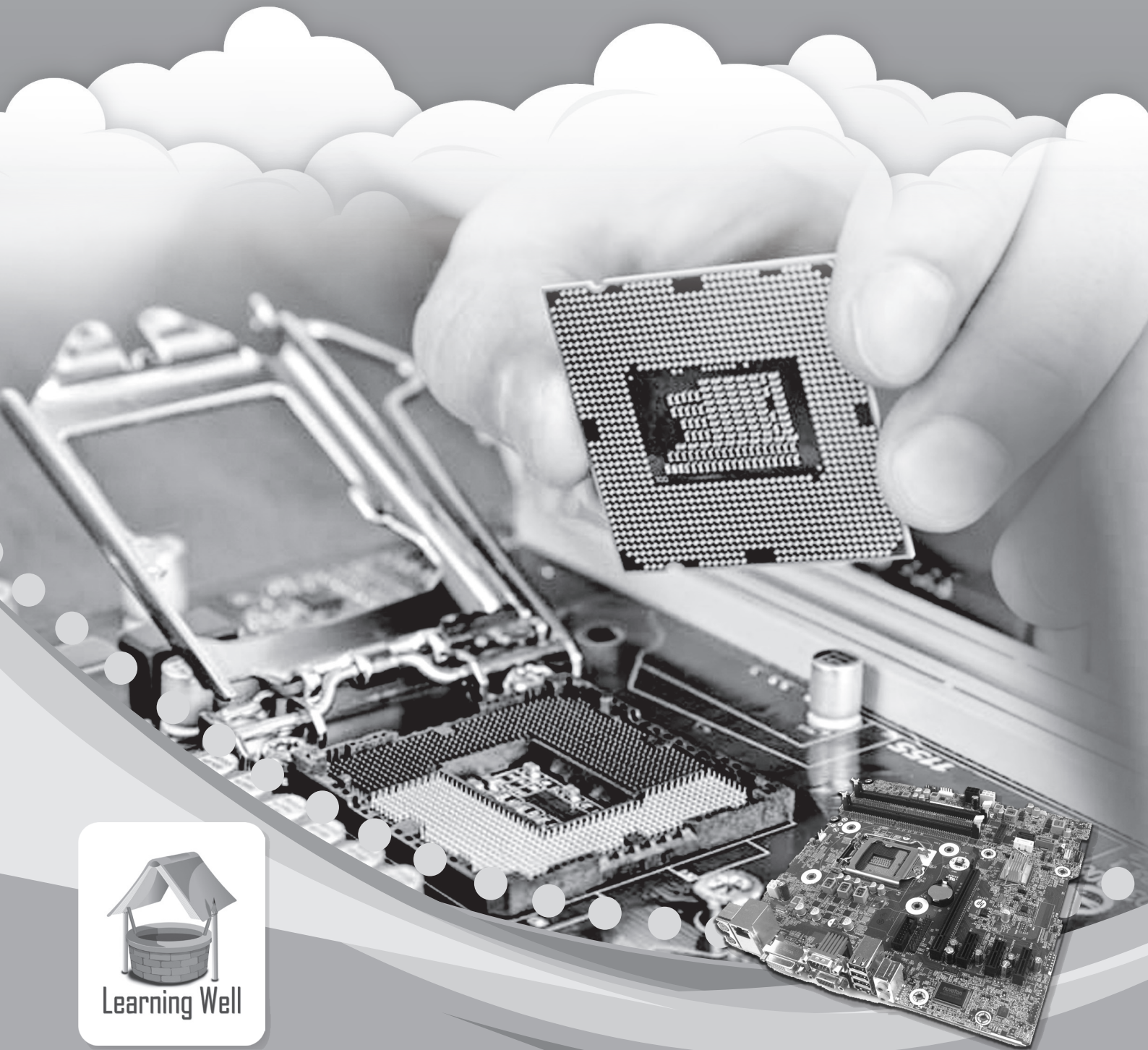


SMART COMPUTING

Teacher's Resource Book-5



Learning Well

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Introduction

In terms of machine development and application, no machine has advanced as rapidly as the computer. Not long ago, computers were massive structures with miles and miles of wiring that only performed tasks that are now considered very simple.

