

Standard: CS.HS.01 Grade Band: K-2

Grade	Standard
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).
1	Identify and describe functions of common computing devices and external hardware (e.g., mobile devices, desktop computer, laptop computer, mouse, keyboard, printer, wearables).
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).

Grade	Essential Skills
K	Identify different computing devices . Identify external hardware components of a computing device using correct terminology.
1	Describe the function of external hardware components. Describe the function of common computing devices.
2	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.

Explanation
A computing system is composed of hardware and software . Hardware consists of physical components that are both internal to and external from the computer. Students should recognize and use appropriate terminology for external hardware and devices such as laptop computers, monitors, keyboards, mice, trackpads, and printers as well as for internal components such as CPU , hard drive , and memory . By first grade students should be able to describe the functions of some of the components. By second grade, students should describe functions of most components as well as of as well as of external storage devices such as external hard drives and cloud storage (such as Google Drive). This content should be made relevant to the hardware and software available to the students.

Think of this as similar to....
Eyes, ears, skin, nose are input devices (external hardware) and the brain is what interprets that input and decides how to react. When you speak or move that is output .

Essential Questions
What are the names of the external and internal parts of a computing device and what do those parts do?
Which parts of the computer are considered input devices?
What parts of the computer are considered output devices?

Implementation Examples—What would this look like in the classroom?

Grade(s)	Title	Description	Link	Content Connection & Notes
K	How Does a Robot Work?	Grade K- Students build on one another's discoveries to articulate the functions of each control on a robot (such as a Beebot, Code and Go mouse, etc.). They will identify the robots as a computing device and identify the buttons or other external controls as "hardware" that they use to program the robot. Students then apply this knowledge to program a dance or game for their groupmates to actively engage with.	How Does a Robot Work?	A floor robot is used for this activity.
K	Why do we Use Computers?	Grade K-- Students will discuss different ways that they use computing devices and how those devices can help them. They should think about the different things they call "computers" and how they are used differently. Students should identify the various external parts of the different computing devices (touchscreen, mouse, monitor, buttons on the Beebot) using the correct terminology.	This is a variation of Why do we Use Computers?	
K-1	What is a Computer?	Grade K-- Using visuals and class discussions, students will develop their own definition of a computer. Students will use similarities among their computers to determine what makes a device a computer. They can then be presented with other items and determine whether or not it is a computing device. Grade 1-- Students will distinguish among different tasks that different devices can do.	What is a Computer?	This lesson aligns with CS IC.C.01 and is similar to What is a Computer? from Hello Ruby .
1	Hardware and Software	Grade 1-- Students identify the difference between hardware and software and identify hardware functions. Students will also learn about different software/applications and will describe how different devices have different hardware and the ability to do perform different functions.	Hardware and Software	An additional resource is Hardware or Software?
1	Parts of a Computer	Grade 1-- Students identify the different parts of a computing device. They should connect the different parts to the hardware on a variety of computing devices and should be able to name and operate the hardware on the computing devices they have access to.	Parts of a Computer	

Grade(s)	Title	Description	Link	Content Connection & Notes
2	Tech File Storage	Grade 2 --For a given writing assignment, students demonstrate that they understand how to store their files for different purposes including for use on the computer where they created them, for use at home, for collaboration with another student, to receive feedback from adults, and to share it with the whole class.		This lesson aligns with, ELA.2.W.2 , and 2.W.6, DL 6.b. ; it could also be used with NGSS 2.PS1-4 and/or other subject area standards
2	Simulating an iPad	Grade 2 -- Students role play the parts of an iPad (buttons, application, processor, etc.) and act out how the parts interact when an alarm app or calculator app runs. This is designed to be implemented as an unplugged activity and can be adapted to simulate a different computing device.	Simulating an iPad	
2	That Could be a Computer	Grade 2 --Students reimagine the capabilities of common objects if they were computers, for example a backpack could scan for homework, lunch, water bottle and provide a warning if something is missing. Students specify the parts of their imagined devices, such as what the input is (items in the backpack), what the processor does (decide if there is homework, lunch, water bottle), and what the output is (a warning if something is missing). The students can also identify what information has to be stored in memory (what a water bottle looks like for the long term, if there is a water bottle for the short term).	That Could be a Computer	

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These annotations are a collaboration between [Maryland Center for Computing Education](#) and the [Maryland State Department of Education](#).