FOURTH EDITION

FOR GRADE 3

# KEYBOARD

Computer Science with Application Software

## TEACHING GUIDE

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# Introduction

**Keyboard: Computer Science with Application Software** teaching guide is designed to empower educators and engage young learners, providing a valuable tool for teaching computer concepts to students in grades 1-5.

## Features

### Scheme of Work

This is a comprehensive curriculum outline for the grade that ensures a structured and coherent learning journey. It provides a detailed breakdown of the number of lessons for each chapter and topic and the core competencies and digital content mapped for teachers' convenience.

### Lesson Plan

This instructional sequence outlines teaching strategies for one topic from the chapter learning objectives for students and teachers. It highlights core competencies and includes measures of success, like formative assessments and performance indicators, to help teachers track student progress effectively and design their own lesson plans accordingly.

### Engagement Activities

Additional exercises to reinforce core lessons are designed to be engaging and interactive. These activities may include hands-on projects, problem-solving tasks, research assignments, and group work. It offers alternative explanations and additional practice opportunities that allows students to succeed, regardless of their current performance level.

This collaborative guide has compiled insights from educational experts and the latest teaching methods to offer a comprehensive resource for computer education in the primary grades. It serves to create an engaging and effective learning environment that promotes the curiosity of students.

# CONTENTS





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# Scheme of Work

| Chapter | No. of Periods | Learning Objectives | Core Competencies | Teaching Objectives | Additional Resources |
|---|---|---|---|---|---|
| 1. Learning about the Operating System | 6 | • Define operating systems and give examples.<br>• Define and give examples of hardware and software.<br>• Describe Microsoft Windows as an operating system.<br>• Identify desktop and icons, files and folders, taskbar (and its position change).<br>• Describe the sections/panes of the Start Menu and their functions. | Digital Literacy, Problem-solving, Critical Thinking | Students will be able to identify and describe the basic components and functions of an operating system. | Computer with Windows OS, Projector, Whiteboard/Chart Paper, Markers, Handouts with images of hardware and software, Realia (mouse, keyboard), Audio descriptions of hardware. |
| 2. Setting up the Computer | 6 | • Explain the function and difference between files and folders.<br>• Identify information in the properties section for files and folders.<br>• Explore computer settings (display, time/date, accessibility).<br>• Describe steps to install and uninstall software in Windows.<br>• Explore Android phone setup (adding/removing folders, themes, widgets, reminders). | Digital Literacy, Problem-solving, Critical Thinking | Students will be able to manage files and folders, customise computer settings, and understand basic software installation/ uninstallation. | Computer with Windows and Android phone, Projector, Whiteboard/Chart Paper, Markers, Handouts with screenshots, Step-by-step visual guides, Accessibility feature demonstrations. |
| 3. Digital Storytelling | 4 | • Define digital storytelling and Photostory.<br>• Identify tools for making digital stories.<br>• Describe the process (brainstorming, storyboard, gathering media, putting it together).<br>• Define the Internet and its uses.<br>• Introduce Google Workspace and Google Slides (for data management and digital storytelling).<br>• Describe steps to use Google Slides (text, images, transitions, audio, templates).<br>• Explain collaborating and sharing in Google Slides. | Creativity, Communication, Collaboration | Students will be able to create a simple digital story using Google Slides. | Computers with Internet access, Projector, Whiteboard/Chart Paper, Markers, Images and audio files (varied sources), Example digital stories (diverse formats). |

| Reasoning | Communication | Connection | ICT Activities | Additional Strategies |
|---|---|---|---|---|
| Identifying, Classifying, Comparing | Describing, Explaining, Asking Questions | Connecting to real-world examples of OS use (e.g., phone, tablet). | Drag and drop hardware/software (with audio support), Label desktop icons (using different modalities), Explore the Start Menu (with screen reader). | • Linguistic: Discussions, vocabulary lists, writing definitions.<br>• Logical-Mathematical: Classifying hardware/software, creating flowcharts of OS functions.<br>• Spatial: Visual aids, diagrams, labeling desktop elements.<br>• Bodily-Kinesthetic: Hands-on activities with realia, manipulating icons.<br>• Musical: Creating jingles or songs about OS components.<br>• Interpersonal: Group discussions, peer teaching.<br>• Intrapersonal: Reflective journaling about personal OS use.<br>• Naturalist: Comparing OS to natural systems (e.g., a tree's functions). |
| Comparing, Contrasting, Analysing | Explaining, Demonstrating, Following Instructions | Connecting to everyday use of computers and phones. | Changing display settings (with varied input methods), Exploring accessibility features (with individualised settings), Installing/uninstalling a simple program (with teacher guidance and support), Customising Android phone settings (with visual and auditory prompts). | • Linguistic: Writing instructions for file management, creating user manuals.<br>• Logical-Mathematical: Troubleshooting scenarios, creating algorithms for file organisation.<br>• Spatial: Mapping file structures, designing folder icons.<br>• Bodily-Kinesthetic: Using different input devices, simulating file management with physical objects.<br>• Musical: Creating sound cues for different file actions.<br>• Interpersonal: Peer tutoring, collaborative problem-solving.<br>• Intrapersonal: Setting personal computer customisation goals.<br>• Naturalist: Comparing computer organisation to natural systems. |
| Planning, Organising, Sequencing | Storytelling, Presenting, Sharing | Connecting to language arts and other subjects. | Creating a storyboard (using different media), Adding media to Google Slides (with accessibility options), Adding transitions and audio (with sound effects and music options), Sharing the digital story (in different formats). | • Linguistic: Writing scripts, narrations, and captions.<br>• Logical-Mathematical: Structuring storyboards, sequencing events.<br>• Spatial: Designing slide layouts, arranging images and text.<br>• Bodily-Kinesthetic: Acting out scenes, using gestures during presentations.<br>• Musical: Selecting appropriate music and sound effects.<br>• Interpersonal: Collaborative storytelling, peer feedback.<br>• Intrapersonal: Reflecting on personal experiences to create stories.<br>• Naturalist: Creating stories about nature or environmental themes. |

| Chapter | No. of Periods | Learning Objectives | Core Competencies | Teaching Objectives | Additional Resources |
|---|---|---|---|---|---|
| 4. Mastering Multimedia: Photos and Videos | 4 | • Describe camera size, features, and uses.<br>• Explain uses of smartphone cameras and camera grids.<br>• Describe picture editing features and tools (crop, rotate, filters).<br>• Explore image metadata.<br>• Explain video from smartphones (portrait/ landscape). | Creativity, Technical Skills, Visual Literacy | Students will be able to use camera features effectively and perform basic photo/video editing. | Smartphones, Cameras, Computers with Internet access, Projector, Whiteboard/Chart Paper, Markers, Sample photos and videos (diverse subjects and styles). |
| 5. Jumpstart to Google Docs | 6 | • Describe online processing tools in Microsoft and Google.<br>• Introduce Google Drive (Docs, Presentations, Spreadsheets, Forms, Drawings).<br>• Explain how to use Google Docs (sign in, new/old documents, inserting/selecting text, similarities/differences with Word, spell check, find/ replace, text formatting, alignment, tables, images, headers/footers, sharing/ collaborating). | Digital Literacy, Collaboration, Communication | Students will be able to create and edit documents in Google Docs and collaborate with others. | Computers with Internet access, Projector, Whiteboard/Chart Paper, Markers, Google Docs tutorials (varied formats). |
| 6. Sequencing and Logic | 6 | • Explain how and why computers follow instructions (input/output).<br>• Understand and label the Blockly interface.<br>• Describe a Blockly maze.<br>• Define blocks, loops, and events in Blockly/coding.<br>• Explain how using such programs helps in skill building (running, observing, adjusting, trying again). | Computational Thinking, Problem-solving, Critical Thinking | Students will be able to understand basic programming concepts and use Blockly to create simple programs. | Computers with Internet access, Projector, Whiteboard/Chart Paper, Markers, Blockly software (with accessibility features), Blockly tutorials (varied formats). |

