BASICS OF THE INTERNET AND ONLINE TOOLS

Information and Communications Technology Notes | Introduction to the Internet and Online Tools

1. Specific Competence

Demonstrate understanding of how the Internet works.

Learning Activities

By the end of the lesson, learners should be able to:

1. Define the Internet.
2. Explain the uses of the Internet in daily life.
3. Identify and describe networking devices such as a modem, router and Wi-Fi.
4. Explain how these devices help people connect to the Internet.

2. Introduction to the Internet

Imagine you are at Kabwe Secondary School and want to send a message to a friend in Lusaka. You can send the message through WhatsApp using an Internet connection without physically travelling to Lusaka.

This is one of the benefits of the Internet: it allows people to communicate and share information across the world.

3. Defining the Internet

The Internet is a worldwide network of interconnected computers and other digital devices that communicate and share information.

In simple terms, the Internet is a global system that connects millions of devices, allowing people to access information, communicate and use online services.

Important terms

Network: Two or more connected devices that can communicate or share resources.

Internet connection: A link that enables a device to access the Internet.

Online: Connected to or using the Internet.

Website: A collection of related web pages available on the Internet.

Web browser: Software used to access websites, such as Google Chrome, Microsoft Edge or Mozilla Firefox.

Online tools: Applications or services accessed through the Internet to perform different tasks, such as Gmail, Google Docs and WhatsApp Web.

Examples of online tools

Google Search: Used to find information, images and educational materials on the Internet.

Gmail: Used to send and receive electronic messages called emails.

Google Docs: Used to create, edit and share documents online.

WhatsApp: Used to send messages, make calls and share files over the Internet.

4. Uses of the Internet in Daily Life

The Internet is useful in education, communication, business, entertainment and many other areas.

1. Education

- Researching school topics.
- Downloading notes and past examination papers.
- Attending online lessons.
- Watching educational videos.

2. Communication

- Sending emails and instant messages.
- Making video and voice calls.
- Sharing photographs and documents.

3. Business and banking

- Advertising and selling products.
- Making online payments.
- Checking bank balances and transferring money through online banking services.

4. Entertainment

- Watching videos and movies.
- Listening to music.
- Playing online games.

5. Accessing information

- Reading news and weather forecasts.
- Checking examination results.
- Finding directions and information about places.

6. School administration

- Sharing school announcements.
- Submitting electronic reports.
- Managing online records and communicating with parents.

Note: The Internet should be used responsibly. Learners should protect their passwords, avoid suspicious links, verify information and respect other people's privacy.

5. Networking Devices Used to Access the Internet

Networking devices help connect computers, smartphones and other devices to networks and the Internet.

The three important terms in this lesson are modem, router and Wi-Fi.

A. Modem

A modem is a device that connects a home, school or office network to an Internet service provider (ISP) through a supported communication connection.

Main function: Provides the connection between the local network and the service provider's network.

Example: A school uses a modem connected to an Internet service provided by a telecommunications company.

B. Router

A router is a networking device that directs data between networks and can share an Internet connection among multiple devices.

Main functions:

- Connects devices on a local network to the Internet.
- Directs data to the appropriate destination.
- Allows several devices to share one Internet connection.

Example: A school router allows computers, tablets and phones to share the school's Internet connection.

C. Wi-Fi

Wi-Fi is a wireless networking technology that allows devices to connect to a local network without using network cables.

Main functions:

- Connects phones, laptops and tablets wirelessly.
- Allows devices to access network resources and, where available, the Internet.

Example: A learner connects a smartphone to the school's Wi-Fi network to research a topic online.

Difference between a modem, router and Wi-Fi

Term	Main purpose	Simple example
Modem	Connects to the service provider's network	The school's link to its ISP
Router	Directs and shares network traffic	Shares the connection among devices
Wi-Fi	Provides wireless network access	Connects a phone without a cable

Important: Wi-Fi and the Internet are not the same thing. Wi-Fi connects a device wirelessly to a local network. That network may or may not have an active Internet connection. Also, many modern devices combine modem and router functions in one unit.

6. How the Internet Works

Let us use an example of a learner searching for information about computer studies using a smartphone.

1. Smartphone or computer
The learner enters a website address or search query.

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2. Router / Wi-Fi access
The device sends data through the local network.

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3. Modem or Internet gateway and ISP
Data travels through the Internet service provider's network.

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4. Destination server
A server processes the request and sends the requested information back.

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5. Information appears on the device
The learner sees the search results or website content.

Explanation in simple terms

5. You connect your device to the Internet using Wi-Fi or mobile data.
6. You request information by opening a website or searching online.

7. Your request travels through connected networks to the appropriate server.
8. The server sends the requested information back.
9. Your browser displays the information on your screen.

The process happens very quickly, often within seconds.

7. Classroom Learning Activities

Activity 1: Defining the Internet

Ask learners to work in pairs and discuss the following:

- What is the Internet?
- How is a network different from the Internet?
- Name three online tools you know.

Expected response: The Internet is a worldwide network of interconnected computers and other devices. A network can be local, while the Internet connects networks globally.

Activity 2: Discussing uses of the Internet

Ask learners to identify five ways people in their communities use the Internet.

Possible responses include mobile money services, WhatsApp communication, online learning, checking news and advertising goods.

Activity 3: Identifying and using networking devices

If the devices are available, show learners a modem, router and a smartphone connected to Wi-Fi.

1. Identify each device or technology.
2. State its main function.
3. Observe the Wi-Fi symbol on a smartphone.
4. Demonstrate connecting to an authorised Wi-Fi network, where permitted.
5. Explain what happens when the Wi-Fi connection is available but the Internet service is down.

If physical devices are unavailable, learners can use pictures or labelled diagrams.

8. Revision Questions

Choose one answer for each question, then check your answers.

1. What is the Internet?

A. A single computer

B. A worldwide network of interconnected devices

C. A type of printer

2. Which of the following is an online tool used to send emails?

A. Gmail

B. Calculator

C. Paint

3. What is the main function of a router?

A. Print documents

B. Direct data between networks and share connections

C. Type letters

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4. What does Wi-Fi allow a device to do?

A. Connect wirelessly to a local network

B. Work as a modem in every situation

C. Access the Internet without any network connection

5. Which device or service connects a local network to an Internet service provider?

A. A keyboard

B. A modem or Internet gateway

C. A projector

Answers and explanations

- **1. Correct answer: A worldwide network of interconnected devices.** The Internet connects networks and devices across the world.
- **2. Correct answer: Gmail.** Gmail is an online email service.
- **3. Correct answer: Direct data between networks and share connections.** Routers direct network traffic and can share Internet access.
- **4. Correct answer: Connect wirelessly to a local network.** Wi-Fi provides wireless network access, but Internet access still depends on the network having a working Internet connection.
- **5. Correct answer: A modem or Internet gateway.** A modem or suitable gateway provides the link to the service provider's network.

9. Summary

- The Internet is a worldwide network of interconnected devices and networks.
- It supports communication, education, business, entertainment and information sharing.
- A modem or gateway links a local network to an Internet service provider.
- A router directs network traffic and shares connections.
- Wi-Fi connects devices to a local network wirelessly.
- Online tools such as Gmail, Google Search and Google Docs help users perform tasks through the Internet.

Key takeaway: The Internet makes it possible for people and devices around the world to communicate and exchange information, provided they have a suitable connection and access to the required services.