25SCHOOLS

FREE LEARNING NOTES FOR ZAMBIA

FORM 1 · TERM 3

Information and Communication Technology

Introduction to ICT

Lesson notes for learners · Competence-Based Curriculum

INSIDE

1. What ICT is and why it matters
2. The earliest computational tools
3. The microprocessor and modern computers
4. Hardware tools
5. Software tools
6. Check yourself

Every time you send a message on WhatsApp, print a document or type in MS Word, you use ICT. ICT stands for Information and Communication Technology. In this note you learn what ICT is, how computers developed from the abacus, and which hardware and software tools people use every day.

AFTER THESE NOTES YOU SHOULD BE ABLE TO

- Explain what ICT is and why it is important
- Name the earliest computational tools and say what each one does
- Describe how the microprocessor changed computers
- Tell hardware tools from software tools and give examples of each
- Match ICT tools to their functions

KEY WORDS

ICT	technologies that provide access to information through telecommunications, including the internet, wireless networks, computers and software
hardware	the physical parts of a computer system that you can touch
software	the programs that tell the computer what to do
microprocessor	the brain of the computer, which executes commands
operating system	software that manages hardware and software and provides the user interface
computer system	hardware and software working together

1 What ICT is and why it matters

ICT refers to technologies that provide access to information through telecommunications. It includes the internet, wireless networks, computers and software.

ICT matters because it helps people in many ways. It makes communication faster, because information can be shared quickly. It supports better learning, because teachers can use digital tools. It raises productivity, because tasks are completed efficiently. It keeps data safe and organised through easy data storage. It also links people and services worldwide.

Learners can find ICT at home, for example a smartphone and WhatsApp, at school, for example MS Word and a projector, and in business, for example MS Excel and a printer.

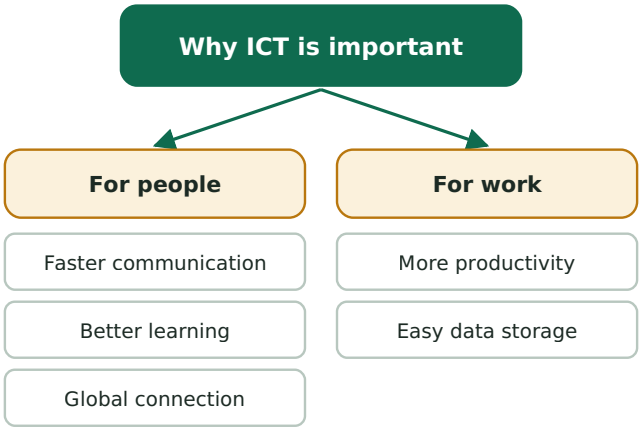


Figure 1. Five reasons why ICT is important

2 The earliest computational tools

People used tools to calculate long before modern computers. Learners study these earliest computational tools and what each one could do.

The abacus uses beads to do basic arithmetic, such as addition and subtraction. Napier's bones use rods to make multiplication and division simpler. The slide rule handles more complex calculations using logarithmic scales. The Pascaline adds and subtracts mechanically with rotating wheels. The Leibniz wheel performs all arithmetic operations mechanically.

Tool	What it does
Abacus	Uses beads to do basic arithmetic
Napier's bones	Uses rods to simplify multiplication and division
Slide rule	Handles complex calculations using logarithmic scales
Pascaline	Adds and subtracts mechanically with rotating wheels
Leibniz wheel	Performs all arithmetic operations mechanically

Figure 2. Earliest computational tools and their functions

3 The microprocessor and modern computers

A microprocessor is the brain of the computer, and it executes commands. Its invention in the 1970s revolutionised computing.

It made computers smaller and more compact, which we call miniaturisation. It improved speed and processing power. It lowered production costs, so computers became more affordable and more accessible. It allowed home and personal computers (PCs) to be developed. It also allowed computing to be built into everyday devices, such as phones, which we call embedded systems.

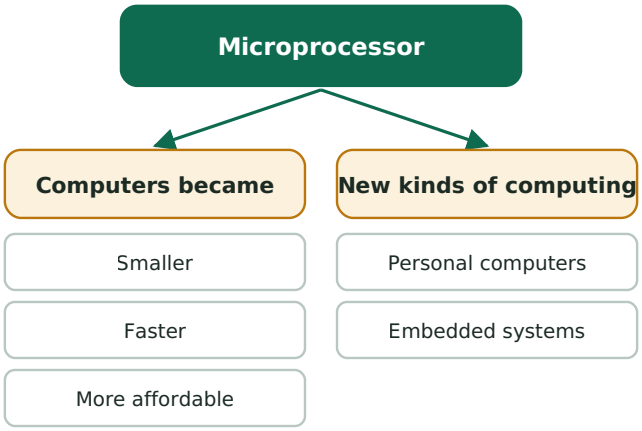


Figure 3. What the microprocessor made possible

4 Hardware tools

Hardware and software are the two main categories of ICT tools. Hardware is the physical part of a computer system.

Inside the computer, the CPU processes instructions and is the brain of the computer. RAM temporarily stores data for active tasks and programs. A hard disk drive or solid state drive stores data, software and the operating system. The motherboard connects all the components and lets them communicate.

Hardware	Function
Monitor	Displays output such as text, images and videos
Keyboard	Enters text, numbers and commands
Mouse	Moves the pointer and selects items on the screen
Printer	Produces physical copies of digital documents
Scanner	Converts physical documents into digital form
Speakers	Output sound
Microphone	Inputs audio
Webcam	Captures video and images, often for video calls
USB flash drive	Portable storage for transferring files

Figure 4. Common hardware tools and their functions

5 Software tools

Software tools are the programs that people use on the hardware. Learners match each tool to its function and sort tools into hardware and software, for example a monitor is hardware, MS Word is software and a keyboard is hardware.

ICT tools are essential for solving real-life problems and improving efficiency in many fields.

Software	Function
Operating system	Manages hardware and software and provides the user interface
Word processor	Creates, edits and formats text documents
Spreadsheet software	Organises data in tables, does calculations and makes charts
Web browser	Accesses and displays content from the internet
Email client	Sends, receives and manages emails, as in Gmail or Outlook
Antivirus software	Detects and removes viruses and protects against malware
Media player	Plays audio and video files

Figure 5. Common software tools and their functions

TRY THIS

Make a poster or a chart in your exercise book with two columns, hardware and software. List at least six ICT tools you have seen at home, at school or in a shop, and write one line on what each one does. Share it with your group.

REMEMBER

- ICT refers to technologies that provide access to information through telecommunications, including the internet, wireless networks, computers and software.
- The abacus, Napier's bones, the slide rule, the Pascaline and the Leibniz wheel are the earliest computational tools.
- The microprocessor, invented in the 1970s, made computers smaller, faster and more affordable.
- Hardware and software are the two main categories of ICT tools.
- Hardware includes the monitor, keyboard, mouse, printer, scanner, speakers, microphone, webcam and USB flash drive.
- Software includes the operating system, word processor, spreadsheet, web browser, email client, antivirus and media player.

? Check yourself

1. What does ICT stand for, and what does it include.
2. Name three reasons why ICT is important.
3. Name two earliest computational tools and say what each one does.
4. Give three effects of the microprocessor on computers.
5. Say which of these are hardware and which are software: monitor, MS Word, keyboard, antivirus.
6. A learner at a school near Feira wants to make a worksheet that lists ICT tools beside their functions. The tools are an email client, a printer, an operating system and a scanner. (a) Say what the email client does. (b) Say what the printer does. (c) Say which of the four tools are hardware.
7. Learners at a school in Luangwa do a class survey of ICT tools used at home, at school and in business. They list a smartphone with WhatsApp, MS Word with a projector, and MS Excel with a printer. (a) Say which items are used at home. (b) Say which are used in business. (c) Name one software tool an

ANSWERS

1. Information and Communication Technology. It includes the internet, wireless networks, computers and software.
2. Any three of faster communication, better learning, more productivity, easy data storage and global connection.
3. Any two of the abacus (beads for basic arithmetic), Napier's bones (rods for multiplication and division), the slide rule (complex calculations with logarithmic scales), the Pascaline (adds and subtracts with rotating wheels) and the Leibniz wheel (all arithmetic operations mechanically).
4. Any three of miniaturisation, increased speed, affordability, personal computers and embedded systems.
5. Hardware: monitor and keyboard. Software: MS Word and antivirus.
6. (a) It sends, receives and manages emails. (b) It produces physical copies of digital documents. (c) The printer and the scanner.
7. (a) The smartphone and WhatsApp. (b) MS Excel and the printer. (c) Software: any one of WhatsApp, MS Word or MS Excel. Hardware: any one of the smartphone, the projector or the printer.

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