Grade 10 ICT

Terms 1, 2 and 3 - notes for 9 topics

IN EVERY TOPIC

- What you will learn and the key words.
- Short, clear notes with worked examples.
- Questions to try and a topic test, with the answers at the back.

TOPICS IN THESE NOTES

Topic	Name	Term
1.1	Introduction to ICT	1
1.2	Application areas of ICT	1
1.3	Operating systems	1
2.1	Word Processing	1
2.2	Presentation	2
2.3	Desktop Publishing	2
3.1	The Internet	3
3.2	Digital Communication	3
3.3	Digital Citizenship	3

Elimu254
Learn • Grow • Build Tomorrow

A TASTE OF THE FIRST TOPIC

Information and Communication Technology

ICT stands for Information and Communication Technology: the devices, software and networks used to collect, store, process, send and receive information. Information can be text, numbers, pictures, sound or video. Communication technologies include the telephone and mobile phone (voice and SMS), radio and television (broadcast to many people), email and messaging apps such as WhatsApp (written messages and files), video calls, social media, and satellite systems that carry signals across long distances. Broadcast technologies send one message to many people; messaging and calls usually connect particular people.

CONTENTS

Topic	Name	Term	Page
1.1	Introduction to ICT	1	3
1.2	Application areas of ICT	1	5
1.3	Operating systems	1	7
2.1	Word Processing	1	11
2.2	Presentation	2	16
2.3	Desktop Publishing	2	19
3.1	The Internet	3	23
3.2	Digital Communication	3	26
3.3	Digital Citizenship	3	31
	Answers		35

Elimu254
Learn • Grow • Build Tomorrow

Strand 1.0 ICT and Society | Term 1

1.1 Introduction to ICT

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- identify technologies used in communication
- explain the components of ICT infrastructure in an organisation
- use ICT to interact with information on a topical issue

KEY WORDS

ICT, communication, hardware, software, network, infrastructure, internet, digital, source, reliable.

1. What ICT is and the technologies we use to communicate

Information and Communication Technology

ICT stands for Information and Communication Technology: the devices, software and networks used to collect, store, process, send and receive information. Information can be text, numbers, pictures, sound or video. Communication technologies include the telephone and mobile phone (voice and SMS), radio and television (broadcast to many people), email and messaging apps such as WhatsApp (written messages and files), video calls, social media, and satellite systems that carry signals across long distances. Broadcast technologies send one message to many people; messaging and calls usually connect particular people.

Communication has changed over time: from letters carried by hand, to the telegraph and telephone, to mobile phones and the internet. Each step made messages faster, cheaper or able to carry more than words. Today a voice note, a photo or a video can reach another county or another country in seconds.

2. Components of ICT infrastructure in an organisation

ICT infrastructure

ICT infrastructure is everything an organisation needs so that its ICT can work. It has five main components. Hardware: computers, phones, printers, scanners, servers and the storage devices that hold data. Software: the operating system and the application programs that do the work, such as a word processor or a records system. Networks and connectivity: the cables, routers and Wi-Fi that connect devices to each other, and the internet service that connects them to the wider world. Data: the information the organisation stores, such as learner records or customer accounts, which must be kept safe and backed up.

People and procedures: the staff who use and look after the system, and the rules that guide them, such as who may open which files and how often backups are made. In a school, for example, the computers and printer are hardware, the records program is software, the Wi-Fi is the network, the learner files are data, and the ICT teacher and the school rules are the people and procedures. If one component is missing or weak, the whole system suffers.

3. Practical: using ICT to find and use information on a topical issue

Practical: investigating a topical issue

Materials: computers, phones or printed articles, manila paper, marker pens; groups of four.

Choose a topical issue such as drought and food, road safety, or a health campaign. Step 1: write the question you want answered. Step 2: search for information using a search engine or the printed articles provided. Step 3: choose at least two sources, and for each write down who published it, when, and what evidence it gives.

Check each source with four questions: Who wrote or published it, and are they an expert or an official body such as a government office or a hospital? When was it published, and is it recent enough? Does it give evidence such as figures or named sources? Do other reliable sources say the same? A source that fails these checks should not be trusted.

Step 4: record three key facts in your own words. Step 5: share the results, for example as a short message to the class group or a poster, and say which sources you used. Do not forward information you have not checked.

4. The importance of ICT in society

Why ICT matters

ICT helps in education, through online lessons and research; in health, through records and reminders; in business, through mobile money and online selling; in government, through services such as online applications; and in farming, through weather and price information sent to a phone. It saves time, lowers the cost of reaching people, and lets people share information across long distances.

ICT also brings challenges. Not everyone has a device, a signal or money for data, and this gap is called the digital divide. Some people fear that machines will replace jobs, others are harmed by scams or false information, and too much screen time affects health and study.