Computers are now an integral part of our daily lives. There is no escaping this wonderful machine, whether we are at work, on vacation, studying at school or college, or simply going to the grocery store.

It is becoming increasingly important that children learn how to use this machine at the earliest possible opportunity. That opportunity comes in the form of computer education at school. Still, any type of education provided at the early stages of learning must not only be comprehensive but also presented in a way that is simple for both the teacher to explain and the students to understand. This is where **Smart Computing** stems from.

The **Smart Computing** series comprises five books. These books provide information on the awareness of devices found in people's homes and how to use them.

Introduction to the teaching guides

Lesson plans, useful tips, and worksheets with interesting learning activities are all included in the teaching guide. A list of goals and learning outcomes appears in each lesson. You can create your lesson plans by using the provided sample plans. The lesson plans comprise introductory activities lasting 3 to 5 minutes, which explain the concepts being taught. This is followed by 30 minutes of explanation and a 5-minute recap. Sample worksheets have been provided where need be for additional support. Answers to exercises within the lessons have also been provided.

Lesson 1 - Evolution of Computers

Teaching objectives

- Introduce computers from different eras.
- Discuss how computers have changed over the years.

Learning outcome

By the end of this chapter, children should be able to understand the history of computers, including early counting devices.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

Bring photos of the different computing devices covered in this chapter into the classroom and ask students what they think they are. After listening to their responses, name each device and explain that they will learn more about them in this and the following lessons.

Main Lesson: 30 minutes

Ask the students to read pages 4-6. Ask them questions to ensure they understand.

- *What were the earliest forms of devices called?*
- *How were they used?*
- *Explain what ENIAC stands for and what it was used for.*
- *Explain what an Arithmometer is. You can ask the students to bring in different kinds of calculators to show in the classroom.*

Guide the students to answer the questions on page 7.

Lesson windup – 5 minutes

Recap what was taught in the class. The rest of the exercises can be used as classwork/homework. Sample worksheets can be given as an additional work.

Sample worksheet

Word search

Find the given words in the grid below:

ABACUS ENGINE CALCULATION
TABULATING LOOM OPERATIONS
OSBORNE PASCALINE PORTABLE

D	F	V	E	D	U	K	M	A	R	Z	L
J	P	O	R	T	A	B	L	E	T	O	A
L	T	X	J	L	A	F	O	B	F	S	R
O	P	E	R	A	T	I	O	N	S	B	J
E	A	K	X	H	A	G	M	R	W	O	Y
H	S	N	C	K	B	K	I	K	S	R	I
A	C	A	L	C	U	L	T	I	O	N	S
H	A	S	Y	N	L	V	M	O	V	E	N
M	L	Y	A	B	A	C	U	S	H	N	R
S	I	N	X	G	T	Z	B	Y	G	D	W
F	N	K	W	Y	I	V	O	R	S	J	H
D	E	N	G	I	N	E	H	W	I	P	F
K	I	S	F	R	G	U	K	V	L	X	S

Exercise answers

A. Answer the following questions.

1. Arithmometer was the first reliable, useful, and commercially successful calculating machine. It could perform the four basic mathematic functions.
2. Abacus allows the user to represent numbers by the position of the beads on a rack. Simple addition and subtraction can be carried out rapidly and efficiently by positioning the bead on the rack appropriately.
3. MARK-I was the first general-purpose mechanical digital computer. Its design was based on the technique already developed for punched card machinery also known as the IBBM Automatic Sequence Controller Calculator (ASCC)

B. Fill in the blanks.

1. Abacus
2. Napier's Bones
3. Logarithms
4. Punched cards
5. Charles Babbage

C. True or false

1. False
2. False
3. True
4. False
5. True

D. Full abbreviations

1. Electronic numerical integrator and computer
2. Universal Automatic Computer -1
3. Electronic discrete variable Automatic Computer

Lesson 2 – Classification of Computers

Teaching objectives

- To understand the different types of computers based on their size, purpose, and capabilities
- To identify which computer is suitable for specific tasks

Learning outcomes

By the end of the chapter, the students will be able to understand the primary uses and examples of each type of computer.

