Essential Skills for Computing Systems: Devices

Grade	Standards CS.D.01	Essential Skills
K	Select and operate the appropriate **computing device** to perform a variety of different tasks	Distinguish among different **computing devices** according to their abilities to accomplish different tasks.
1	Select and operate the appropriate **application/software** to perform a variety of tasks or obtain a desired outcome.	Choose an appropriate **computer application** to perform a given task. Complete a task using the computer application chosen.
2	Compare and discuss preferences for applications/software with the same **primary functionality**.	Compare features of similar computer applications. Justify the choice of a computer application for a given purpose.
3	Identify internal and external parts of computing devices that function together to form a system.	Name the parts of computing devices that work together.
4	Describe how internal and external parts of computing devices function to form a system.	Describe how different parts of a computing device interact with each other and work together.
5	Describe and model how internal and external parts of computing devices function to form a system. Describe how some components rely on others for correct functionality.	Create a model of a computing system that shows how components interact to function correctly.

Skills for Standard: CS.D.01   Grades K-5
These annotations are a collaboration between Maryland Center for Computing Education and the Maryland State Department of Education.

Essential Skills Computing Systems: Hardware & Software

Grade	Standards CS.HS.01	Essential Skills
K	Identify by name and locate common **computing devices** and external **hardware** in a variety of environments, using appropriate technical terminology (e.g., mobile devices, desktop computer, laptop computer, mouse, keyboard, **wearables**).	Identify different **computing devices**. Identify external **hardware components** of a computing device using correct terminology.
1	Identify and describe functions of common computing devices and external hardware (e.g., mobile devices, desktop computer, laptop computer, mouse, keyboard, printer, wearables).	Describe the function of external hardware components. Describe the function of common computing devices.
2	Identify internal and external components of a computer system and their basic functions (e.g., **hard drive** and memory) as well as peripherals (e.g., printers, scanners, external hard drives) and external storage features and their uses (e.g., **cloud storage**).	Explain the role of the **CPU**, **memory**, and **hard drive** of computing devices. Differentiate among the hard drive of a computer, an external hard drive, and **cloud storage** as appropriate.
3	Identify a variety of ways computer hardware and **software** work together as a system to accomplish a task.	Distinguish between hardware and **software**. Explain how software and hardware depend on each other to function correctly.
4	Identify and describe a variety of ways computer hardware and software work together as a system to accomplish a task, using appropriate technical terminology (e.g., **input**, **output**, **processors**, **sensors**, storage).	Describe the different types of **input** that a computing system may receive and the **components** that could be involved (e.g., mouse, keyboard, **sensors**) Identify the **processor** as the component which manipulates input into **output** and describe the different ways in which a **computing system** may produce output and the components that could be involved (e.g., monitor, printer, speaker)
5	Model and explain how information flows through hardware and software to accomplish a task.	Create a model that shows the path of an input through a **computing device** and its conversion to an output.

Skills for Standard: CS.HS.01 Grades K-5
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Essential Skills Computing Systems: Troubleshooting

Grade	Standards CS.T.01	Essential Skills
K	Recognize the possibility **computing systems** might not work as expected and identify basic **hardware** and **software** problems using appropriate technical terminology (e.g., monitor turned off, volume decreased on headphones).	Use appropriate terminology to identify issue and/or part of **computing device** that is not functioning correctly.
1	Identify and communicate basic hardware and software problems that may occur during use (e.g., **application** or **program** not working correctly, no sound coming from device, caps lock turned on), using appropriate technical terminology.	Contrast the way a computing device or **program** is not working properly with the way it is expected to work.
2	Identify and summarize basic **troubleshooting** techniques to solve basic hardware and software problems (e.g., turning off and on a device to restart, closing and reopening an application/program, turning on speakers).	Identify possible strategies to resolve an issue with a computing device or program. Implement the strategies identified and determine if the issue has been resolved.
3	Identify and **troubleshoot**, using appropriate technical terminology, simple **hardware** and **software** problems that may occur during everyday use, discuss problems with peers and adults (e.g., **viruses**, **malware**, versions of software and non-working **applications**, refresh screen, closing/reopening application, adjusting volume on headphones or speakers).	Effectively communicate, using appropriate technical language, the specific problem encountered when a device or **program** is not working properly. Perform basic **troubleshooting** strategies.
4	Identify, using appropriate technical terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, and apply various strategies for solving these problems (e.g., **rebooting** the device, checking the power, forced shutdown of an application, running anti-virus).	Apply a variety of troubleshooting strategies to address the problems that arise with **computing devices**.
5	Identify, using appropriate technical terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, apply a variety of strategies for solving these problems, and provide evidence why these strategies did or did not work.	Recognize and explain, using appropriate technical language, common problems that occur with computing devices. Analyze the reasons for success or failure of attempted solutions to problems with computing devices.

Skills for Standard: CS.T.01   Grades K-5
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