

6.CSY.1 Computing Systems

The student will define and explain application software and operating systems of a computing device within a computing system. (a) Define and describe the functions of an operating system and application software. (b) List advantages and limitations of application software and operating systems based on the needs of the user.



Integration Opportunities

English 6.W.1c Accurately use content-specific vocabulary to write persuasive media messages for a particular operating system or application software. Identify the audience and use evidence to support claims.

Physical Education 6.3b Identify tools and resources to evaluate, monitor, and record health and fitness activities. Determine which resources and tools work best based on the needs and experiences of the user.

Understanding the Standard

This standard has to do with comparing and contrasting different operating systems and programs on a computer. An "operating system" refers to the foundational software environment that programs run within (e.g., Microsoft Windows, Mac OS, Chrome OS), and "application software" are the programs (e.g., PowerPoint, Chrome, iMovie). When students address this standard, they think about different operating systems and different programs, and compare how good they are at accomplishing different tasks. Teaching this standard is tricky because students may not have a lot of experience with different kinds of operating systems or applications. Teachers have to think creatively about how to introduce students to the idea that there are many options for how to use computing devices, each with their own affordances and constraints. For example, using a mobile phone to write a paper or a laptop to take pictures of a landmark would be difficult, and people trying to do these tasks should pick devices and software suited to these contexts.

Term	Definition
Operating system	Software installed on a computer's hard drive that enables the computer hardware to communicate and operate with the computer software.
Application	Synonymous with the word "program" when discussing software designed for a specific task. However, application in its full form often describes application software that runs on a computer.

Prerequisite Knowledge

Students need to have experiences using a wide variety of software tools in more than one operating system (e.g., Mac, Windows/PC, iPad, mobile OS).

Summary of a Lesson

Have students collaboratively generate lists of tasks they use computers to accomplish. These could include school tasks (writing papers, doing homework) or personal tasks (talking to friends, playing videogames). Have students list the kinds of programs they use for these tasks (e.g., Google Docs, instant messaging software, specific videogames). Then, assign groups of students an operating system to focus on. Try to assign groups operating systems they are familiar with; for example, students might use Chromebooks in class, Windows PCs in computer lab, and iOS or Android smartphones at home, but might have very few experiences using Mac OS. Have student groups look at the list of tasks, and sort them into categories based on how well-suited their operating system is for each task. For example, students would probably say that Android is pretty bad for doing homework, but great for talking with friends or playing videogames.



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