Introduction to ICT

Lesson plan and teacher's notes · Form 1 Information and Communication Technology · 1 period of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Form 1
Subject	Information and Communication Technology	**Enrolment**	Boys ___ Girls ___ Total ___
Time	40 minutes	**Topic**	Introduction to ICT

Learners explain what ICT is and why it matters, name the earliest computational tools and what each one does, describe how the microprocessor changed computers, and tell hardware tools from software tools. Examples come from the phones, printers and software that learners see at home, school and business.

Specific outcomes

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

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

Prior knowledge

- Phones and radios learners use at home
- Printing and typing a document
- Calculating with addition and multiplication

Teaching and learning materials

- chalk and board
- exercise books
- pictures or real examples of a keyboard, a mouse, a flash drive or a phone
- worksheet of tools and functions if available

References

Ministry of Education (CDC) Form 1 Information and Communication Technology syllabus and module; 25Schools learners' note: Introduction to ICT.

Lesson development

Stage and time	Teacher activities	Learner activities
Introduction 5 min	Ask learners which devices they have used this week, such as a phone, a radio or a printer. Lead them to see that these are ICT tools. Write the title and key words.	Name the devices they have used and copy the title and key words.
Development: what ICT is and early tools 10 min	Define ICT as technologies that provide access to information through telecommunications. Give the five reasons it matters. Name the abacus, Napier's bones, the slide rule, the Pascaline and the Leibniz wheel with what each does.	Copy the definition, the five reasons and the table of early tools.
Development: microprocessor, hardware and software 10 min	Explain that the microprocessor is the brain of the computer and name its effects from the 1970s. Explain hardware and software as the two main categories of ICT tools and give the examples from the tables.	Copy the effects of the microprocessor and the hardware and software tables.
Practice 10 min	Give the scenarios on the worksheet of ICT tools and the class survey. Move around and check that learners sort tools into hardware and software.	Work the scenarios in groups, then share answers.
Conclusion 5 min	Ask groups to name one hardware tool and one software tool and say what each does. Set the homework.	Answer orally and copy the homework.

Teacher's content notes

Read these before the lesson. They are what you need to know, not what to copy onto the board.

What ICT is

ICT refers to technologies that provide access to information through telecommunications. It includes the internet, wireless networks, computers and software. It makes communication faster, supports learning, raises productivity, keeps data stored and organised, and links people worldwide.

Earliest computational tools

The abacus uses beads for basic arithmetic. Napier's bones use rods to simplify multiplication and division. The slide rule handles complex calculations using logarithmic scales. The Pascaline adds and subtracts mechanically with rotating wheels. The Leibniz wheel performs all arithmetic operations mechanically.

The microprocessor

The microprocessor is the brain of the computer and executes commands. Its invention in the 1970s made computers smaller, faster and more affordable, allowed personal computers, and allowed computing to be built into everyday devices, called embedded systems.

Hardware

Hardware is the physical part of a computer system. The CPU processes instructions, RAM temporarily stores data for active tasks, a hard disk drive or solid state drive stores data, software and the operating system, and the motherboard connects the components. Other hardware includes the monitor, keyboard, mouse, printer, scanner, speakers, microphone, webcam and USB flash drive.

Software

Software tools include the operating system, word processor, spreadsheet software, web browser, email client, antivirus software and media player. The operating system manages hardware and software and provides the user interface.

Questions to ask during the lesson

Question	Expected answer
A teacher near Feira asks learners which of a phone, a printer and WhatsApp are hardware and which are software. (a) Name the hardware. (b) Name the software. (c) Say what the two main categories of ICT tools are called.	(a) The phone and the printer. (b) WhatsApp. (c) Hardware and software.
Learners at a school in Luangwa compare an abacus with a slide rule. (a) Say what the abacus uses. (b) Say what kind of calculations the slide rule handles. (c) Say what the slide rule uses to do this.	(a) Beads. (b) Complex calculations. (c) Logarithmic scales.
A group near Feira reads that the microprocessor was invented in the 1970s. (a) Say what the microprocessor is. (b) Name two effects it had on computers. (c) Name one kind of computing it made possible.	(a) The brain of the computer, which executes commands. (b) Any two of smaller size, increased speed and affordability. (c) Personal computers or embedded systems.

