Interacting with a Computer

TOPIC: BASIC KNOWLEDGE OF COMPUTING SYSTEMS (HARDWARE/SOFTWARE)

GRADES: K-2

LESSON DURATION: 45 MINUTES

SOFT SKILLS: COMMUNICATION, PROBLEM SOLVING, COLLABORATION (VIA EXTENSION ACTIVITY)

Learning Outcome:

- Students will describe the major components for human interaction with a computing device.

Materials:

- An old computer with a mouse, keyboard, microphone, speakers, earbuds, headphones, monitor/screen, printer, trackpad, joystick, touchscreen, keyboard, laptop keyboard, etc.). If parts are not available, pictures will work.
- Pink and green post it notes.
- Multiple cut outs of the letters T, C, V, S
- This lesson can be done in conjunction with the lesson “Parts of a Computer.”
- Note that this lesson can tie in easily with existing lessons on the five human senses.

Activities:

1. The teacher can begin by explaining that today students will learn about input and output devices of a computer.
2. The teacher can start with questions - how do humans take in information? Through our ears, our eyes and sometimes touch (braille); how do humans put out information? Through our mouths (we make sounds) and our hands (we write or make motions - sometimes we use our whole bodies to make motions-sometimes we use sign language.)
3. The teacher should then compare the human senses to the operational parts of a computer: The teacher can ask students for examples of input (mouse, keyboard, microphone) + output (monitor/screen, printer, speakers).
4. The teacher can continue the discussion: What do these look like on a desktop PC? On a laptop? On a mobile device like an iPad or a smartphone?
5. Use real life examples of these for the students to handle and compare - optimally the compact devices like a laptop could have their components separated from the body of the computer.
6. The teacher can then lead an interactive, hands-on classroom discussion. The teacher will need either a visual of a computer with its components or an actual computer. Asking for a volunteer each time, the teacher should have students come to the front and label the following items (each student should label only one item):
    I. Which are input components? (identify with green post it notes)

II. Which are output components? (identify with pink post it notes). Be sure to verbally describe the colors used if a color-blind student is present.
III. Which ones are input by touch? (mouse + trackpad + joystick + touch screen) - label with a "T"
IV. Which ones are input characters? (keyboard, laptop keyboard, screen keyboard) - label with a "C"
V. Which ones are output by seeing? (monitor, screen, printer) - label with a "V"
VI. Which ones are used only with sound? (microphone, speakers, headphones, earbuds) - label with a "S"

7. For closure and creativity, the teacher can ask for ideas of fun new ways for devices to do input or output? In other words, what might the future hold? (i.e. facial recognition, other biometrics)

Enrichment/Assessment:

- Play a game involving input and output using the senses. Assign each student a role as either input or output. A student assigned as input should be paired with another student who is output. The student assigned as input must close their eyes and cover their ears. The output student must then say the word "mouse" very quietly repeatedly until the teacher tells them to stop. The input student must then open their eyes and uncover their ears. The teacher should ask the input student what word the output student told them. Obviously, the student will not know the answer. Just as we need most of our input and output senses working, computers need these parts working together as well to be productive. If one part breaks down, the computer can still function but if all parts are broken, it is very hard for it to function. This small, short lesson sets the foundation for a future discussion on viruses and troubleshooting that could occur at a more advanced age. Just as humans get sick, so do computers and it's important to take care of them. It's also important that we have people who know how to fix them when broken. The teacher could use this discussion to talk about careers in the technology field.
- The teacher can have students play a game of "Computer bingo" to reinforce the parts of a computer. A simple search on Pinterest will yield results for a worksheet to use.