| Reasoning | Communication | Connection | ICT Activities | Additional Strategies |
|---|---|---|---|---|
| Observing, Analysing, Evaluating | Explaining, Demonstrating, Giving Feedback | Connecting to art and photography. | Taking photos using different grids (with visual and auditory cues), Editing photos using phone apps and online tools (with tutorials and support), Exploring image metadata (with simplified explanations), Recording videos in portrait and landscape mode (with different settings). | • Linguistic: Writing photo captions, creating video scripts.<br>• Logical-Mathematical: Understanding camera settings and their effects.<br>• Spatial: Composing shots using different grids and angles.<br>• Bodily-Kinesthetic: Practicing camera handling techniques.<br>• Musical: Creating video soundtracks.<br>• Interpersonal: Sharing photos and videos, giving and receiving feedback.<br>• Intrapersonal: Reflecting on personal photography style.<br>• Naturalist: Taking photos and videos of natural subjects. |
| Comparing, Contrasting, Applying | Writing, Sharing, Collaborating | Connecting to language arts and other subjects. | Creating a new Google Doc (with templates and examples), Formatting text (using different tools and styles), Inserting images and tables (with image libraries and formatting options), Sharing and collaborating on a document (with different sharing settings). | • Linguistic: Writing documents, editing and proofreading.<br>• Logical-Mathematical: Using formulas in spreadsheets (if introduced).<br>• Spatial: Designing document layouts, arranging text and images.<br>• Bodily-Kinesthetic: Typing, using the mouse and keyboard.<br>• Musical: Creating presentations with background music.<br>• Interpersonal: Collaborative writing projects, peer review.<br>• Intrapersonal: Reflecting on personal writing style and goals.<br>• Naturalist: Creating documents about nature or environmental topics. |
| Analysing, Problem-solving, Debugging | Explaining, Demonstrating, Asking Questions | Connecting to math and logic. | Exploring the Blockly interface (with visual and auditory cues), Creating simple programs to solve mazes (with different levels of difficulty), Experimenting with loops and events (with immediate feedback and debugging tools). | • Linguistic: Writing code comments, explaining program logic.<br>• Logical-Mathematical: Solving coding challenges, debugging programs.<br>• Spatial: Visualising code flow, designing program interfaces.<br>• Bodily-Kinesthetic: Manipulating code blocks, using drag-and-drop programming. |

CHAPTER 1

# LEARNING ABOUT THE OPERATING SYSTEM

When I turn on the computer, I see some changes happening on the screen.

This is an operating system starting up. Operating system is very important for a computer. Let's explore what it does.

## Learning Objectives

Students will be able to:

- define operating systems and provide examples.
- explain the basic functions of an operating system.
- define hardware and software and give examples of each.

## Lesson Plan 1

**Topics:** Operating Systems, Hardware, and Software

**Page number:** 2-4

## Core Competencies

- **Critical Thinking and Problem Solving:** Students analyse the relationship between hardware, software, and the operating system, problem-solving scenarios involving OS functions.
- **Communication and Collaboration:** Students work in pairs and small groups to discuss and explain concepts, justifying their categorisation of hardware and software.
- **Digital Literacy:** Students develop foundational knowledge of core computer concepts, including hardware, software, and operating systems.

## Materials

- Computer/Projector
- Whiteboard/Chart paper
- Markers
- Images/Videos of various hardware and software components
- Real-life examples of hardware (mouse, keyboard, monitor, printer, speaker)
- Prepared scenarios for operating system functions (e.g., printing a document, playing a game, connecting to Wi-Fi)
- Index cards or slips of paper

## Teaching Methodology

1. **Introduction through brainstorming**

   Begin the lesson by asking students to brainstorm about operating systems through imagination, such as: Imagine you're a superhero controlling a robot. The robot is the computer, but it doesn't understand your language. What do you need to make it work? Facilitate a class discussion, using open-ended questions like: What kind of instructions does a robot need? How do we give those instructions? Guide students towards the concept of an operating system as a translator or 'conductor.'

2. **Interactive Exploration**

   Now you can read out loud or ask students to read the relevant pages for the topic from the textbook. You can now show them video from digital assets for the book explaining the basic workings of a computer, focusing on the interaction between hardware and software. Ask students:

   a. What are the different parts we saw?

   b. Can we touch them?

   c. Can we see them on the screen?

   Introduce the terms **hardware** (tangible parts) and **software** (instructions). Ask students for everyday examples of hardware and software.

3. **Review Activity**

   Divide students into pairs. Give each pair a set of hardware and software images/cards. Have them sort and discuss their choices, justifying their reasoning. Encourage them to explain *why* they categorised something as hardware or software.

4. **Operating System Deep Dive**

   Show students the video about OS, explaining how it is different from the CPU and is considered the brain of the computer. Explain the operating system's role in managing hardware, running programs, and providing a user interface. Use real-life scenarios to explain, such as:

   a. What happens when you want to print a picture?

   b. How does the computer know which printer to use?

- **Introducing OS Types**

  Discuss the different types of OS mentioned on page 3 and 4. Tell them that just like there are different types of cars, there are also different types of operating systems. Introduce a few common operating systems (Windows, macOS, Android, iOS, Linux) using pictures or icons. Ask students where do we usually find these OS? (e.g., Windows on computers, Android on phones, iOS on iPhones). Briefly explain that different devices might use different operating systems. Focus on recognising the names and associating them with devices.
- **Extended activity - OS Challenge**

  Present scenarios (e.g., I want to watch a video on YouTube, or I want to type a story). Students can discuss in small groups what the operating system needs to do to make this happen. Ask them to consider the order of operations and what hardware/software are involved and make a flow chart for its steps.
- **Wrap-up & Assessment**

  Ask students to answer question 3a and 3b on page 10 and question 1 from In the Lab on page 11.
- **Exit Ticket**

  Students can write down one example of hardware, one of software, and one function of an operating system on index cards or slips of paper. They can also draw a simple diagram showing the relationship between hardware, software, and the OS.

## Performance Indicators

Students can:

- categorise hardware/software through examples.
- accurately describe at least three functions of an operating system.
- provide relevant hardware, software, and operating system examples in their exit tickets.

## Lesson Plan 2

**Topics**: Microsoft Windows and Desktop icons

**Page number:** 4-5

## Core competencies

- **Digital Literacy:** Students learn to navigate and interact with the Windows desktop environment, recognising and understanding the function of icons.
- **Communication and Collaboration:** Students share their observations and understanding of desktop elements during discussions.
- **Critical Thinking and Problem Solving:** Students use problem-solving skills during the icon scavenger hunt.

## Learning Outcomes

Students will be able to

- identify Microsoft Windows as an operating system.
- describe the desktop and its icons.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Worksheet with desktop screenshot and labeling activity
- Sticky notes

## Teaching Methodology

1. **Introduction**

   Ask students to recap what is an operating system and tell them that in this lesson they will explore a very popular operating system called Windows. Ask students if they have used a computer with Windows before and what they know about it.

2. **Interactive Exploration**

   Use the projector to give a guided tour of the Windows desktop. Highlight key features like the Start Menu, Taskbar, and icons. Explain the purpose of each. Ask students:

   a. Point out familiar elements.

   b. What do you think these little pictures (icons) are for?

   c. Why are they important?

   Discuss the concept of icons as shortcuts to programs and files.

3. **Guided Practice**

   - **Activity:** Allow students to customise their desktop background (if computers are available) to express their individuality. If not, they can design their ideal desktop on paper.

4. **Wrap-up & Assessment**

   Ask students to answer question 3c and Application-based questions from page 10 and question 2 from In the lab on page 11.

## Performance Indicators

Students can:

- correctly label parts of the Windows desktop on the worksheet.
- accurately explain the function of at least 3 different icons.
- successfully customise their desktop (if resources allow) or design a desktop with clear labels and explanations of icon functions.

## Lesson Plan 3

**Topics**: Files, Folders, and the Taskbar

**Page numbers:** 6-7

## Core competencies

- **Digital Literacy:** Students develop skills in file management and organisation, understanding the role of files, folders, and the taskbar.
- **Critical Thinking and Problem Solving:** Students apply organisational strategies to the file organisation challenge.

- **Creativity and Innovation:** Students design their 'Digital Filing Cabinet,' demonstrating creative approaches to information organisation.

## Learning Outcomes

Students will be able to:

- explain the purpose of files and folders.
- describe the taskbar and its functions.
- change the position of the taskbar.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Prepared folders with sample files for demonstration
- Whiteboard/Chart paper

## Teaching Methodology

1. **Introduction**

   Ask students to read pages 6 and 7 of the textbook. Now, ask them to imagine their classroom without any organisation. Help them brainstorm, visualise, and then vocalise papers everywhere and books piled up. Ask them how they would find what they need. Relate this to the importance of organising files on a computer.

2. **Interactive Exploration**

   Explain the purpose of files and folders using the analogy of a physical filing cabinet. Demonstrate creating, naming, and organising files and folders. Show how to make different types of files (text document, image).

3. **Guided Practice**

   Demonstrate the functions of the taskbar by launching programs, switching between windows, and showing running applications in the computer lab or through a projector attached to the teacher's computer device. Also, show how to change the taskbar's position.

