Lesson 3: Network Hardware

In this lesson, students will learn about network hardware components and their tasks in a network. They will be introduced to the wireless access point, router, switch, hub, NIC, and bridge, and understand the importance of these components for effective communication across a network. Through direct instruction, guided practice, and independent practice activities, students will have the opportunity to design a network based on given scenarios, present their designs to the class, and apply their knowledge of network hardware components. The lesson will conclude with an exit ticket to assess students' understanding of the components.

## **Objectives:**

By the end of this lesson, students will be able to:

- Describe the tasks performed by the network hardware components: wireless access point, router, switch, hub, NIC, and bridge.

- Define a MAC address.

## **Materials:**

- Whiteboard or projector

- Markers or chalk

- Handouts with network scenarios

- Network hardware components cards (optional)

## **Bell-Ringer Activity (5 minutes):**

- Display the following question on the board: "What are some examples of network hardware components?"

- Allow students a few minutes to brainstorm and write down their answers individually.

- Afterward, ask a few students to share their answers with the class.

## **Introduction (10 minutes):**

- Begin by explaining to students that today's lesson will focus on network hardware components and their tasks in a network.

- Emphasize the importance of understanding these components for effective communication across a network.

- Provide a brief overview of the network hardware components that will be covered in the lesson: wireless access point, router, switch, hub, NIC, and bridge.

- Explain that students will have the opportunity to learn the tasks performed by each component and define a MAC address.

## **Direct Instruction (20 minutes):**

- Start by introducing the wireless access point and its role in a network.

- Define the tasks performed by a wireless access point, such as providing wireless connectivity and acting as a central hub for wireless devices.

- Pause periodically to check for student understanding and ask questions related to the wireless access point.

- Repeat this process for each network hardware component, including the router, switch, hub, NIC, and bridge.

- Provide clear definitions and examples for each component, ensuring students grasp their tasks in a network.

## **Guided Practice (25 minutes):**

- Divide the class into pairs or small groups.

- Distribute handouts with different network scenarios to each group.

- Instruct students to design a network based on the given scenario, using the network hardware components they have learned about.

- Encourage students to discuss and collaborate within their groups to come up with the most suitable network design.

- Circulate the classroom to provide guidance and support as needed.

## **Independent Practice (20 minutes):**

- After completing the guided practice activity, ask each group to present their network design to the class.

- Encourage other students to ask questions and provide feedback on the presented designs.

- This activity will allow students to apply their knowledge of network hardware components and demonstrate their understanding.

## **Exit Ticket (5 minutes):**

- Distribute a "Who am I?" quiz worksheet to each student.

- Instruct students to read the descriptions of different network hardware components and write down the name of the component being described.

- Collect the completed quizzes before the end of the class.

## **Closure (5 minutes):**

- Review the key points covered in the lesson, emphasizing the tasks performed by each network hardware component.

- Summarize the importance of understanding network hardware components for effective communication across a network.

- Remind students to review their notes and the concepts covered in preparation for the next lesson.

**Common Core Standards:**

- CCSS.ELA-LITERACY.RST.9-10.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.