.

Objectives:

The student will:
- identify basic computer hardware; and
- describe uses of commonly used software.

AK Content Standards:

Technology

A1   A student should be able to operate technology-based tools. A student who meets the content standard should use a computer to enter and retrieve information.

Materials:

- Several different types of computers (optional)
- Multimedia projector connected to a computer with Microsoft Office, Photoshop and a Web browser (optional)
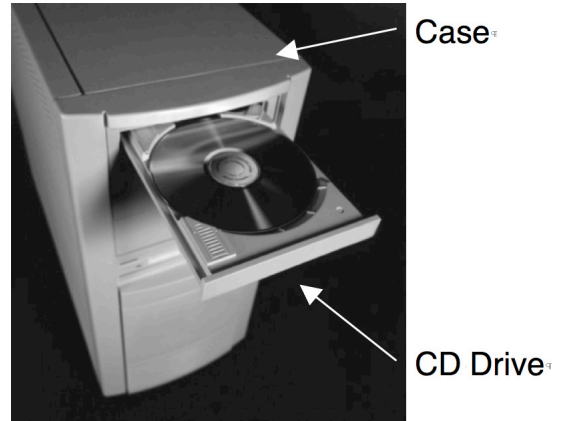- STUDENT WORKSHEET: "Computer Hardware and Software"

IT Basics

Computers are versatile machines used for processing and manipulating information. They can be used to view and edit photos, analyze and graph data, write reports, share information, utilize the Internet and much more. At the heart of the computer is a machine that processes digital data consisting of ones and zeros. The first computers were made in the 1940's. They were large, room-sized objects that were difficult to program. Today's computers are much smaller and have a wide variety of software programs that they can run.

Hardware

The term "hardware" refers to the physical parts of a computer system. The basic hardware of a computer system includes:

Case: The box that holds the circuitry for the computer. One of the main chips inside is called the central processing unit, or CPU for short. This acts as the "brain" to send instructions to other parts of the computer. Although there are other factors to consider, the higher the speed of the CPU, the faster the computer can send and receive information.
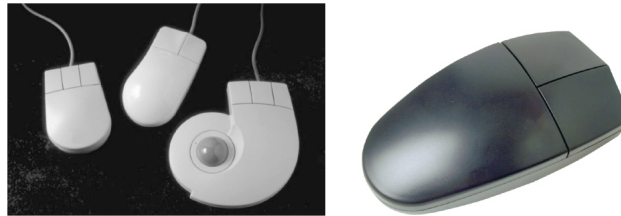

Case

CD Drive

Drives: Nearly all computers have an internal hard drive used to store information. There are many other types of drives, such as external hard drives, CD and DVD drives that can be used to store information on CDs or DVDs.

Keyboard: The device used to type and enter information into the computer.

Mouse: A pointing device used to move the cursor displayed on the monitor. Laptops generally use a trackpad or touchpad instead of a mouse to move the cursor.

Monitor: The screen that shows the information for the computer; also called a display. Newer computers have LCD (liquid crystal display) monitors that are thinner than the older monitors.

Printer: The printer takes the information displayed on the screen and prints it on paper. The most common types of printers are ink jet (left), which are typically used in homes and small businesses, and laser printers (right), which are used in schools and large businesses.

Activity Procedure

1. Distribute the STUDENT WORKSHEET: "Computer Hardware and Software."

2. As a class, discuss the material presented in the worksheet. Ask students how they have used each piece of hardware and software presented.

3. Ask students if they have used other types of hardware or software.
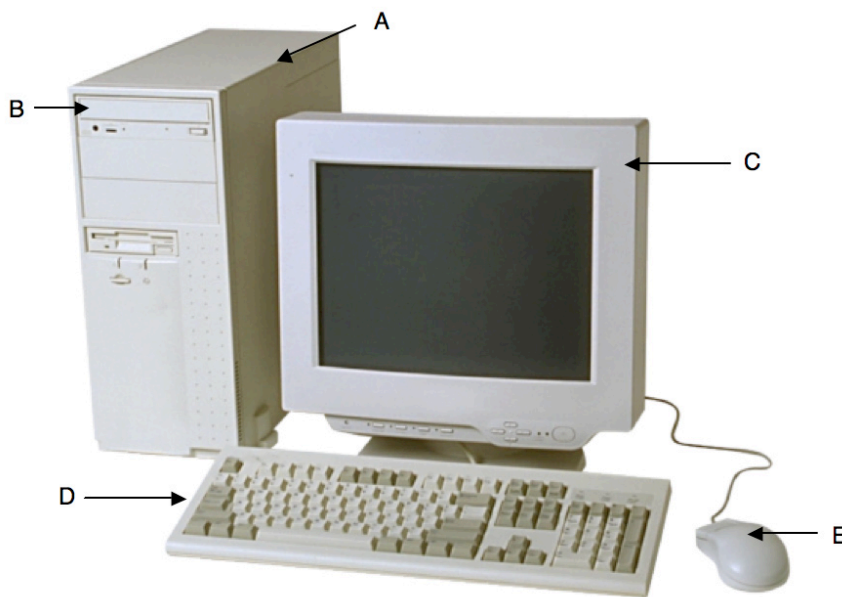
Extension Ideas:

Some software is specific to science applications, such as software that collects data from temperature probes. Try searching for science specific software on the Internet. Ask students to try out different types of free science software and write a review of the program.

Answers

Part 1

A) Case

B) CD / DVD drive

C) Monitor

D) Keyboard

E) Mouse

Part 2

1. B, Record temperatures and make a graph

2. A, Type a report

3. D, Make a presentation to your class

4. C, Edit photos taken with a digital camera

5. E, Look up information on the Internet

Name:_____

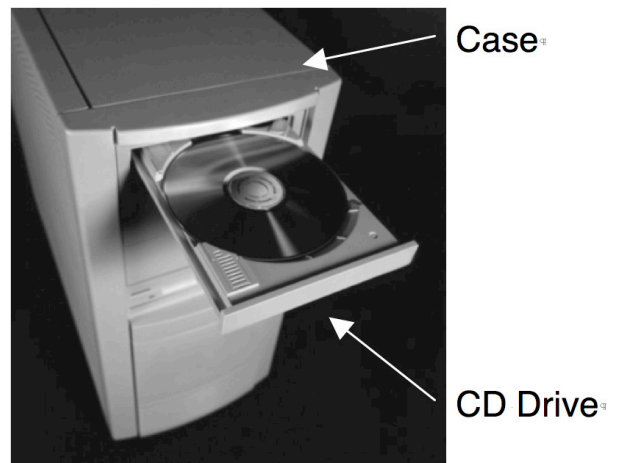# Basic Computer Hardware and Software
Student Worksheet (page 1 of 5)

Hardware

Hardware is the physical parts of a computer system. The basic hardware of a computer includes:

Case:

The box that holds the inner parts of the computer. One of the main parts inside the computer is the central processing unit, or CPU. This acts as the "brain" to send instructions to other parts of the computer.

Case

CD Drive

Although there are other things to consider, the higher the speed of the CPU, the faster the computer can send and receive information.

Drives:

Nearly all computers will have an internal hard drive used to store information. There are many other types of drives, such as external hard drives, and CD and DVD drives that can be used to store information on disks.

Keyboard:

The keyboard is used to type and enter information into the computer.

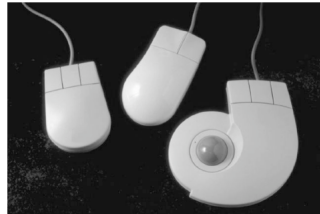# Basic Computer Hardware and Software
Student Worksheet (page 2 of 5)

Mouse:

The mouse is a pointing device that is used to move the cursor displayed on the monitor. Laptops generally use a trackpad or touchpad instead of a mouse to move the cursor.
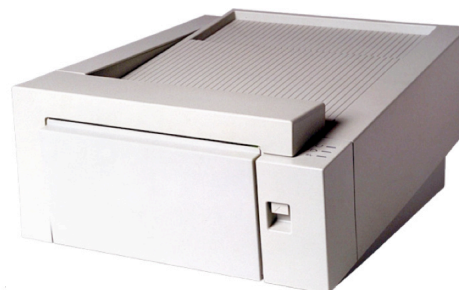
Monitor:

The monitor is the screen that shows the information for the computer; also called a display. Newer computers have LCD (liquid crystal display) monitors that are thinner than the older monitors.

Printer:

The printer takes the information displayed on the screen and prints it on paper. The most common types of printers are ink jet (left) and laser printers (right).

Name:_____

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Student Worksheet (page 3 of 5)

Levels

I-II

Grades K-4

Software:

Software is a term used to describe a computer program, which is a set of instructions that tells the computer what to do. Software can be split into three categories. They are:

Programming software. This software is used by computer programmers to help write computer code.

Operating system software. This software runs the computer. It has the instructions for using memory, video cards, keyboards, etc. Two common operating systems are Windows XP and Macintosh OSX.

Applications software. There are literally thousands of different software applications. A brief overview of some of the more common ones includes:

Microsoft Office – this combination of several programs includes:

Microsoft Word – A word processing program that is used to type such things as letters, reports and newsletters.

Microsoft Excel – A spreadsheet program that can be used to calculate numerical data, store data and make charts.

Microsoft PowerPoint – A presentation program that is used to make slides of information and graphics.

Microsoft Entourage – A program that allows users to communicate through email.

Web browsers - These programs allow users to navigate the Internet. Some of the more common ones include Microsoft Internet Explorer, Netscape Navigator, Mozilla Firefox and Apple Safari.

Adobe Photoshop - Photoshop is a graphics editing program. The program is commonly used to enhance digital photos. It is part of the Adobe Creative Suite applications. Photoshop Elements is a less expensive version that is popular with home users.

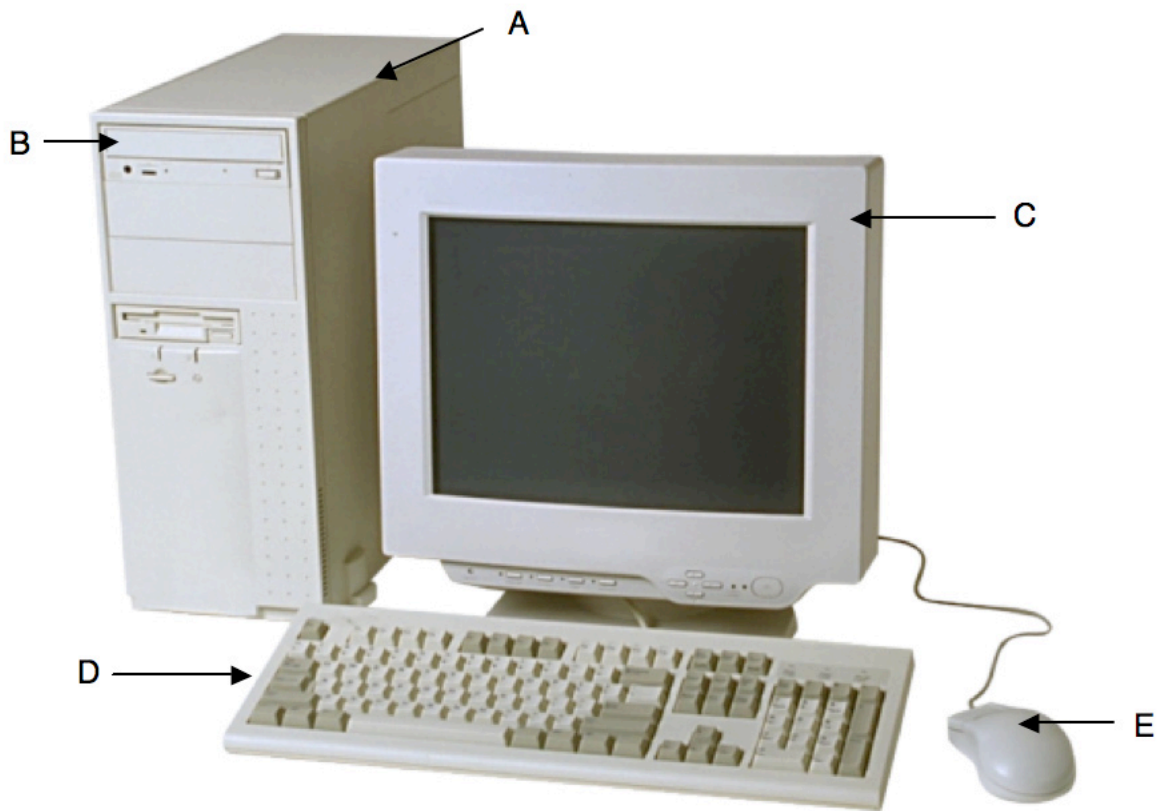# Basic Computer Hardware and Software
Student Worksheet (page 4 of 5)

Part 1

Fill in the correct name for each of the following.

A) _____

B) _____

C) _____

D) _____

E) _____

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Student Worksheet (page 5 of 5)

Part 2

What software would you use to: (Fill in each blank with the correct letter from the Word Bank.)

1. _____ Record temperatures and make a graph

2. _____ Type a report

3. _____ Make a presentation to your class

4. _____ Edit photos taken with a digital camera

5. _____ Look up information on the Internet

Word Bank

A) Microsoft Word

B) Microsoft Excel

C) Adobe Photoshop

D) Microsoft PowerPoint

E) Web browser