A responsible user gains the benefits and reduces the harm: using ICT to learn and to help others, checking information, protecting personal details, and helping those who lack access, for example by sharing what they know. Appreciating ICT means seeing its value while using it wisely.

TRY THESE

1. What does ICT stand for?
2. Name three technologies used for communication.
3. List the five components of ICT infrastructure.
4. Give one example of hardware and one of software in a school office.
5. Name two questions you should ask to check whether a source can be trusted.
6. Why should you choose at least two sources instead of one?
7. Give two areas of society that ICT helps, with one example each.
8. What is the digital divide?

TOPIC TEST

T1. Explain why a radio still reaches people in areas where internet access is weak.

T2. A small shop plans to accept mobile payments and keep customer records on a computer. List one item it needs for each of the five components.

T3. Explain why the date of an article matters when you are looking for information about a current issue.

T4. Suggest one way your school could help learners who have no device at home to benefit from ICT.

Strand 1.0 ICT and Society | Term 1

1.2 Application areas of ICT

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- identify application areas of ICT in society
- relate the application areas of ICT to solving community problems

KEY WORDS

e-learning, telemedicine, e-commerce, mobile money, e-government, GPS, artificial intelligence, cloud computing, Internet of Things, scam.

1. Application areas of ICT I: education, health and finance

Education, health and finance

In education, ICT is used for e-learning, where lessons, notes and quizzes are delivered on a computer or phone; for research on the internet; for recording marks and reports; and for reaching learners who cannot attend a class in person.

In health, hospitals keep electronic patient records so that a nurse or doctor can find a patient's history quickly; telemedicine lets a doctor advise a patient in another town by phone or video; and reminders are sent by SMS for clinic visits and vaccinations. In finance, mobile money such as M-Pesa lets people send, save and pay from a phone; banks offer ATMs, cards and mobile banking; and receipts and statements are produced automatically. These uses share benefits: they save travel and time, reduce mistakes in records, and reach people who live far from schools, clinics or banks. They also need power, a signal and safe handling of private information.

2. Application areas of ICT II: farming, trade, government, transport and security

More application areas

In farming, weather forecasts, market prices and advice can be sent to a phone by SMS or app, and some farms use sensors and drones to check crops. In trade, e-commerce lets shops sell online and accept digital payments, and stock is tracked by computer.

In government, services such as applying for documents, paying taxes and checking records can be done online, for example through the e-Citizen and iTax portals. In transport, GPS shows routes and locations, ride and delivery apps connect drivers to customers, and tickets can be booked and paid for electronically.

In security, cameras (CCTV), biometric systems such as fingerprint readers, and electronic alarms protect buildings and identify people. Entertainment and media use ICT for streaming, recording and broadcasting. Each area uses the same basics: devices, software, a network and data.

3. Using ICT to solve community problems

Problem, ICT solution, benefit and limit

To solve a problem with ICT, first state the problem clearly, then choose the ICT tool, then describe the benefit and the limit. Example 1: farmers do not know market prices, so a price-alert service sends prices by SMS; the benefit is better selling decisions, and a limit is that farmers need a phone and a signal.

Example 2: patients queue for hours at a clinic, so an appointment system lets them book a time by phone; the benefit is less waiting, and a limit is that some patients may not have a phone. Example 3: a school loses paper records, so records are kept on a computer with a backup; the benefit is that they are safe and quick to find, and a limit is that power cuts and viruses must be planned for.

Task: in groups, choose a problem from your own community and complete a table with four columns: the problem, the ICT tool you propose, the benefit, and the limit or risk, including one online safety issue such as keeping personal details private. Present your table to the class and answer questions from the other groups.

4. Trends in ICT and staying safe

Trends and safety

Current trends include artificial intelligence, where computers learn from data to recognise speech and images or suggest answers; cloud computing, where files and programs are kept on remote servers and used through the internet; the Internet of Things, where everyday objects such as meters and sensors are connected to the network; and growing use of mobile money and online learning.

Every new use brings a new risk. Common online safety problems are scams, such as a fake message claiming to be from a mobile money company or offering a prize, theft of passwords, false information, and misuse of personal details. A sensible user never shares a PIN or password, does not click links in unexpected messages, checks who is really asking, and reports suspicious messages.

ICT plays a large and growing role in society, and the role is greatest when people use it honestly and carefully. Appreciating it means learning it, using it to help solve problems, and helping others use it safely.

TRY THESE

1. Give one use of ICT in education.
2. What is telemedicine?
3. Give one way ICT helps a farmer.
4. What is e-commerce?
5. State the ICT solution used for farmers who do not know market prices.
6. What is one limit of an SMS price service?
7. Name two current trends in ICT.
8. What is cloud computing?

TOPIC TEST

T1. Explain how mobile money helps a small trader who lives far from a bank.