Lesson plan

Introduction: 5 minutes

Briefly introduce the concept of computers and why it is important to classify them. Show images of different computing devices to develop their interest. You can have a discussion of different computers they might be familiar with such as tablets, laptops, desktop, and smartphones.

Main Lesson: 30 minutes

Ask a child to read the lesson with your assistance. Explain that classifying computers help us understand the different types of computers and what they are best used for. Compare it to how we classify animals or plants to make it relatable. You can simplify the concepts and use relevant examples.

Show pictures of old-fashioned speedometers, thermometers, and analogue clocks. Explain to the students that analogue computers work with continuous data, and they are often used in scientific and engineering applications for specific measurements. You can show pictures of laptops, smartphones and digital clocks when discussing about digital computers. Explain that they are versatile and used in every field from home computing to complicated business applications. You can give examples of devices like ECG machines that monitor heart rate. When explaining about hybrid computers, show pictures of medical monitoring devices and industrial control systems. You can ask students to identify which type of computers each item represents based on data handling.

To check if the students are understanding, you can ask them the following questions.

- *Why do we need different types of digital computers?*
- *Can you think of a daily activity where you might use an analogue, digital or hybrid computer?*
- *Can you name an example of where hybrid computers are used?*
- *Can you give 3 examples of digital computers?*
- *What are analogue computers?*

Explain that computers can be divided into two main types: special purpose computers and general-purpose computers. If possible, use classroom computers or tablets to demonstrate various tasks. You can take a small quiz with questions about special purpose computers. Ask them: *What do you use your computer for at home?* Children can reply saying watching videos, chatting with friends, doing homework, drawing, or playing games, etc. Explain how general-purpose computers are also used in various fields like office work, education, and entertainment.

Explain that digital computers are also divided into five types of categories that are Embedded computers, Microcomputers, Minicomputers, Mainframe computers and Supercomputers. Microcomputers are further divided into three categories: programmable computers, laptop or desktop and workstations. Other type of computers are minicomputers. They are more powerful than microcomputers. To explain about supercomputers and embedded computers, you can use examples or show pictures of the given computer types. Supercomputers are used in weather forecasting and scientific research; personal computers are used in homework, games and web browsing; embedded computers are used in washing machines, ATMs, cars, and microwaves.

Lesson wind-up: 5 minutes

Recap the lesson by showing the photos of different types of computers and asking questions. You can do the given exercises as classwork and homework.

Sample Task

Choose any one type of computer (microcomputer, minicomputer, or supercomputer) to research. Create a poster that includes:

- The name of the computer type.
- A drawing or printed picture of the computer.
- A brief description of what it is and how it is used.
- An interesting fact about this type of computer.

Exercise Answers

A. Answer the following questions.

1. **Analog Computers:** Computers in which data or number is represented in the form of continuously varying physical quantities such as pressure, temperature, voltage, current etc. They measure things.

Example: Speedometer of a car

Digital Computers: Computers that solves problems by operating on discrete data (numeric data) representing variables by performing arithmetic and logical processes on data from a stored program.

Example: Educational and scientific fields

Hybrid Computers: Digital computers that accept analogue signals, convert them to digital and process them in digital form.

Example: Computers used in hospitals to measure the heartbeat of patients.

2. Special-purpose computers are built to perform specific tasks, such as automatic teller machines (ATMs) or washing machines.

