Lesson 7: What is the Internet

In this lesson, students will learn about the internet as a network of computer networks and the role of web browsers. They will understand the function of an IP address and how it identifies and locates devices on the internet. Students will also explore the Domain Name System (DNS) and its role in converting human-readable domain names (URLs) into IP addresses. They will learn about the basic functions of web browsers, such as rendering web pages and displaying images. Through guided and independent practice, students will sketch different network topologies and simulate accessing websites using the Packet Tracer software. The lesson will conclude with a review of the main concepts covered and an emphasis on the importance of understanding these concepts in today's digital world.

## **Objectives:**

- Students will be able to describe the internet as a network of computer networks.

- Students will be able to explain the function of an IP address.

- Students will be able to describe DNS and its role in converting a URL to an IP address.

- Students will be able to understand the role and function of a web browser.

## **Materials:**

- Sketch paper and pencils

- Computers with internet access

- Packet Tracer software (installed on computers)

- Projector or smartboard for displaying visuals

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

1. Display a slide with the following question: "What is the internet?"

2. Give students 2 minutes to write down their answers individually.

3. After 2 minutes, ask a few students to share their answers with the class.

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

1. Display a visual of interconnected computer networks and explain that this is the internet.

2. Explain that the internet is a global network of computers that are connected to each other.

3. Ask students to share any prior knowledge or experiences they have with the internet.

4. Explain that in this lesson, we will be learning about how the internet works and the role of web browsers.

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

1. Explain that every device connected to the internet is assigned a unique identifier called an IP address.

2. Show examples of IP addresses and explain that they consist of a series of numbers separated by periods.

3. Discuss how IP addresses are used to identify and locate devices on the internet.

4. Introduce the concept of Domain Name System (DNS) and explain that it is responsible for converting human-readable domain names (URLs) into IP addresses.

5. Show examples of URLs and explain that they are easier for humans to remember than IP addresses.

6. Discuss the role of DNS servers in the conversion process and how they help in finding the correct IP address for a given URL.

7. Explain that web browsers are software applications that allow users to access and view websites on the internet.

8. Discuss the basic functions of web browsers, such as rendering web pages, displaying images, and executing scripts.

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

1. Divide students into pairs or small groups.

2. Instruct each group to use sketch paper and pencils to draw a visual representation of each of the four network topologies (bus, star, ring, and mesh) mentioned in the previous lesson.

3. Circulate the classroom to provide guidance and answer any questions.

4. After the groups have completed their sketches, ask each group to present their drawings to the class.

5. Facilitate a brief discussion on the advantages and disadvantages of each network topology.

## **Independent Practice (30 minutes):**

1. Instruct students to open the Packet Tracer software on their computers.

2. Demonstrate how to use the software to simulate the process of accessing a website using a web browser.

3. Assign each student a specific website to access and ask them to document the steps they take to access the website.

4. Encourage students to explore different features of the software and investigate how the simulation works.

5. Circulate the classroom to provide assistance and answer any questions.

6. After students have completed their simulations, ask a few students to share their experiences and any interesting findings.

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

1. Distribute exit tickets to each student.

2. Ask students to write a brief response to the following question: "What is the role of DNS in accessing websites on the internet?"

3. Collect the exit tickets before the end of the class.

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

1. Review the main points covered in the lesson, including the definition of the internet, the function of an IP address, the role of DNS in converting URLs to IP addresses, and the role and function of web browsers.

2. Emphasize the importance of understanding these concepts in today's digital world.

3. Encourage students to continue exploring and learning about the internet and its various components.

## **Common Core Standards:**

- CCSS.ELA-LITERACY.RST.9-10.2: Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

- 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 relevant to grades 9-10 texts and topics.