

Standard: CS.HS.01 Grade: 3

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Identify a variety of ways computer **hardware** and **software** work together as a system to accomplish a task.

Essential Skills

Distinguish between **hardware** and **software**.

Explain how software and hardware depend on each other to function correctly.

Essential Questions

How do the **components** of a **computing device** work together to receive **inputs** and create **outputs**?

Explanation

Accomplishing almost any task with a **computing device** involves **hardware** and **software**. Students should trace the basic elements in a system from **input** and **sensors** to **processors** and storage to **output**. Students should be able to explain the interactions between hardware and software. For example: the keyboard (hardware) detects a key press, which the **operating system** and word processing **application** (software) displays as a new character that has been inserted into the document and is visible on the monitor (hardware).

Think of this as similar to....

Your eyes and ears are sensors. When you see and hear an audience clapping after your performance, your brain processes the input you see and hear as positive feedback and decides how to respond. Your brain tells your muscles to bend at the waist to produce the output, which is a bow.

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

Title	Description	Link	Content Connection & Notes
Computers All Around	Grade 3 --Students identify hardware and software, distinguish between them and explain how they depend on each other to operate a computing device. Students consider the ways computer hardware and software affect our daily lives.	Computers All Around	
Computer Processing	Grade 3 --Students are introduced to the four basic functions that computers perform and think about the advantages that computers have over humans in taking in input, processing and storing data, and providing output. Students identify how humans interface with computers using hardware and how software helps computers interpret that input to process and provide the output the user wants. Students are challenged to invent a new input/output prototype of their choosing.	Computer Processing	This lesson also aligns with CS CS.D.01

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