4. **Wrap-up & Assessment**

   Ask students to answer questions 3d and 3e on page 10. Students can also be tasked to attempt the digital WS for the chapter as revision.

## Performance Indicators

Students can:

- successfully organise the provided virtual files into appropriate folders.
- accurately describe at least 3 functions of the taskbar.
- correctly demonstrate how to change the position of the taskbar.
- create a logical Digital Filing Cabinet model with clear labels and explanations.

## Lesson Plan 4

**Topics:** Start Menu

**Page number:** 7-8

## Core competencies

- **Digital Literacy:** Students learn to use the Start Menu as a navigation tool to access programs and settings.
- **Critical Thinking and Problem Solving:** Students use problem-solving skills during the Start Menu scavenger hunt and when designing their ideal Start Menu.
- **Creativity and Innovation:** Students express their understanding of the Start Menu's functionality by designing their ideal menu.
- **Communication and Collaboration:** Students share their findings and explain their design choices.

## Learning Outcomes

Students will be able to:

- identify the sections/panes of the Start Menu.
- describe the functions of the Start Menu sections/panes.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstrationChart paper with a labelled diagram of the Start Menu
- Markers
- Index cards or slips of paper

## Teaching Methodology

1. **Introduction**

   Ask students to read the text from pages 7-8 and then ask them to imagine the Start Menu as the control center for your computer. Ask students what they think a control center does. Brainstorm different types of control centres (e.g., in a car, on a TV remote). How do they help us?

2. **Interactive Exploration**

   Demonstrate the different sections of the Start Menu (pinned apps, recently used apps, all apps, power options, settings, user account). Explain the function of each section clearly and concisely. Use simple language and relate the functions to real-world actions. For example, the power button is how we turn the computer on and off, just like a light switch. Ask students: Why do you think some apps are 'pinned' to the Start Menu? What's the difference between 'recently used' apps and 'all apps'?

3. **Hands-on Activity**

   Have students explore the Start Menu to find specific programs or settings. Create a list of things for them to find (e.g., find the Paint app, find the Settings for your display, find the Power options). This encourages active exploration and familiarisation with the Start Menu layout.

4. **Creative Application**

   Ask students to create a storyboard showing the steps they would take to launch a specific program using the Start Menu. This reinforces the process of navigating the menu. For example:

   - Step 1: Click the Start button.
   - Step 2: Click 'All Apps'.
   - Step 3: Scroll down to find 'Paint'.
   - Step 4: Click 'Paint".

5. **Wrap-up & Assessment**

   Ask students to do Q1 and 2 from page 9-10 to review the chapter and do the group projects together.

6. **Exit Ticket**

   Students can write down three things they can do using the Start Menu on index cards or slips of paper.

## Performance Indicators

Students can:

- correctly identify and describe the function of at least 4 key sections of the Start Menu.
- successfully complete the Start Menu Scavenger Hunt.
- create a clear and accurate Start Menu Storyboard.
- design a well-thought-out 'ideal' Start Menu with justifications for their choices.

## APPLICATION BASED QUESTIONS

### Activity

Consider the screenshot on page 10 and answer the questions given below:

a. Name any two icons shown in the figure.

b. Label the parts (i) and (ii) in the figure.

### Instructions

- Explain the importance of understanding different icons and parts of a computer interface.
- Show an example of a screenshot and discuss its components.
- Direct students to open their textbooks to page 10 and look at the screenshot.
- Ask students to carefully observe the screenshot and identify any familiar icons.
- Instruct students to name any two icons shown in the figure and write their names in their notebooks.
- Guide students to label the parts marked as (i) and (ii) in the figure. They should write the labels in their notebooks.
- Check students' notebooks to ensure they have correctly named and labeled the icons and parts.
- Ask a few students to present their findings to the class.

## IN THE LAB

### Activity 1

Find out which operating system is loaded on the computer:

a. In your school's computer lab .....

b. At your home.....

### Instructions

- Briefly explain what an operating system is and its importance in running a computer. Walk them through the following steps in the lab:
  - **a. Step 1**: Turn on the computer by pressing the power button.
  - **b. Step 2**: Observe the screen as the computer starts up.
  - **c. Step 3**: Look for any logos or text that appear during the startup process (e.g., Windows, macOS, Linux).
  - **d. Step 4**: Write down the name of the operating system you see in your notebook.
- Compare the operating systems found in the school lab and at home. Discuss any differences and similarities.
- Provide pictures of common operating system logos to help students with identification.

### Activity 2

Look at the desktop of a computer and then draw:

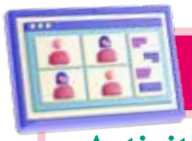
a. Any two icons on the desktop

b. Icons of a folder and of the recycle bin

### Instructions

- Briefly review the parts of the computer desktop.
- Introduce the concept of icons and their purpose.
- Explain the activity: becoming 'Desktop Detectives' to investigate icons.
- Students can explore the desktop and identify different icons.
- Students can choose three different icons and draw them on their paper, paying attention to detail.
- Students will write a sentence or two under each drawing explaining what the icon represents (program, file, folder).
- Circulate, aiding and asking guiding questions about icon shape, colour, and potential function.
- Students locate and draw the folder icon and the Recycle Bin icon.
- Students write a sentence under each drawing explaining its purpose (folder for organising files, Recycle Bin for deleted files).

- Support students who need help finding or understanding these icons. Briefly explain the Recycle Bin's function.
- Allow students to volunteer to share one of their icon drawings and explanations with the class.
- Discuss the different types of icons (programs, files, folders) and their functions.
- Review the function of the Recycle Bin.
- Display and discuss the optional example sheet of common desktop icons.
- This Optional Example Sheet could include pictures of common icons like:
  a. Application icons (e.g., Word, Excel, Chrome, Paint)
  b. Folder icons
  c. File icons (various file types like .docx, .jpg, .txt)
  d. Recycle Bin icon
  e. Shortcut icons



## GROUP PROJECT

### Activity 1

In groups of four, explore moving the taskbar to different sides of the screen. Which side do you prefer?

### Instructions

- Divide the class into groups of four.
- Distribute a set of 'Taskbar Tango Challenge' cards to each group. These cards should have different challenges related to the taskbar, such as:
  a. 'Move the taskbar to the left side of the screen.'
  b. 'Move the taskbar to the top of the screen.'
  c. 'As a group, decide which taskbar location is best for playing a game and explain why.'
  d. 'One member of the group will move the taskbar, and the others will describe the steps they are taking.' (Focus on explaining the process)
  e. 'If the taskbar disappears, figure out how to make it reappear.' (Troubleshooting)
- Students can work together to complete the challenges on the cards. They should take turns performing the actions and discussing their findings.

### 'Taskbar Tango Challenge' Card Examples:

- **Card 1:** Move the taskbar to the right side of the screen. Describe the steps you took.
- **Card 2:** Move the taskbar to the top of the screen. Why might someone prefer this location?

- **Card 3:** As a group, decide which taskbar location is best for browsing the Internet. Explain your reasoning.
- **Card 4:** If the taskbar suddenly disappeared, how would you make it reappear?
- **Card 5:** One person moves the taskbar to the bottom, the others give step-by-step instructions on how to do it.

### Activity 2

In turns, open the Start menu and choose a program to open and close. There is so much to explore!

### Instructions

- Divide the class into groups of four.
- Distribute a 'Start Menu Safari Log' sheet to each group. This sheet should have columns for:
  a. Program Name
  b. Program Icon (students draw or describe it)
  c. Program Category (e.g., Games, Utilities, Accessories)
- Brief Description of What the Program DoesTell the students 'Your group will go on a 'Start Menu Safari' to explore different programs. One person will be the 'Navigator' and will open the Start Menu. The others will be the 'Explorers' and will choose programs to investigate.'
- You can also make it interesting by telling them that 'For each program you explore, fill out a row in your 'Start Menu Safari Log.' Try to categorise the programs and describe what they do.'
- 'Take turns being the 'Navigator' and the 'Explorers.'

## Engagement Activities

### Operating Systems Bingo

Create Bingo cards with terms like 'Windows,' 'MacOS,' 'Icons,' 'Files,' 'Taskbar,' and 'Folders.' Call out definitions, and students mark the corresponding terms on their cards.

### Icon Hunt

Show students a series of desktop screenshots. Ask them to quickly identify and raise their hands when they see specific icons or elements like the taskbar or a folder.

### Hardware vs. Software Flashcards

Prepare flashcards with examples of hardware (like mouse, keyboard) and software (like Microsoft Word, games). Quickly review each card and have students shout out if it's hardware or software.

