3.2 Computer Basics

Summary
Students review the basics of a computers parts and operation.

Learning Objectives
After this class, students will be able to:
- Identify and define the parts of a computer.
- Explain the difference between software and data.

Materials
- Computers with internet access

Time
80 minutes

Preparation
Students will need to log in to Code.org for this lesson. In order to track their progress on Code.org, you need to set up an account as a teacher and create a class. Go to https://studio.code.org/ and sign up as a Teacher. Once you have created an account, go to the Teacher Home Page. There you will find Student Accounts and Progress. Click on this link to create a course that your students will join. Follow the instructions on the site to create the course.

Procedure/Pacing

Computer Basics
1. Based on their homework video, students should know definitions for the following terms:
   - Processor (or CPU) – A central processing unit (CPU) is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions. A processor is the logic circuitry that responds to and processes the basic instructions that drive a computer.
   - RAM – Random Access Memory. RAM is the temporary workspace where instructions are executed and data are processed. RAM can be accessed randomly; that is, any byte of memory can be accessed without touching the preceding bytes. This randomness makes it possible to access data very quickly.

When a computer is turned off, the content of RAM memory is erased.

- ROM – Read Only Memory. ROM contains critical programs like the instructions to boot the computer. Once data has been written to ROM it can only be read, not added to, modified, or deleted. ROM retains its data when the computer is powered off.
- Hard Drive – The primary computer storage device. Includes disks on which data is magnetically stored and the mechanisms with which to access that data. Data stored here remains stored when the computer turns off.
- Flash Drive – A storage device containing flash memory, a type of solid-state memory that is rewritable and does not require a power source to retain its data. Flash drives are generally small, portable devices used to store data and transfer data from one computer to another. However, many computers are manufactured with solid-state memory in place of a hard disk drive.
- Cloud Storage – Data is stored on remote servers that are accessed from the Internet. Servers are operated and managed by a cloud storage service provider.
- Input Device – A peripheral (external piece of computer hardware equipment) used to provide data and control signals to an information processing system such as a computer or information appliance. Examples of input devices include keyboards, mouse, scanners, digital cameras and joysticks.
- Output Devices - Any device used to send data from a computer to another device or user. Examples include monitors, projectors, speakers, headphones and printers.
- Peripherals – A device that connects to and works with the computer. Input and Output devices are peripherals.
- Network – A system of computers connected to one another.

2. Use the following suggestion for vocabulary review, or one of your own:
    - Briefly review the vocabulary words above.
    - Ask students to write in their notebooks the definition in their own words.
    - On labeled posters or whiteboards around the room, have students draw picture or symbol of the word. (2 – 3 students to a poster or whiteboard section.)
    - Rotate posters and have students add to the posters with their own analogies, comparisons, classifications, or metaphors either in words or pictures.

- Come back together as a class and discuss the posters.

Code.org

1. Help students get started with Code.org using the type of access you selected for your on-line section. Make sure all students know how to log in to Code.org, navigate to your section, and get to the lessons in the 20-Hour Accelerated Course that they will be doing for homework.

In-Class Assignment

Assignment 3.2.1: Computer Parts

Resources

- Computer Basics http://www.gcflearnfree.org/computerbasics
- Scratch http://scratch.mit.edu
- Code.org 20 hour course https://studio.code.org/s/20-hour

Homework

Assignment 3.3: Code.org Activities: Event Handler, Move, Turn, and Repeat blocks