T2. Explain how GPS and a booking app can make travel safer and more convenient for passengers.

T3. Choose one problem in your community and explain why your ICT solution would work for the people affected.

T4. Explain why a genuine organisation will never ask you for your secret PIN by message.

Elimu254 Learn • Grow • Build Tomorrow

Strand 1.0 ICT and Society | Term 1

1.3 Operating systems

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- explain the importance of operating systems in digital devices
- identify types of operating systems used in digital devices
- use an operating system to organise files and folders in a computing device
- implement security control measures on files and folders in a computing device using the operating system

KEY WORDS

operating system, file, folder, extension, desktop, password, permission, backup, recycle bin, read-only.

1. What an operating system does for the user

The operating system

An operating system (OS) is the main software of a digital device. It starts the device, shows the screen you work with, and manages the hardware and other programs so that you can use the device without knowing how it works inside.

For the user, the operating system does five main jobs. It provides the interface, the screen of icons, menus and windows or the touch home screen. It runs applications, such as a browser or a word processor, and lets several run at once. It manages files and folders, so documents can be saved, found and moved. It controls devices, such as the keyboard, screen, printer and network. It provides security, through user accounts and passwords.

Without an operating system, a computer would only be a box of parts; the user could not open a file or start a program. Every computer, tablet and smartphone has one.

2. Types of operating systems

Types of operating system

Desktop and laptop computers commonly run Windows, macOS or Linux. Smartphones and tablets run Android or iOS. Servers, the computers that serve files and web pages, often run Linux or Windows Server. Each is designed for its device and its users.

Operating systems can be compared in several ways. By interface: most use a graphical interface, with icons and windows or touch, while a command-line interface uses typed commands. By licence: some are proprietary, made by a company that charges a fee, such as Windows and macOS, while open-source systems such as Linux and the base of Android have code anyone may study and change, and are often free.

A school choosing an operating system would ask: does it run the programs we need, can our teachers use it, what does it cost, and is help available? A school with many old computers and a small budget may choose a light, free Linux system; a school with existing Windows programs may continue with Windows.

3. Practical: organising files and folders I

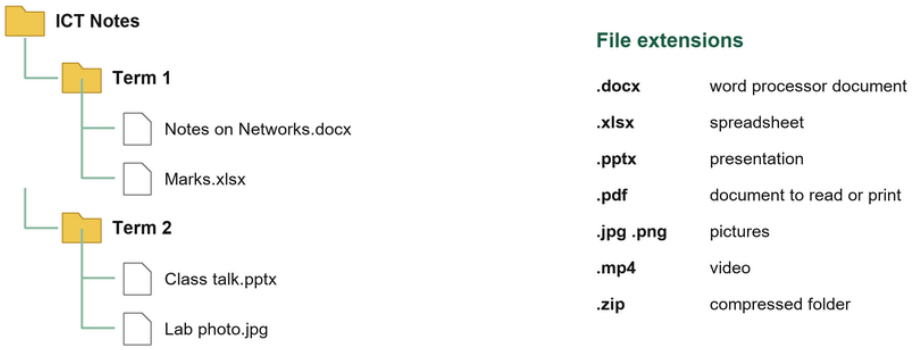
Practical: managing files and folders

Materials: a computer with a file manager, or printed screenshots; work in pairs.

A file holds one piece of work, such as a document or a photo; a folder holds files and other folders. Step 1: open the file manager. Step 2: create a folder named with the learner's subject, for example ICT Notes. Step 3: create two folders inside it, Term 1 and Term 2, and give clear names to every file, such as Notes on Networks rather than New 1.

Step 4: practise the main actions: copy a file to another folder, move a file, rename a file, delete a file, and restore it from the recycle bin. Step 5: look at the file extensions, the letters after the dot: .docx is a word processor document, .xlsx a spreadsheet, .pptx a presentation, .pdf a document for reading and printing, .jpg and .png pictures, .mp4 a video, .zip a compressed folder.

Good habits: give files clear names, keep related files in one folder, do not save everything on the desktop, and never delete a file unless you are sure it is not needed.



Folders, sub-folders and files with clear names

4. Practical: organising files and folders II

Practical: a project folder

Materials: a computer with a file manager and sample files, or printed screenshots; work in pairs.

Task: plan a folder called My Project with sub-folders Report, Pictures, Data and Presentation. Save or copy one sample file into each. Use the search box in the file manager to find a file by part of its name, and use the view options to sort files by name, date or size.

To send the whole project, compress the folder: right-click the folder and choose the option to compress or send to a compressed (zip) folder. The result is a single .zip file that is smaller and easy to attach to an email or share on a flash drive.

Make a backup: copy the project folder to a second place, such as a flash drive or a cloud folder. A backup is a second copy kept in a different place, so that if the first is lost, damaged or infected, the work is not lost.

5. Security controls for files and folders