## Taskbar Position Challenge

Display an image of a desktop with the taskbar in different positions (top, bottom, sides). Ask students to vote on where they prefer the taskbar to be, and discuss their choices briefly.

## Start Menu Exploration

Display a picture of the Start menu. Have students quickly name as many sections or elements they can identify, such as 'All Programs,' 'Power,' or 'Settings.'

## Would You Rather Questions for Brainstorming

1. Would you rather use a computer with no software at all or a computer with only one piece of software?
2. Would you rather have a desktop filled with icons or a desktop that is completely empty?
3. Would you rather change the position of the taskbar every day or have to organise your files every day?

## Applied Scenario-Based Question

- Imagine you are using a computer and the taskbar suddenly disappears. What steps would you take to try to get it back?
- Thought Experiment
- If you could create your own operating system, what unique features would it have that you think would make it easier for kids to use?

## Riddles

1. I have many files but I'm not a folder. I hold your pictures, songs, and stories, but I'm not a book. What am I?

   **Answer:** A computer.
2. You click on me to open a world of programs, but I'm not a door. What am I?

   **Answer:** The Start menu.
3. I'm on your screen, I help you find what you need, but I'm not a map. What am I?

   **Answer:** An icon.

## Answer for Exercise

### 1. Fill in the blanks

a. A **folder** is used to store a group of files.
b. The power button is located on the left panel of the **Start menu**.
c. The taskbar is a long, horizontal bar at the bottom of the **desktop** screen.
d. An **operating system** is a software that helps the user to work with the computer.
e. The small pictures on the desktop are called **icons**.

## 2. Multiple choice questions

a. Operating system
b. All of the above
c. Two
d. Both (a) and (b)
e. Left

## 3. Answer the questions

a. Hardware are physical parts of a computer you can touch, like the keyboard, mouse, and monitor. Software are programs and applications that run on the computer, like games and word processors.

b. The operating system manages all the hardware and software on the computer, making sure everything works together smoothly. It helps you open programs, save files, and connect to the Internet.

c. The desktop is the main screen you see when you turn on the computer. It usually has icons for programs and files, a taskbar at the bottom, and a background picture.

d. Having different files and folders helps you organise your work so you can find things easily. It keeps your computer neat and makes it easier to manage your documents, pictures, and other files.

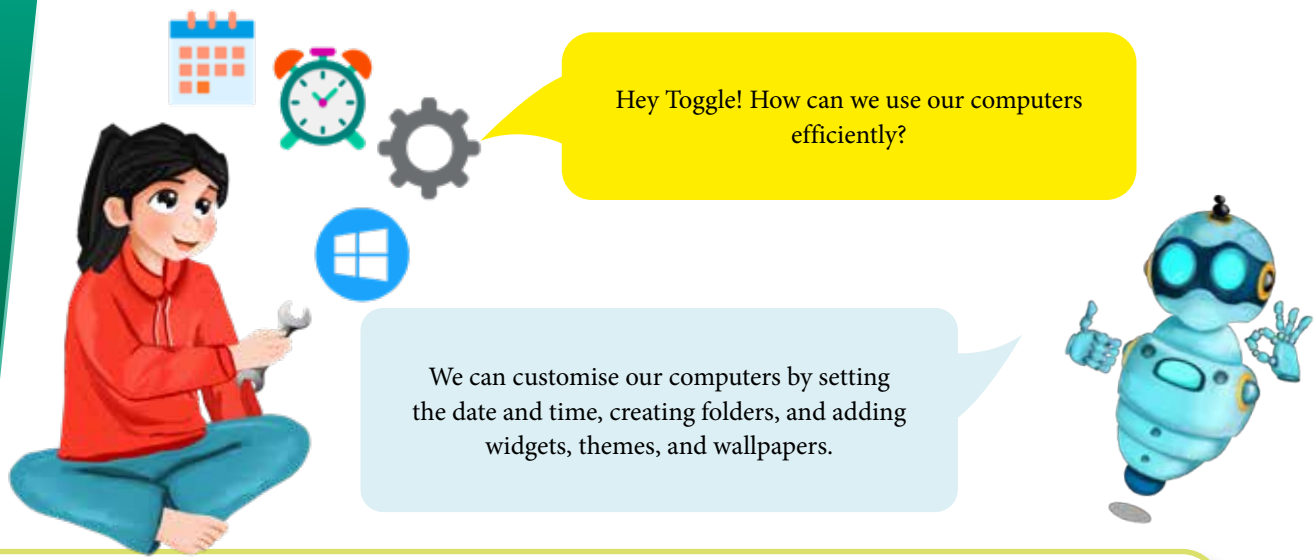
e. Steps to change the position of the taskbar:
   - Right-click on an empty space on the taskbar.
   - Select 'Taskbar settings.'
   - Find the option for 'Taskbar location on screen.'
   - Choose the new position (bottom, top, left, or right).

f. The taskbar will move to the new position.

g. The Start Menu helps you find and open programs, settings, and files quickly.
The Taskbar shows you which programs are open and lets you switch between them easily. It also has shortcuts to important tools and notifications.

CHAPTER
2

# SETTING UP THE COMPUTER




## Learning Objectives

Students will be able to:

- explain the function and difference between files and folders.
- identify and interpret information in the properties section for files and folders.

## Lesson Plan 1

**Topics:** Files and Folders, Properties

**Page numbers:** 12-13

## Core Competencies

- **Digital Literacy**: Understanding file and folder organisation, properties, and usage.
- **Critical Thinking and Problem Solving**: Differentiating between files and folders, analysing information in properties, and applying organisation strategies.
- **Communication and Collaboration**: Discussing and explaining file/folder concepts and properties in pairs and small groups.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Prepared sample files and folders
- Whiteboard/Chart paper
- Markers
- Worksheet with file/folder properties analysis questions

## Teaching Methodology

1. **Introduction**

   Ask students to 'Imagine your backpack. You have different subjects. How do you keep your math papers separate from your art supplies?' Relate this to the need for organisation on a computer using files and folders.

2. **Interactive Exploration**

   Show examples of files (documents, pictures, videos) and folders. Explain their purposes. Emphasise the difference: folders *contain* files and other folders. Discuss: Why is it important to organise files and folders? What happens if everything is just mixed? Guide students toward understanding the importance of easy access and management.

3. **Hands-on Activity**

   Demonstrate how to access the Properties section for a file and a folder. Explain the information found there (file size, type, date created, etc.). Distribute the worksheet with questions prompting students to analyse the properties of given files and folders (e.g., 'What type of file is this? How big is it? When was it created?').

4. **Wrap-up**

   Summarise the key differences between files and folders and the information available in properties. Students can do the In the Lab activity on page 24.

## Performance Indicators

Students can:

- correctly differentiate between files and folders in various examples.
- accurately interpret information presented in the file/folder properties section.
- successfully organise given files into appropriate folders.

## Lesson Plan 2

**Topics:** Exploring Computer Settings

**Page numbers:** 14-16

## Core Competencies

- **Digital Literacy:** Navigating and modifying basic computer settings.
- **Critical Thinking and Problem Solving**: Understanding the impact of different settings on computer usage.

## Learning Outcomes

Students will be able to:

- explore computer settings.
- adjust display settings options.
- set up time and date.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Handout with basic settings categories and descriptions

## Teaching Methodology

1. **Introduction**

   Ask students to read pages 14-16 and tell them that just like they can adjust the brightness on their phone or the volume on their TV, they can also change settings on a computer to make it work better for them.

2. **Demonstration & Exploration**

   a. Display Settings: Demonstrate how to access display settings (resolution, brightness, wallpaper). Explain the impact of each setting.

   b. Time and Date: Show how to set the correct time and date. Explain why this is important (e.g., for file timestamps).

3. **Wrap-up & Assessment**

   Discuss 'Why might you want to change your display settings? Why is it important to have the correct time and date on your computer?' Students can

## Performance Indicators

Students can:

- successfully navigate to display settings and adjust basic options.
- accurately set the time and date on a computer.
- demonstrate an understanding of the purpose of different settings.

## Lesson Plan 3

**Topics:** Accessibility Options

**Page numbers:** 16-17

## Core Competencies

- **Digital Literacy:** Understanding and exploring accessibility features.
- **Empathy and Inclusion:** Recognising the importance of accessible technology for diverse users.
- **Communication and Collaboration:** Discussing and sharing understanding of accessibility features.