General purpose computers can run different applications and can do various types of tasks such as word processing, web browsing, video editing, play movies, etc.

For example – Computers for banking, sales analysis, etc.

3. Washing machine, television, and refrigerator

B. Fill in the blanks.

1. Super computers
2. Mainframe
3. Analog
4. memory and processing
5. volumes

C. Write True or False against each statement.

1. False
2. True
3. False
4. 4-True
5. True

Lesson 3 – Computer Hardware

Teaching objectives

- To be able to identify, describe and explain the functions of computer hardware
- To be able to understand how components interact with each other to perform computing tasks.

Learning outcomes

By the end of the lesson, students will be able to identify the main hardware components of a computer system. They will be able to describe the purpose and functions of each component, including the CPU, RAM, ROM, BUS, motherboard and power supply.

Lesson plan

Introduction: 5 minutes

Show a short video about computer hardware basics. You can discuss the main parts of a computer using a poster. Identify the power supply unit as a key component of a computer.

Main Lesson: 30 minutes

Start with a discussion with your students. You can ask them what they think makes a computer turn on and work. You can demonstrate how to connect the power supply unit to the motherboard.

Write 'Computer Memory' on the board and ask students where the computer's memory is located. Talk about the ideas of ROM and RAM and how they relate to the computer's power source. Describe how information kept in ROM is retained even after the power sources are unplugged, whereas information saved in RAM is lost when the power is cut off.

Ask a student to volunteer and read the lesson with your assistance.

To see if they are understanding, you can ask them the following questions:

- *Why is it important to understand how computer hardware works?*
- *What components connect to the motherboard?*
- *What might happen if the CPU is not working correctly?*
- *Why is it important for a computer to have enough RAM?*
- *Why do computers need storage devices?*
- *What is the role of the power supply in a computer?*
- *What might happen if the power supply fails?*

You can describe the BUS as a communication system that transfers data between components inside or between computers. Use a diagram to illustrate how the bus connects various components. You can have a group discussion on the importance of each component in the data flow process.

Lesson wind-up: 5 minutes

Recap the key points of the lesson. Ask students for feedback on the lesson and what they found most interesting.

The exercises given in the lesson can be done as classwork or homework.

Sample worksheet

Match each computer part to its correct function.

Computer Part		Function
RAM (Random Access Memory)	● ●	Connects all the parts of the computer and allows them to communicate.
ROM (Read-Only Memory)	● ●	Provides electricity to the computer.
BUS	● ●	The brain of the computer that processes instructions.
CPU (Central Processing Unit)	● ●	Stores information temporarily while the computer is on.
Motherboard	● ●	The main circuit board that contains the CPU, RAM, and other components.
Power Supply	● ●	Stores permanent information that cannot be changed.

Exercise Answers

A. Answer the following questions.

1. The power supply is a device that distributes electricity to the various components of the system. The electrical cord runs from the power supply to an electrical outlet. It also includes a fan that cools the internal components.
2. RAM is the area where programs and data are present while in use. If the machine is turned off or loses power, information in RAM is lost.
ROM is a special kind of memory which stores the instructions which the computer uses when it 'boots up' - the BIOS (Basic Input Output System). It is a type of memory that retains its data even without power, so even when the computer is switched off, it will not lose the data which is saved on to it.
3. Hardware refers to all the pieces of physical equipment that make up a computer system.
4. The CPU (Central Processing Unit) is a chip, located on the motherboard, which performs mathematical calculations and logic functions (determining if one value is greater than another, and so on). It is often referred to as the brain of the computer because it administers the functions of the other components.

