Skill Struck

Course: **Web Development Track (4x/month)**

Platform Lesson

11: Computer Systems and the Internet

Learning Objectives

Students learn about computers and the internet and how they work as a system.

CSTA Standards (3)

- 1B-CS-01: Describe how internal and external parts of computing devices function to form a system.
- 1B-CS-02: Model how computer hardware and software work together as a system to accomplish tasks.
- 1B-NI-04: Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.

Materials Needed

- Skill Struck platform
- Student computing devices
- Marker
- Index cards
- Supplemental materials

Supplemental Materials

- **Technology Systems**
- **The Internet Poster**
- **The Internet**
- **Rubric 2 — Digital Citizenship and HTML Styling**

Professional Development

View resources in Community Plus

Activities

Time Estimate: 50 min

Warm-up/Wrap-up | Demo | Platform | Class Activity | Extra Activity

Name	Description
Warm Up 5 min	Ask the class for examples of websites that they like to visit. Then, ask students to share the different places they can think of where they can access computers and/or the internet. Explain that computers are all around us. We can access a computer and/or WiFi at these following places: • Internet Cafe • Recreation Center or Community Center • Library • School or through other education programs Explain that today students are going to learn how computer devices and the internet work together as a system.
Class Activity: Data Passing 10 min	Materials needed: Markers and index cards 1. Write the names of different devices on index cards (e.g., laptop, smartphone, computer, tablet). Each device name represents a node in the network. 2. Explain to students that today they will be acting like a computer network and they are the nodes for the network. Nodes communicate with one another. 3. Ask for volunteers to be the nodes. Choose a few students to represent the different devices you have written on the index cards. 4. Arrange the student nodes in a line or circle with some space between them. 5. Inform them that they will be sending a piece of "data" through the network. The "data" can be a small object like a ball, stuffed animal, book, or a statement on a piece of paper. 6. Give the "data" to the first node and instruct the student to pass it to the next node in the network by physically moving to the next student to hand it over. 7. Continue passing" the data from one student to the next until it reaches the final node. 8. Have a class discussion and ask the following questions: • What did you learn about nodes and the computer network? • Why are nodes important in computer networks? Note: You can also do this activity in small groups if all students want to participate. Provide each group with the "data" and have them pass the information among themselves. Then come back whole group for the discussion.
Teacher Demonstration: Internet Slideshow 10 min	Go through the Internet slideshow to reinforce information on nodes and computer networks.
Teacher Demonstration: Technology Systems Slideshow 10 min	Go through the Technology Systems slideshow.
Platform: Computer Systems and the Internet Lesson 10 min	Students complete the lesson on the platform.

Name	Description
Wrap Up 5 min	Invite students to think of other things that are broken down in order to transport them easier. Things like furniture are often delivered in a box so that they can be reassembled. Often times the ingredients for a meal come from many different places around the world and are assembled together into your meal. What other examples can your class come up with?

Activities for Further Learning

Name	Description
Extra Activities	If you have additional time, below is an additional idea for an activity you can do with the class. *Note: These additional activities do not currently have supplemental materials or resources available in the educator portal. •Compare and Contrast Tasks 1. Provide the class with a list of tasks, some that require internet access and some that don't. 2. Break students up into small groups and have them sort and differentiate what tasks need internet access and ones that don't. 3. Discuss their responses and then lead a class discussion about how some factors might affect the speed of data transmission. How would the speed affect these tasks? • Internet Storytelling 1. Encourage students to create a story or comic strip about the internet. 2. They can use illustrations and captions to depict how the internet works, its benefits, and potential risks. 3. You can further build on previous lessons on internet safety and cybersecurity in this activity as well.
Extension and Remedial Ideas	**Extension Opportunity:** Teachers can challenge students to draw a detailed map of a fictional computer network, labeling nodes, routers, and the paths packets take. Students can write a short story from the perspective of a data packet traveling through their created network. **Remedial Resources:** For students needing extra support, teachers can use a simple ball-tossing game where the ball represents "data" and the students are "nodes" to physically demonstrate how information travels. A heavily guided worksheet with matching terms can help them connect vocabulary like "node" and "network" to the physical activity.

Print Lesson Plan