## Learning Outcomes

Students will be able to:

- identify accessibility options for vision, hearing, and interaction.
- describe the key features of magnifier, narrator, high contrast, keyboard settings, and mouse settings.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Handout summarising accessibility features

## Teaching Methodology

1. **Introduction**

   Ask students to read page 16-17 and talk about how computers should be used and accessible for everyone. What options are there if someone has trouble seeing the screen or using the mouse? Accessibility options in Windows help make computers easier to use for people with different needs. Ask students to find out if there are similar options in other OS.

2. **Demonstration & Exploration**

   a. Vision: Demonstrate magnifier, narrator, and high contrast. Explain how these features help people with visual impairments.

   b. Hearing: Discuss options for adjusting volume and visual notifications for sounds.

   c. Interaction: Show examples of keyboard and mouse settings (e.g., sticky keys, mouse pointer size).

3. **Discussion**

   As students why are accessibility options important and how do they help people? Encourage students to think about how technology can be inclusive.

4. **Wrap-up & Assessment**

   Summarise the different accessibility features discussed. Students can do the Group Project activity on page 24.

## Performance Indicators

Students can:

- describe the functions of magnifier, narrator, high contrast, and basic keyboard/mouse settings.
- demonstrate an understanding of the importance of accessibility in technology.

## Lesson Plan 4

**Topics:** Computer Updates & Software

**Page numbers:** 18-20

## Core Competencies

- **Digital Literacy:** Understanding the importance of computer updates and software management.
- **Critical Thinking and Problem Solving:** Applying steps to install and uninstall software.

## Learning Outcomes

Students will be able to:

- explain the importance of computer updates.
- describe the steps to install and uninstall software in Windows.

## Materials

- Computer/Projector
- Computer with Windows OS for demonstration
- Handout summarising software installation/uninstallation steps

## Teaching Methodology

1. **Introduction**

   Ask students to read pages 18-20 and then inquire: Why do we sometimes need to update our apps on our phones? Lead a discussion about the benefits of updates (security, new features, bug fixes).

2. **Computer Updates**

   Explain the importance of computer updates. Keep it simple: Updates help keep your computer safe and working well.

3. **Software Installation/Uninstallation**

   Show the steps to install and uninstall a simple software program. Emphasise the importance of following instructions carefully.

4. **Wrap-up & Assessment**

   Summarise the key points about computer updates and software management.

## Performance Indicators

Students can:

- explain why computer updates are important.
- describe the general process of installing and uninstalling software.

## Lesson 5

**Topics:** Android Phone Setup and Folder Management

**Page number:** 21

## Core Competencies

- **Digital Literacy:** Understanding basic Android phone setup and folder management.
- **Critical Thinking and Problem Solving:** Applying steps to add and remove folders.

## Learning Outcomes

Students will be able to:

- describe the basic Android phone setup process.
- explain the steps for adding and removing folders in an Android phone.

## Materials

- Computer/Projector
- Video or screenshots demonstrating Android phone setup (if possible, have an actual Android phone for demonstration)
- Handout summarising folder management steps

## Teaching Methodology

1. **Introduction**

   Ask students to read page 21 and then inquire how many students use Android phones. Explain to them that just like computers, phones also have operating systems and need organisation!'

2. **Android Setup Overview**

   Show the basic steps of setting up an Android phone (powering on, language selection, connecting to Wi-Fi, account setup). If possible, demonstrate on an actual phone.

3. **Folder Management**

   Explain the concept of folders on a phone – how they help organise apps and files. Show how to add and remove folders on an Android phone (this may vary slightly depending on the Android version, so focus on the general principles). You can show the students what you do on your phone by connecting it to a TV screen via Bluetooth/screencast.

4. **Wrap-up & Assessment**

   Summarise the key points about Android phone setup and folder management.

## Performance Indicators

Students can:

- describe the basic steps involved in setting up an Android phone.
- explain the general process of adding and removing folders on an Android phone.

## Lesson Plan 6

**Topics:** Themes and Widgets; Setting up a reminder

**Page numbers:** 22

## Core Competencies

- **Digital Literacy:** Exploring customisation options on Android phones.
- **Creativity and Innovation:** Personalising the phone interface using themes and widgets.
- **Organisation and Time Management:** Understanding and using reminders.

## Learning Outcomes

Students will be able to:

- explain the purpose of themes, widgets, and reminders on an Android phone.

## Materials

- Computer/Projector
- Screenshots or video demonstrating themes, widgets, and reminders on Android (if possible, an actual Android phone)

## Teaching Methodology

- **Introduction**

  Ask students to read page 22 and ask how we can personalise our phones and make them even more useful.

- **Themes**

  Explain what themes are (visual styles for the phone's interface). Show examples of different themes (if possible). Discuss how themes can change the look of the phone.
- **Widgets**

  Explain what widgets are (small interactive elements that display information or provide quick access to apps). Show examples of different widgets (clock, weather, calendar). Discuss how widgets can be helpful.
- **Reminders**

  Explain how reminders work and why they are useful for time management. Show how to set a reminder on an Android phone.
- **Wrap-up & Assessment**

  Review: Summarise the purpose of themes, widgets, and reminders. Students can do the exercise questions 1-2 and Application-based question activities on pages 23-24.

## Performance Indicators

Students can:

- explain what themes, widgets, and reminders are and give examples of each.
- describe how themes and widgets can be used to personalise a phone.
- understand the benefits of using reminders for organisation and time management.

## IN THE LAB

### Activity

Locate any two files on your computer; such as word file and a picture file. Compare how the properties differ for both the apps.

### Instructions

- Explain what file properties are and why they are important. Discuss how different file types have different properties.
- Show examples of file properties such as file size, type, date created, and date modified.
- Ask students to locate a Word file and a picture file on their computer. They can use the file explorer to navigate to the folders where these files are stored.
- Demonstrate how to view the properties of a file. Right-click on the file and select 'Properties' from the context menu.
- Have students view the properties of both the Word file and the picture file.
- Ask students to compare the properties of the two files. They should note differences in file size, type, date created, date modified, and any other relevant properties.
- Lead a class discussion on the differences between the properties of Word files and picture files. Ask students to share their observations and insights.

## APPLICATION BASED QUESTIONS

### Activity 1

You need to remember to do your homework every day at 4 p.m. How can you set up a reminder on your computer or phone?

### Instructions

- Explain the importance of setting reminders to help manage time and stay organised. Discuss different types of reminder and calendar apps available on computers and smartphones.
- Ask students to choose a reminder or calendar app on their device. Examples include Google Calendar, Microsoft Outlook, Apple Calendar, or built-in reminder apps.1
- Demonstrate how to set up a reminder in the chosen app. For example, in Google Calendar:
    a. Open the app and click on the '+' button to create a new event.
    b. Enter 'Do Homework' as the event title.
    c. Set the time to 4 p.m. and choose 'Daily' as the repeat option.
    d. Save the event.
- Have students follow the steps to set up their own reminder.
- Ask students to test their reminder by setting a temporary reminder for a few minutes later. This will help them confirm that the reminder works as expected.
- Lead a class discussion on the benefits of using reminders and how they can help with time management and organisation.

### Activity 2

You need to connect your computer to a Wi-Fi network. Which part of the settings menu should you look in?

### Instructions

- Demonstrate how to navigate to the Wi-Fi settings on a computer. For example, on Windows:
    a. Click on the 'Start' menu and select 'Settings.'
    b. Go to 'Network & Internet' and select 'Wi-Fi.'
- On macOS:
    a. Click on the Apple menu and select 'System Preferences.'
    b. Go to 'Network' and select 'Wi-Fi.'

- Show students how to connect to a Wi-Fi network. They should:
  a. Select the desired Wi-Fi network from the list of available networks.
  b. Enter the network password if required.
  c. Click 'Connect.'
- Have students follow the steps to connect their computer to a Wi-Fi network.
- Discuss common issues that may arise when connecting to Wi-Fi and how to troubleshoot them. For example, checking the network password, restarting the router, or ensuring the Wi-Fi adapter is enabled.
- Lead a class discussion on the importance of Wi-Fi connectivity and how it impacts daily activities such as browsing the Internet, streaming videos, and online learning.

## GROUP PROJECT

### Activity

Explore the Accessibility option in detail. Pick and choose any one setting and prepare a short report highlight the following:

What the options / features do

a. The benefits
b. How it can be used

### Instructions

- Ask students to explore the accessibility settings on their devices and choose one feature that interests them. Provide a list of common accessibility features to help guide their selection.
- Have students research their chosen accessibility feature in detail. They should look into what the feature does, its benefits, and how it can be used.
- Encourage students to use reliable sources such as official device manuals, accessibility websites, and educational videos.
- Guide students in Organising their research into a short report. The report should include the following sections:
  **a. Introduction:** Briefly introduce the chosen accessibility feature.
  **b. What the Feature Does:** Explain the functionality of the feature.
  **c. Benefits:** Describe the benefits of using the feature.
  **d. How It Can Be Used:** Provide examples of how the feature can be used in different scenarios.
- Allow students time to write their reports, offering assistance and feedback as needed. Encourage them to use clear and concise language.

- As students work, circulate the room and ask open-ended questions to deepen their understanding of the concept. For example:
  a. 'How does this feature improve accessibility for users?'
  b. 'What are some specific situations where this feature would be particularly useful?'
  c. 'How can you explain the importance of this feature to someone who might not be familiar with it?'
- Provide mini-lessons on specific skills as needed, such as citing sources or using word processing tools.
- Assess students' reports based on criteria such as clarity, accuracy, organisation, and understanding of the accessibility feature.

## Engagement Activities

### File vs. Folder Race

Provide students with a mix of physical cards representing files (e.g., images, documents) and folders (e.g., a folder for school subjects). Have a quick race to sort the cards into the correct categories of files or folders.

### Properties Exploration

Ask students to right-click on a sample file or folder on the computer and explore its properties. In pairs, have them share one interesting property they discovered with the class.

### Display Settings Challenge

Give students a scenario where they need to change the display settings for better visibility (e.g., increasing text size). Set a timer and see who can navigate to the display settings the fastest.

### Time and Date Setup

Present a digital clock showing the wrong time and date. Challenge students to work in pairs to correctly set the time and date on a sample device.

### Android Customisation Sprint

Provide a brief overview of widgets and themes on Android phones. Ask students to draw their ideal home screen layout using themes and widgets within 5 minutes.

### Would You Rather Questions

1. Would you rather have a computer that can only open files or one that can only have folders?
2. Would you rather use a magnifier tool or have a narrator read every file name to you?
3. Would you rather update your computer every day or only every month but with a longer update process?

### Applied Scenario-Based Question

If you needed to install a new game on your computer but you also had to uninstall an old one to make space, what steps would you take to do that?

### Riddles

1. I can hold many papers, but I'm not alive. I'm often colourful and sometimes a hive. What am I?

   **Answer:** A folder.
2. I am a group of data, a bundle of information, but on my own, I have no function. What am I?

   **Answer:** A file.
3. I keep the time, but I'm not a clock. I help you remember, but I'm not a rock. What am I?

   **Answer:** A reminder (widget).

# Answer for Exercise

## Multiple choice questions

1. Security
2. File size
3. Both Control Panel and Settings
4. Personalisation
5. System
6. Control Panel
7. Widget

## Answer the questions

a. Screen time is the amount of time you spend looking at a screen, like a computer, tablet, or TV. Students' response for their screentime will vary. Here are some ways to reduce screentime the answers can mention:

1. Play outside more.
2. Read books or do puzzles.
3. Spend time with family and friends without screens.

b. The answers will vary.

CHAPTER
3

# DIGITAL STORYTELLING

We all are fascinated by the art of storytelling. We love reading stories, sharing them with others and hearing about them as well.

Digital storytelling is another way of telling stories. Let's explore!

## Learning Objectives

Students will be able to:

- Understand the definition of digital storytelling and photo story.
- Identify tools for making digital stories.
- Comprehend the process of creating a digital story.
- Understand what the Internet is and its uses.

## Lesson Plan 1

**Topics:** Introduction to Digital Storytelling and Photostory

**Page number:** 25-26

## Core Competencies

- **Digital Literacy:** Developing foundational knowledge of digital storytelling concepts and tools. Understanding the basic steps involved in creating a digital narrative. Recognising the Internet as a resource for information and media.
- **Communication and Collaboration:** Share story ideas and participate in class discussions about digital storytelling and the Internet. Collaborate with a partner to choose a story idea.
- **Creativity and Innovation:** Brainstorming original story ideas and developing a basic storyboard to represent the narrative visually.
- **Critical Thinking and Problem Solving:** Analysing the elements of effective digital stories and evaluating the potential uses of the Internet for learning and communication.

## Materials

- Computer or tablet with Internet access
- Projector and screen
- Whiteboard and markers
- Digital storytelling software (e.g., Microsoft Photo Story, Adobe Spark)

## Teaching Methodologies

1. **Introduction**

   Introduce digital storytelling and photo stories using a short, animated video. Show examples of simple digital stories created by children. Discuss how these stories can be about their experiences, like a day at the park or a family trip.

2. **Brainstorming Session**

   Use a mind-mapping tool (e.g., MindMeister) to brainstorm ideas for digital stories. Encourage students to consider their favourite hobbies, pets, or family events. Use prompts like 'What is your favourite memory?' or 'Who is your hero?' to spark ideas.

3. **Storyboarding**

   Provide students with storyboard templates and guide them through creating a storyboard for their digital story. Use peer feedback sessions, where students share their storyboards and give constructive feedback. Emphasise the importance of planning and organising their ideas.

4. **Tools and Media Gathering**

   Demonstrate how to use digital storytelling tools and gather media. Use a scavenger hunt activity where students find images and sounds online to use in their stories. Teach them how to search safely and responsibly.

5. **Discussion: Internet and Its Uses**

   Facilitate a class discussion on the Internet's role in digital storytelling. You can even use interactive tools like Kahoot for a quick quiz on Internet safety and uses. Discuss how the Internet can help them learn new things, connect with friends, and find fun activities.

6. **Wrap-up**

   Review the key concepts. Students can be tasked with Activity 1 from In the Lab on page 36.

## Performance Targets

Students can:

- define digital storytelling and photo story.
- create a basic storyboard for a digital story.
- understand the basic uses of the Internet.

## Lesson Plan 2

**Topics**: Introduction to Google Workspace and Google Slides

**Page numbers:** 27-29

## Core Competencies

- **Digital Literacy:** Familiarise yourself with the Google Workspace environment and its applications. Learn the basic functions of Google Slides and its role in digital storytelling. Understand the importance of responsible online account usage and password safety.
- **Communication and Collaboration:** Sharing observations and insights about Google Workspace applications.

## Learning Outcomes

Students will be able to:

- Understand the components of Google Workspace.
- Learn how to use Google Slides for data management and digital storytelling.
- Know the steps to sign in to Google Slides.

## Materials

- Computer or tablet with Internet access
- Projector and screen
- Google Workspace account

## Teaching Methodologies

1. **Introduction to Google Workspace**

   Introduce Google Workspace as a 'digital toolbox' with many useful apps. Show the Google Workspace homepage through a projector or connecting your phone to the TV, or show images in the chapter. Help students navigate Google apps (Docs, Sheets, Slides, Drive). And tell them that 'We'll be using Google Slides, which is like a digital canvas for our stories.' Highlight its components and their uses with relatable examples, such as using Google Docs to write stories or Google Sheets to track chores.

2. **Google Slides for Digital Storytelling**

   Explain how Google Slides is perfect for digital storytelling. 'It lets us combine pictures, text, and sounds to create a movie-like experience.' Show a short example of a Google Slides presentation with images, text, and a simple transition. 'Just like we planned our story with a storyboard, we'll use Google Slides to bring it to life.' Allow students to discuss how they think they can use Google Slides to tell their stories.

3. **Signing in to Google Slides**

   Conduct a guided practice session where students sign in to Google Slides. Use the step-by-step screenshots on pages 28-29 for reference, for logging in. Ask students to demonstrate the sign-in process clearly, step by step. If using a shared account, explain why and emphasise responsible use. If students have accounts, guide them through the process. If accounts aren't available, focus on showing the interface after sign-in. 'Remember your username and password! Keep them safe like a secret code.''

4. **Exploring Google Slides**

   Use a jigsaw activity where students work in groups to explore different features of Google Slides. Each group presents their findings to the class using a simple, fun presentation, for example, one group can explore how to add images, another how to add text, etc.

5. **Wrap-up**

   Review the purpose of Google Workspace and Google Slides. Ask: 'Why do we use Google Slides for digital storytelling? What's the first thing you must do to use Google Slides?' Students answer the teacher's questions and summarise the key information. Ask students to do Activity 1 from Group Project and Activity 2 from In the Lab on page 36.

## Performance Targets

Students can:

- sign in to Google Slides independently.
- navigate Google Slides and understand its basic functions.

## Lesson Plan 3

**Topics:**Storytelling tools

**Page number:**29-32

## Core Competencies

- **Digital Literacy:** Developing practical skills using Google Slides to create digital stories. Mastering the techniques for adding text, images, transitions, and audio. Exploring and utilising pre-designed templates.
- **Creativity and Innovation:** Experimenting with different design elements (text, images, transitions, audio) to enhance the narrative and create a visually appealing presentation

## Learning Outcomes

Students will be able to:

- learn the steps to use Google Slides.
- understand how to add text, images, transitions, audio, and templates in Google Slides.

## Materials

- Computer or tablet with Internet access
- Projector and screen
- Google Slides account

## Teaching Methodologies

1. **Adding Text and Images**

   Read pages 29-32 and demonstrate each step clearly and slowly in the lab or through the projector. Use a live demonstration to introduce the features of Google Slides. Show a completed example to inspire students, such as a digital story about a class pet.

   You can also walk students through the screenshots from the topic. Tell them, 'First, we click on the text box icon… then we type our words… To add a picture, we click on the image icon… we can choose a picture from our computer or search online.' Use visual cues and highlight the icons being used.

2. **Transitions**

   Show how to access the transition menu. 'Transitions are like special effects between slides. Let's see what they look like!' Demonstrate a few different transitions. 'Now, choose one you like for your slide. Don't use too many different transitions, or it can be distracting.'

3. **Audio**

   Show how to insert an audio file. 'Sound can make our stories more engaging! But remember, we need to be careful about using music that belongs to someone else. We can use royalty-free music or sound effects.' Students can add a sound effect or short music clip to their practice slide (using provided royalty-free audio or focusing on placement and volume control).

4. **Templates**

   Show how to browse and apply templates. 'Templates are like pre-made designs. They can save us time!' Point out the different sections of a template. 'You can still change the text and images in a template.'

5. **Wrap-up**

   Ask students to attempt Activity 2 from Group Project on page 36.

## Performance Targets

Students can:

- create a presentation with text, images, transitions, audio, and templates.
- Students can navigate and use the features of Google Slides confidently.

## Lesson Plan 4

**Topics:** Collaborating and Sharing in Google Slides

**Page numbers:** 33-34

## Core Competencies

- **Digital Literacy:** Understanding the collaborative features of Google Slides and learning how to share presentations with different permission levels. Recognising the importance of online safety and responsible sharing practices.
- **Communication and Collaboration:** Discussing the benefits of collaborative work. Effectively sharing presentations and working together on a shared document.

## Learning Outcomes

Students will be able to:

- Understand how to collaborate and share presentations in Google Slides.

## Materials

- Computer or tablet with Internet access
- Projector and screen
- Google Slides account

## Teaching Methodologies

- **Introduction**

  Explain the importance of collaboration and sharing in digital projects. Use real-life examples to illustrate the benefits, such as working together on a group project or sharing a story with family members.

- **Sharing and Collaborating**

  Demonstrate how to share a Google Slides presentation and collaborate in real time. Use role-playing to simulate collaboration scenarios. For example, one student can be the editor and another the illustrator, working together to create a story.

- **Group Activity**

  Students work in pairs or small groups to create and share a presentation. Use a rubric to assess collaboration and presentation skills. Encourage students to communicate clearly and listen to each other's ideas. Provide examples of positive teamwork, such as taking turns and respecting each other's contributions.

- **Wrap it**

  Ask students to summarise the steps for collaboration and attempt Question 1 and 2 from Exercise on pages 34-35.

## Performance Targets

Students can:

- share their presentations with others.
- collaborate effectively using Google Slides.

## APPLICATION BASED QUESTIONS

### Activity

What are some things you need to consider when choosing a theme for your digital story?

### Instructions

- Briefly review the importance of choosing a good theme for a digital story.
- Highlight key factors to consider when selecting a theme.
- Instruct students to brainstorm potential themes for their digital story.
- Encourage them to write down their ideas in their notebooks.
- Guide students time to think about their target audience.
- Ask them to consider what themes would interest and engage their audience.
- Have students determine the main message or lesson they want to convey through their story.
- Ensure their chosen theme aligns with this purpose.
- Encourage students to select a theme they are passionate about.
- Discuss how personal interest can make the storytelling process more enjoyable and authentic.
- Instruct students to consider the availability of resources such as images, videos, and music that support their theme.
- Guide them to choose a theme that they can effectively illustrate with available resources.
- Have students evaluate the relevance of their theme to their audience and the context in which the story will be shared.
- Encourage students to choose a theme that allows for creativity and imagination.
- Discuss how a creative theme can make their digital story more engaging and memorable.
- Guide students to ensure their theme is appropriate for their skill level and the time available.
- Advise them to avoid overly complex themes that might be difficult to execute.
- Ask students to think about the emotional response they want to evoke in their audience.
- Encourage them to choose a theme that can create a strong emotional connection.
- Review each student's chosen theme to ensure it meets the criteria discussed.
- Provide constructive feedback and suggestions for improvement.

## GROUP PROJECT

### Activity 1

Work in groups to come up with an interesting story idea. One member of the group can write the story, while the other can search for pictures. Then switch roles and combine your ideas and materials gathered and create an interesting digital story.

### Instructions

- Divide students into small groups.
- Instruct groups to brainstorm and come up with an interesting story idea.
- Encourage them to write down their ideas in their notebooks.
- Assign one member of each group to write the story.
- Assign the other member to search for pictures that complement the story.
- The designated writer begins drafting the story, focusing on creating a clear and engaging narrative.
- Encourage the writer to consider the story's structure, including the beginning, middle, and end.
- The designated image searcher looks for pictures that match the story's theme and content.
- Ensure they use appropriate online resources and select high-quality images.
- After a set amount of time, have the group members switch roles.
- The new writer continues or revises the story, while the new image searcher finds additional pictures.
- Guide groups to combine their written content and images.
- Use the digital storytelling software to create a cohesive digital story.
- Encourage them to add effects, text, and sound to enhance the story.
- Review each group's digital story to ensure it is engaging and well-combined.
- Provide constructive feedback on their writing, image selection, and overall presentation.

### Activity 2

Create a unique character to feature in a digital story. Brainstorm about what the character looks like, sounds like, and what kind of personality it has. Think about how the character can be brought to life in a digital story.

### Instructions

- Instruct students to open the drawing software on their computers.
- Guide students to insert the grid template into the drawing software.
- Ensure the grid is visible and properly aligned on the screen.

- Students should plan where to place the cat on the grid so that it appears at the center of the photograph.
- Using the drawing tools, students draw the cat on the grid.
- Encourage them to use the grid lines to help with proportions and placement.
- Suggest starting with basic shapes and then adding details.
- Students add details to their cat drawing, such as eyes, whiskers, and fur patterns.
- Use the color tools to make the drawing more realistic and visually appealing.
- Evaluate each student's drawing based on their ability to center the cat on the grid and the overall quality of the drawing.

## IN THE LAB

### Activity 1

Create a digital story that explores the theme of adventure. You can use images, text, and other multimedia elements to bring the story to life.

### Instructions

- Ask students to brainstorm ideas for their adventure story. Encourage them to think about different types of adventures (e.g., exploring a new place, a journey with friends, a quest for treasure).
- Have students share their ideas with the class and provide feedback to help them refine their stories.
- Provide students with a storyboard template to plan their story. The storyboard should include sections for the beginning, middle, and end of the story, as well as notes on the images and multimedia elements they will use.
- Guide students through the process of outlining their story, emphasising the importance of a clear narrative structure.
- Demonstrate how to use the chosen digital storytelling software or app. Show students how to add text, images, and multimedia elements to their stories.
- Allow students time to work on their digital stories, offering assistance and feedback as needed. Encourage them to be creative and experiment with different multimedia elements.
- As students work, circulate the room and ask open-ended questions to deepen their understanding of the concept. For example:
  a. 'How does this image help tell your story?'
  b. 'What sound effects could you add to make this part of the story more exciting?'
  c. 'How can you use text to enhance the mood of your story?'

- Provide mini-lessons on specific skills as needed, such as finding and citing royalty-free images or adding transitions between slides.
- Once students have completed their digital stories, have them present their work to the class using a projector or smartboard.

## Activity 2

Work in groups to create a digital project together. Choose a topic that interests you and then brainstorm ideas for your project. Use Google Slides to collaborate on the project and share ideas with each other.