B. Fill in the blanks.

1. Motherboard
2. CPU
3. BUS
4. communication
5. RAM

C. Write the full forms of the given abbreviations.

1. Basic Input Output System
2. Central Processing Unit
3. Random Access Memory
4. Read Only Memory

Lesson 4 – Computer Software

Teaching Objectives

- To be able to define computer software and distinguish it from hardware
- To be able to recognise and differentiate between system software, application software and general purpose programs
- To be able to demonstrate basic knowledge in using common application software such as word processor, drawing programs and educational games

Learning Outcomes

By the end of the lesson, students will be able to define software. They will be able to identify and categorize different types of software. They will be able to use a word processor to create a document.

Lesson Plan

Time period: 40 minutes

Introduction: 5 minutes

Start by explaining that computer software is a set of instructions that tell a computer what to do.

Main Lesson: 30 minutes

Imagine the computer is like a chef in a kitchen, and the software is the recipe book. Without recipes (software), the chef (computer) wouldn't know how to cook (do anything).

Discuss the types of computer software with your students. Tell them what system software does and what an application software is. System software helps the computer run properly. It's like the chef's manager who organizes the kitchen and makes sure the chef has all the tools and ingredients to cook properly. Example: Operating systems like Windows, macOS, or the software in a tablet or smartphone (like iOS or Android).

Application Software (like the recipe book) is used to do fun things or work on the computer. It's like the recipes the chef follows to cook different meals. Different software helps the computer do different tasks, like writing stories, drawing pictures, or playing games. Example: Word processors (like Microsoft Word), drawing apps (like Paint), or games (like Minecraft).

Let a student volunteer with your help by reading the lesson.

You can explain why is software important. Without software, a computer would just be a box of metal and plastic! It wouldn't know how to turn on or do anything. The software helps the computer do everything from writing documents to playing games to browsing the Internet.

To make sure they are understanding, you can ask them the following questions:

- *If your favourite game didn't have software, what do you think would happen?*
- *Can you think of something you do on a computer or tablet that uses software?*
- *What kind of software do we use to write stories or letters on a computer?*
- *Why do you think different software are needed for different tasks (like games, writing, drawing)?*

Lesson wind-up: 5 minutes

Recap what was learnt in the lesson. The exercises given at the end can be done as classwork or homework.

Sample Tasks

- Create a list of software types (games, word processors, drawing tools) and have students match them with what they do.
- Ask them what software they use at home or in school (like playing games, drawing, or writing), and have them explain how that software helps them.

Exercise Answers

A. Answer the following questions.

1. All computers need a set of instructions to follow in order to run or even boot up.
2. A group of instructions that together perform a specific task is called a "Software Program".
3. A programming language is used by a programmer to write computer software. Examples include Java, FORTRAN, COBOL.
4. Application software are created to perform either specific or general tasks which are not related to the computer system itself. Application software can be bought from the market.
5. General-Purpose Programs are designed to be used by many people to do the most common kinds of tasks such as typing, preparing budgets, presentations and small databases.

B. Fill in the blanks.

1. System software and application software
2. Loader
3. Reservation system
4. Billing system
5. Word processor

C. Write True or False against each statement.

1. False
2. True
3. True
4. False
5. True

Lesson 5 – Data and Information

Teaching objectives

- To explain how we use data in everyday life
- To understand the concepts of data and information
- To define and differentiate between data and information.

Learning outcomes

By the end of the lesson, students will be able to collect and organize raw data into a chart to create meaningful information. Students will be able to explain why data is important and how it is transformed into useful information.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

Introduce the topic in an informal way to the students by asking the following questions:

Have you ever collected something, like stickers or cards? How did you organize them?"

You can explain by bringing a jar of multi-coloured sweets or counters. Show the jar and say: "This is raw data. It's just sweets in a jar." Then sort them by colour and count them: "Now we have information — there are 10 red, 5 green, and 7 yellow sweets. This helps us understand the data better."

Main lesson: 40 minutes

Let the children read the lesson with your assistance. After reading the pages, write the words 'data' and 'information' on the board. Ask the children what they know about these terms and write their answers on the board. You can introduce simple ways to turn data into information using:

- **Graphs** (bar charts, pie charts).
- **Tables** (organized rows and columns).