Worked examples for the board

Sorting tools into hardware and software

A learner lists a monitor, MS Word, a keyboard and an antivirus. The monitor and keyboard are physical parts, so they are hardware. MS Word and the antivirus are programs, so they are software.

Matching tools to functions

A worksheet lists an email client, a printer and an operating system. The email client sends and receives emails, the printer produces physical copies of documents, and the operating system manages hardware and software.

Board plan

Write the title and key words. Left: the definition of ICT and its five reasons. Centre: the earliest computational tools and the microprocessor. Right: the hardware and software tables.

Type	Meaning	Examples
Hardware	The physical part of a computer system	Monitor, keyboard, mouse, printer, scanner, speakers, microphone, webcam, USB flash drive
Software	The programs used on the hardware	Operating system, word processor, spreadsheet, web browser, email client, antivirus, media player

Hardware and software tools

Mistakes to expect

Learners often think	Put it right
ICT means only computers.	ICT includes the internet, wireless networks, computers and software, all technologies that provide access to information through telecommunications.
Computers were always small and cheap.	The microprocessor, invented in the 1970s, made computers smaller, faster and more affordable, and allowed personal computers and embedded systems.
MS Word is hardware because you use it on a computer.	MS Word is software, a word processor. Hardware is the physical part, such as the monitor and keyboard.
The abacus and the slide rule do the same job.	The abacus uses beads for basic arithmetic, while the slide rule handles complex calculations using logarithmic scales.

Differentiation

Learners who struggle

Give learners a two-column table headed hardware and software and a list of tools from the note, and let them copy each tool under the correct heading before they write what it does.

Learners who finish early

Ask learners who finish early to write one sentence on how the microprocessor made phones possible, using the words embedded systems and miniaturisation.

Hearing or visual impairment

For learners with visual impairment, let them handle a keyboard, a mouse or a flash drive and describe each aloud. For learners with hearing impairment, write each tool and its function on the board and use the tables.

No projector, no printing

Use real objects such as a phone, a flash drive or a keyboard if available, or draw them on the board. Learners work in groups without computers and sort the tools by writing.

If time is short

Skip the earliest tools and the microprocessor and work only the hardware and software scenarios; set the rest as homework.

Evaluation

Question or task	A correct answer shows
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.	(a) It sends, receives and manages emails. (b) It produces physical copies of digital documents. (c) The printer and the scanner.
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 and one hardware tool from the lists.	(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.
A teacher near Feira shows learners a rod-based tool that makes multiplication and division simpler. (a) Name the tool. (b) Name one tool that adds and subtracts with rotating wheels. (c) Name the tool that uses beads.	(a) Napier's bones. (b) The Pascaline. (c) The abacus.

Homework

A learner at a school near Feira notices that her phone is much smaller and faster than the old computers her teacher describes. (a) Name the part invented in the 1970s that changed computers. (b) Give two effects it had. (c) Say what embedded systems means.

Extra practice with answers

Question	Answer

1. 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.	(a) It sends, receives and manages emails. (b) It produces physical copies of digital documents. (c) The printer and the scanner.
2. 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	(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.
3. A teacher near Feira shows learners a rod-based tool that makes multiplication and division simpler. (a) Name the tool. (b) Name one tool that adds and subtracts with rotating wheels. (c) Name the tool that uses beads.	(a) Napier's bones. (b) The Pascaline. (c) The abacus.
4. A learner at a school near Feira writes that ICT only helps with typing. (a) Give two other reasons why ICT is important. (b) Say what ICT includes besides computers. (c) Say what makes communication faster.	(a) Any two of better learning, more productivity, easy data storage and global connection. (b) The internet, wireless networks and software. (c) ICT lets people share information quickly.

Answers to the learners' check-yourself questions

1. What does ICT stand for, and what does it include.
   Information and Communication Technology. It includes the internet, wireless networks, computers and software.
2. Name three reasons why ICT is important.
   Any three of faster communication, better learning, more productivity, easy data storage and global connection.
3. Name two earliest computational tools and say what each one does.
   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. Give three effects of the microprocessor on computers.
   Any three of miniaturisation, increased speed, affordability, personal computers and embedded systems.
5. Say which of these are hardware and which are software: monitor, MS Word, keyboard, antivirus.
   Hardware: monitor and keyboard. Software: MS Word and 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.
(a) It sends, receives and manages emails. (b) It produces physical copies of digital documents. (c) The printer and the scanner.

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
(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.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: