# Day and Night (Unplugged)

**Overview:** Play games to explore Roversa and the components that make up computing devices.

| What will students do? | What will students accomplish/learn? |
|---|---|
| Students will play games about day and night as they explore what makes up ***computing devices***, including robots. | Students will learn to ***identify computing device components*** including CPUs, power, input, and output. |

| Vocabulary | Definition |
|---|---|
| **Computing device** | An electronic device that has hardware and software that allows for the input, processing, and output of information. Examples include computers, mobile phones, robots, and microchips inside appliances. |
| **Input** | Information that goes into a computing device, like typing on a keyboard, using a mouse or touchscreen, talking into a microphone, and sensors that detect input. |
| **Output** | Information that is processed by and sent out from a computing device like images on a monitor or sound from a speaker. |
| **Processor (CPU)** | Processes input from user or sensors to determine what to output. |

| Estimated time | Materials |
|---|---|
| 15-30 minutes for each activity | • STEM Challenge Cards<br>• Learn More About Day and Night Video Links & Reflection<br>• Day and Night Cards to code your robot to<br>• Coding Unplugged Activity Sheet |

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| | |
|---|---|
| | • Vocabulary Anchor Charts |

| Teaching Strategy: **Reflection** |
|---|
| Use a quick informal assessment at the end of class to determine understanding of components of computing devices. |

## Discussion: What do all robots have in common?

As a group, discuss  how day and night are different. Here are some possible answers:

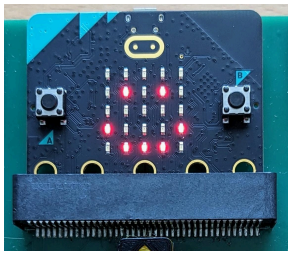
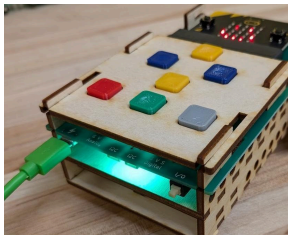
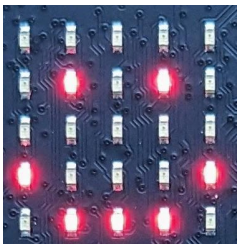
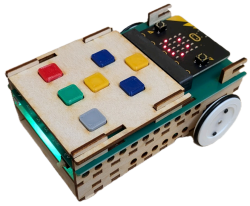
- Nighttime is dark.
- Daytime is when we see the sun
- Nighttime is when we sleep
- Daytime is when we go to school
- Nighttime is when we see the moon

Discuss how we used coding strategies during the activity.

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Review the parts before starting the robot games.

| | | | |
|---|---|---|---|
| **CPU**<br><br>The CPU (central processing unit) acts as the brain of the robot. |  | **Output**<br><br>Another type of output is movement. This is a wheel from Roversa that turns with a servo motor. |  |
| **Power**<br><br>Robots require power! Roversa runs on a rechargeable battery. |  | **Input**<br><br>Input goes into the robot. On Roversa, one example of input are the buttons. |  |
| **Output**<br><br>Output is something that comes out of a robot like the LEDs or sound. |  | **Body**<br><br>Roversa's body has been designed by humans to hold all its parts! |  |

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## Assessment Strategies

| CSTA Standard | Assessment |
|---|---|
| 1A-CS-02: Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).<br><br>VA Science 1.6 The student will investigate and understand that there is a relationship between the sun and Earth. Key ideas include<br><br>a) The sun is the source of energy and light that warms the Earth's land, air, and water; and the sun's relative position changes in the Earth's sky throughout the day. | Check for vocabulary knowledge by completing a reflection of the lesson. |

### Write a reflection

Pick **two** of the sentence starters below to reflect on today's lesson.

1. I learned the robot can _____.
2. I wished the robot could_____.
3. I liked the robot because _____.
4. Day/night is my favorite because_____.

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