Use the survey results to create a bar chart. For example, "How many students like Maths, English, and Science?"

Discuss how computers help process large amounts of data quickly. Show how sorting, filtering, and calculating averages can turn data into meaningful information.

At the end of the lesson ask students to share examples of data and information in their daily lives. Ask them with simple scenarios:

- *Is this **data** or **information**? "Red, blue, green." (Data)*
- *"There are 5 red sweets." (Information)*

Lesson wind-up: 5 minutes

Recap what was taught in the class. The exercises in the textbook can be done in class work or homework.

Exercise Answers

A. Answer the following questions.

1. Data is raw measurements and observations in the form of text, numbers, symbols, images, and sounds which on their own have no meaning.
2. Data may be made up of numbers called numeric data, text called alphabetic data or a combination of both numeric and alphabets data called alpha-numeric data.

Examples of data include

- Height of a student, suppose 1.5 m, is data;
 - His name, suppose Ahmed, is a data;
 - His weight, suppose 42 kg is a data;
 - His hair colour, suppose brown is a data
3. Information is data organized and presented with context and meaning which can be evaluated, that is, statements can be made about it, either true or false and coherent or incoherent. Examples of Information include:
 - The average height of 5 students suppose is 1.58 m, is information;
 - The average weight of the class, suppose 61 kg, is information.
 4. Data are the raw materials (input) of information. Data is a distinct piece of information.

Information is the resultant (output) version of some data. Information is always processed or organized.

5. Input (data) Processing of Data Output (Information)

B. Fill in the blanks.

1. Character
2. Logically
3. Record
4. Database
5. Output

C. Write True or False against each statement

1. False
2. True
3. True
4. True
5. False

Lesson 6 – Database

Teaching objectives

- Define what a database is
- Explain the purpose of databases
- Introduce key terms like records and key fields
- Demonstrate the structure of a simple database
- To teach how to sort data based on specific fields

Learning outcomes

By the end of this lesson, students can define what a database is and identify its purpose. They can recognise key components of a database such as records, fields and data. They will be able to explain how databases are used in everyday life. The students will be able to understand the importance of accuracy and consistency when entering data into a database.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

Use a fun, interactive activity or question to grab the pupils attention. You can ask a question given below:

Can you think of a place where information about lots of people or things is stored?

Show a real life example (for example a school register, a phone contact list or a library catalogue). Explain to the students that these are all examples of databases, which help us store and find information easily.

Main lesson: 40 minutes

Let the children read the lesson with your assistance. You can start with a simple definition. Use everyday examples to help the students understand things they are already aware of. You can give them examples like phone contacts, library system or a school register. You can break down key parts of a database in simple terms.

Record, Field, Table

Draw or display a small database on the board. You can ask questions like:

- *Who is 10 years old?*
- *What is Abdullah's favourite animal?*

Show how we use the database to find answers quickly.

Highlight why databases are useful. Explain how they save time and make life easier. Encourage questions and discussions to make the topic interesting.

- *Can you name some examples of databases?*
- *Why do you think databases are important in real life?*
- *What would happen if information in a databases was wrong?*

You can make a T-chart with *Good Points* and *Not-So-Good Points* to explain advantages and disadvantages.

Lesson wind-up: 5 minutes

Recap what was taught in the class. The exercises can be done in class or as homework.

Sample Task

- Can you think of a situation where you would need to use a database at school or at home?

Exercise Answers

A. Answer the following questions.

1. A database is a collection of related files that can be retrieved when needed. It is usually stored in a secondary storage device e.g. hard disk or magnetic tape.
2. A file is a collection of data stored in secondary storage devices. A record contains a number of fields which are related.
3. A key field is a field that can be used to locate one particular record.
4. (answers can be given based on your observation)
5. Sharing and Security

B. Fill in the blanks.

1. Database
2. Record
3. Sharing, Security, Fewer Files and Data Integrity
4. data Integrity
5. organization

C. Write True or False against each statement.

1. True
2. False
3. True
4. True
5. False

Lesson 7 – Microsoft Word: Formatting Text

Teaching objectives

- Identify the formatting toolbar and its functions
- Change the font style, size, and colour of text in a Word document
- Apply text formatting options such as bold, italic, and underline
- Align text (left, centre, right, justify) and use bullet points or numbering
- Create a visually appealing and organized document

Learning outcomes

By the end of the lesson, the students will be able to use Microsoft Word to format text effectively by applying different styles, font types, sizes, colours, and alignments, as well as using bold, italic, underline, and bullet points to enhance the appearance of their documents.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

Here are some questions you can ask during or after the lesson to engage students, check their understanding, and assess their learning:

- *What do you think formatting text means?*
- *Why do we need to format text in a document?*
- *Can you name any tools or features in Microsoft Word that help us change how text looks?*

Main lesson: 40 minutes

Let the children read the lesson with your assistance. You can ask questions to deepen their understanding.

- *How do you change the font size in Microsoft Word?*
- *What is the difference between bold, italic, and underline? Can you show me an example?*
- *Where can we find the text alignment options in the toolbar?*
- *Can you describe when it might be useful to use bullet points or numbered lists?*
- *What happens when you highlight text and click the colour icon?*

Define text formatting and explain its importance in creating professional and visually appealing documents.

Identify and locate key text formatting tools in Microsoft Word, such as font style, size, colour, alignment, and spacing.

Lesson wind-up: 5 minutes

Recap what was taught in the class. The exercises given in the book can be done in class or as homework.

Sample Tasks

- Use different formatting techniques to design a visually appealing document, such as a flyer, poster, or short paragraph.
- Combine multiple formatting options (e.g., color, alignment, and font styles) consistently to enhance the overall presentation of a document.

Exercise Answers

A. Answer the following questions.

1. Select the text you want to modify.
On the Home tab, click the font colour drop-down arrow – the Font Colour menu appears.
Move the mouse over the various colours. A live preview of the colour will appear in the document.
Select the font colour you want to use. The font colour will change in the document.
2. Arial, Times New Roman and Cambria
3. Highlighting can be a useful tool for making certain text look more important in your document.
4. (Ask the children to explore and answer)

B. Choose the correct answer.

1. Calibri
2. adjust
3. Home
4. grow
5. no

Lesson 8 – Working with Presentation

Teaching objectives

- To identify the purpose and features of presentation software
- To learn to open, save and navigate presentation slides
- To develop skill to create individual slides
- To understand how to apply consistent slide layout and design principles
- To learn to insert and format multimedia elements like images , videos and audio

Learning outcomes

By the end of this lesson, students will be able to create a simple, organised presentation with multiple slides, including text, images and basic design elements. They will be able to navigate through a presentation software, opening, saving and editing slides with ease.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

You can start the lesson by displaying two short slide shows: one well designed and one messy (with a lot of text, random colours and distracting animations).

You can ask students some questions about the display like these:

- *Which one do you like better? Why?*
- *What makes a good presentation?*

Main lesson: 40 minutes

Let the children read the lesson with your assistance. You can start the lesson with a warm up exercise. Open a blank slide on the board and demonstrate. Ask a student to come up and try adding something. You can also use a projector to help students understand the slide step by step. Invite few students to present their slides to the class. Ask the students to see if they are understanding:

- *What did you like about this presentation?*
- *How did the design help communicate the message?*
- *What was the easiest part of making a presentation?*
- *What was the trickiest part?*

You can discuss the importance of working on the presentation with the students. You can discuss the reasons given below:

- *Enhances communication skills*
- *Develops digital understanding*
- *Encourages creativity*
- *Supports research and critical thinking*
- *Prepares for future learning and careers*

Lesson wind-up: 5 minutes

Recap what was taught in the class. The exercises given at the end of this lesson can be done in class or as homework.

