

Using Software in Everyday Life

TOPIC: HARDWARE AND SOFTWARE

GRADES: 3-5

LESSON DURATION: 45 MINUTES

SOFT SKILLS: COMMUNICATION, COLLABORATION

Introduction:

- This lesson serves as a review for hardware and software. The lesson requires students to list software applications to complete specific tasks. It can also be expanded to a discussion of Artificial Intelligence (AI) and the ways in which machines are being programmed to developed highly complicated tasks.

Learning Outcomes:

- Students will verbalize the difference between hardware and software.
- Students will identify software that is task-appropriate.

Activities:

1. The teacher should begin with a basic review of hardware vs software. Students should be able to define hardware as the physical components of a computing device. Software should be defined as the programs that allow the computer to complete tasks.
2. In this activity, the teacher should ask students to list tasks that they need the computer to perform. The teacher should write the tasks on the board. Examples include: create presentations, play games, research, social media, watch movies, make pictures, run an operating system, etc.
3. Once the students have listed a variety of tasks, ask students to work together or name some examples of programs that complete these tasks. Examples: Presentations (PowerPoint, Google Slides), Movie Players (Windows Media, VLC), Operating Systems (iOS, macOS, Windows, Android), Internet browsers (Firefox, Chrome, Internet Explorer), Photos/Graphics (Adobe Photoshop, CorelDraw).
4. This discussion may be hard for some kids, especially those that do not have computers at home. However, it is a lesson that can level the playing field and give all students access to the terminology and names of software. A brief discussion of what each program does would also benefit the students. Allow students to discuss the positives and negatives of each software listed.
5. If the teacher feels comfortable, a follow-up discussion on the emergence of AI (artificial intelligence) could occur. Students could be asked to think of the tasks that computers are now being programmed to accomplish that were historically only done by humans (Examples: medical procedures, self-driving car, robots in the home, etc).

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6. If students understand and are interested in Artificial Intelligence, a more detailed conversation could occur in which the class talks about how AI is developed. Students should understand that AI programming allows for these machines to perform tasks. Developing algorithms through programming is a growing field. Learning languages such as Python, Java, Lisp, C++, etc. would be a necessary skill to have to enter the field of AI software development. The algorithms being developed are exploring such tasks as programming a robot to display human-like intelligence in certain appropriate situations or programming a machine to problem solve when presented a variety of choices.
7. Students could be asked to brainstorm the positives and negatives of AI. The positives are obviously that human energy is being replaced with machines and that some tasks humans don't want to do, a computer could be programmed to achieve. However, that comes with security risks. What happens if a self-driving car has a software issue? What happens if a robot performing surgery accidentally cuts the patient. This discussion will be very interesting to students who like to analyze and discuss problems and/or current events. IT can also serve to introduce students to future career paths.

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