Sample Task

- Create a 3 slide presentation at home about a topic they like.

Exercise Answers

A. Answer the following questions.

1. To duplicate slides, select the slide you want to duplicate, right-click the mouse, and choose Duplicate Slide from the menu that appears. You can also duplicate multiple slides at once by selecting them first.
2. Click the **Start From Beginning** command on the Quick Access Toolbar to see your presentation.
The presentation will appear in full-screen mode.
You can advance to the next slide by **clicking your mouse** or pressing the **spacebar** on your keyboard. You can also use the **arrow keys** on your keyboard to move forward or backward through the presentation.
Press the **Esc** key to exit presentation mode.
3. By default, all slides in MS PowerPoint use a 16-by-9 or widescreen aspect ratio.
4. Fill, Colour, Transparency and Apply to All
5. A theme is a predefined combination of colours, fonts, and effects that can quickly change the look and feel of your entire slide show.

B. Fill in the blanks.

1. slides
2. text and videos
3. new slide and layouts
4. picture, chart
5. Slide Navigation pane

C. Write True or False against each statement.

1. True
2. True
3. false
4. False
5. False

Lesson 9 – Learning Scratch

Teaching objectives

- To understand the basics of scratch
- To learn fundamental programming concepts
- To develop computational thinking skills
- To express creativity through digital storytelling and games
- To gain confidence in coding and technology

Learning outcomes

By the end of this lesson, students will be able to identify key parts of the Scratch interface. They will be able to use event blocks to respond to user input. They will be able to apply motion blocks to move a Sprite in different directions. They will also be able to debug and modify a simple scratch programme.

Lesson plan

Time period: 40 minutes

Introduction: 5 minutes

Show Scratch on screen - Explain the **Stage**, **Sprites**, **Script Area** and **Block Palette**. You can demonstrate how to add a Sprite and change its costume. Encourage students by starting a discussion on how to make the cat move. You can ask them what happens if you use the 'move 10 steps' block.

Main lesson: 40 minutes

Let the children read the lesson with your assistance. You can start the lesson with some questions given below.

- *How do video games work?*
- *What if you could make a character move with just a few clicks?*
- *Can computers think for themselves, or do we have to give them instructions?*

Display a short Scratch project (a moving Sprite, a simple game, or animation). Show them an example of a cat chasing a ball. Ask the question how do you think this was made? You can explain that this can be created using blocks instead of typing code!

You can ask a student to volunteer for an activity for this lesson. Tell a student to act like a robot and only move when given exact step-by-step instructions. You can tell the student to move 10 steps forward, turn right or jump. In the same way, explain to the students that in scratch we must give clear instructions (commands).

Lesson wind-up: 5 minutes

Recap what was taught in the lesson. The exercises can be given as classwork and homework.

Sample Task

- Create a game using Scratch by giving the features in the lesson.

Exercise Answers

A. Answer the following questions.

1. Scratch is a graphical programming language that you can use for free. By simply dragging and dropping coloured blocks, you can create interactive stories, games, animation, music, art and presentations.
2. A computer with a recent Web browser (Chrome 7 or later, Firefox 4 or later with Adobe Flash Player version 10.2 or later installed).
A display that's 1024 × 768 or larger.
A reliable Internet connection.
A microphone and speakers (or headphones) to record and listen to music.
3. Whenever you click the green flag, your script will start.
4. You can add a backdrop to the Stage. Click to choose a new backdrop. Choose a backdrop from the library (such as "Spotlight-Stage"). Click OK.
The new backdrop now appears on the Stage.
5. Each object in Scratch is called a sprite.
6. Choose from library, paint your own sprite, upload your own image or sprite and take a picture (from a webcam)

B. Fill in the blanks.

1. dragging and joining
2. save
3. Tips window
4. create
5. sprite