## Instructions

- Divide the class into small groups of 3-4 students. Ensure that each group has a mix of skills and abilities.
- Ask each group to choose a topic that interests them. Encourage them to think about subjects they are passionate about or curious to learn more about.
- Have each group brainstorm ideas for their project. Encourage them to think about different aspects of their topic and how they can present it creatively.
- Provide brainstorming templates or mind maps to help organise their ideas.
- Guide students in creating an outline for their project. This should include sections for introduction, main content, and conclusion, as well as notes on images and multimedia elements they will use.
- Review each group's outline to ensure it has a clear structure and includes multimedia elements.
- Demonstrate how to use Google Slides for collaboration. Show students how to share their slides with group members, add text, images, and multimedia elements, and leave comments for each other.
- Allow students time to work on their projects, offering assistance and feedback as needed.
- As students work, circulate the room and ask open-ended questions to deepen their understanding of the concept. For example:
    a. 'How does this slide contribute to your overall project?'
    b. 'What images or videos could you add to make this part of the project more engaging?'
    c. 'How can you use text to clearly convey your message?'
- Provide mini-lessons on specific skills as needed, such as finding and citing royalty-free images or adding transitions between slides.

## Engagement Activities

### Digital Storytelling Definition Match

Provide students with a set of cards: one set with definitions of digital storytelling and photostory, and another set with examples. Have students match definitions to the correct examples in pairs.

### Quick Brainstorming Session

Give students a prompt related to their favourite story or movie. Set a timer for 2 minutes and ask them to write down as many ideas as they can for a digital story based on that prompt.

### Photo Scavenger Hunt

Show students a list of different types of images they might use in their stories (e.g., animals, nature, family). Allow them 5 minutes to find and take pictures with a device (if available) or draw quick sketches of the items on the list.

### Google Slides Tour

- Give a brief overview of Google Slides using a sample slide deck.
- Highlight key features like adding images and transitions.
- Allow students to explore the interface for a few minutes.

### Transition Demonstration

Show students two slides in a Google Slides presentation, one with a simple transition and another with a more dynamic one. Have them vote on which transition they prefer and discuss why they think it enhances the storytelling.

### Would You Rather Questions

1. Would you rather create a digital story about your favourite animal or your favourite vacation?
2. Would you rather use photos from the Internet or your own pictures to tell a story?
3. Would you rather add music or narration to your digital story?

### Deep Question

How can digital storytelling change the way we share our experiences with others?

### Applied Scenario-Based Question

Imagine you want to tell the story of a day at the park. What steps would you take to gather your images and organise them in Google Slides?

### Riddles

1. I can tell a story, but I am not a book. What am I?
   **Answer:** A digital presentation.

2. I can hold memories and bring them to life, but I'm not alive. What am I?
   **Answer:** A photo.
3. You can find me on the Internet; I help you gather and share. What am I?
   **Answer:** Google Workspace.

## Answer for Exercise

### Multiple choice questions

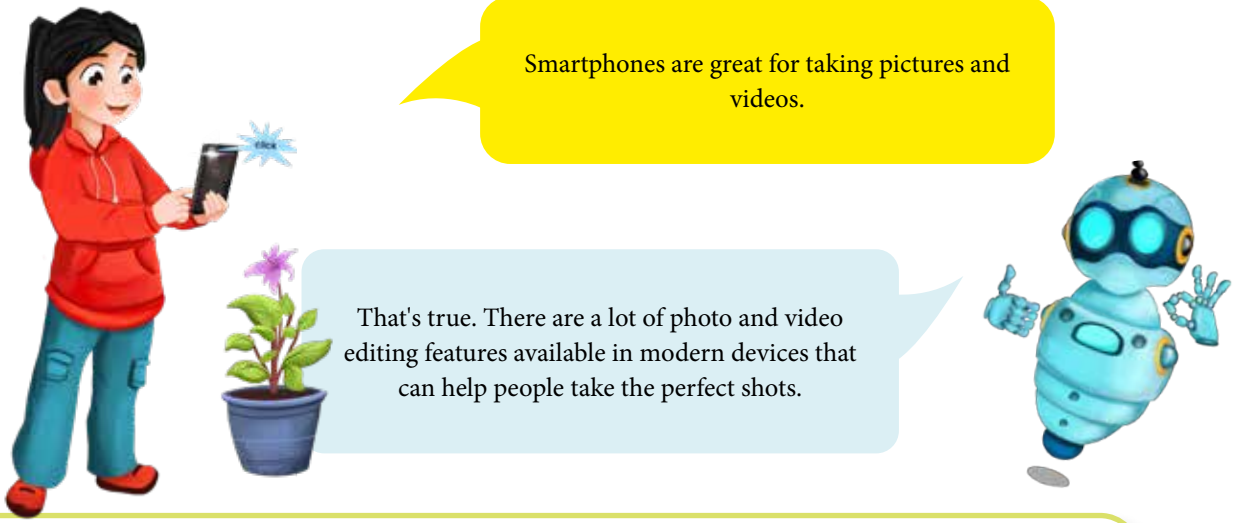
a. Digital storytelling
b. Storyboards
c. Colour palette
d. Yes
e. Cover page

### Answer the questions

a. Digital storytelling is using computers and other digital tools to tell stories with pictures, sounds, and videos.
b. Digital storytelling helps us share our stories in a fun and interesting way. It can show pictures, play sounds, and even have videos to make the story come alive.
c. Steps involved in the process of digital storytelling?
1. Plan your story: Think about what you want to say.
2. Gather materials: Collect pictures, sounds, and videos.
3. Create your story: Use a computer to put everything together.
4. Edit and revise: Make changes to improve your story.
5. Share your story: Show it to others.
d. Multimedia means using different types of media together, like text, pictures, sounds, and videos. A video with music, a slideshow with pictures and text, or a website with animations.
e. Steps to share a story made on Google Slides:
1. Open Google Slides: Go to your story.
2. Click on 'Share': It's a button at the top right.
3. Enter email addresses: Type the emails of people you want to share with.
4. Set permissions: Choose if they can view, comment, or edit.
5. Click 'Send': Your story will be shared.
f. Digital story uses pictures, sounds, and videos to tell the story. You can use a computer to create it. A traditional story is written with words on paper. You use a pen or pencil to write it.

CHAPTER 4

# MASTERING MULTIMEDIA: PHOTOS AND VIDEOS




## Learning Objectives

Students will be able to:

- Identify different types of cameras used in the modern age.
- Understand the basics of smartphone cameras and pixels.
- Learn how to use a smartphone camera, including the use of grids.

## Lesson Plan 1

**Topics:** Camera Types and Smartphone Photography

**Page number:** 37-38

## Core Competencies

- **Digital Literacy**: Understanding and using digital devices and tools.
- **Technical Skills**: Operating camera functions and features.
- **Creativity**: Using cameras to create visually appealing images.
- **Communication**: Sharing and discussing ideas and photos.

## Materials

- Smartphones or tablets with cameras
- Projector and screen
- Printed images showing different types of cameras (DSLR, smartphone, action cameras, etc.)
- Whiteboard and markers

## Teaching Methodologies

1. **Introduction**

   Start by asking students about their favourite photos they've taken with their phones. 'What made you want to capture that moment? What did you try to show in the picture?' Discuss why phone cameras are so popular – easy to carry, always available.

   Read page 37 and use a multimedia presentation to introduce different types of cameras. Show images and videos of DSLR, smartphones, and action cameras. Discuss their uses in everyday life and professional settings. Use the Flipped Classroom method by assigning a video on camera type for homework, which students discuss in class.

   Students can share their experiences with phone photography and discuss why they think phone cameras are so commonly used.

2. **Camera Types**

   Refer to the illustrations of images of different camera types on page 37. Show and explain the different images from types of cameras to explain their uses; for example, professional photographers use a DSLR camera. Smartphone cameras are small and we all have them in our pockets. Emphasise the smartphone camera's versatility and accessibility. Help students vocalise the names of different camera types and state their advantages and disadvantages.

3. **Pixels**

   Explain what pixels are using a visual analogy. 'Imagine a giant wall made of tiny, coloured tiles. Each tile is a pixel. Our phone cameras capture images by recording the colour of each tiny square. More pixels usually mean a clearer, more detailed picture, like having more tiles to create a more beautiful mosaic. Show examples of images with different pixel counts (zoomed in to show pixelation). Mention that when you zoom in too much, you can see the individual pixels, and the picture gets blurry. Students can examine digital images at different zoom levels and observe the effect of pixelation.

4. **Smartphone Camera Basics & Grids**

   Provide students with smartphones or tablets. Let them explore the camera features. Guide them to find the grid option and explain how it helps compose photos. Use the Inquiry-Based Learning approach by asking students to investigate how different camera features affect their photos. Allow students to use different types of cameras (DSLR, smartphone, iPhone, tablet, etc.) and experiment using the grid feature to improve composition. Ask them to take a photo of a plant or anything with the main subject in the center.

5. **Wrap-up**

   Review the camera types, pixels, and the importance of grids. Describe a camera to them and ask them to identify which type of camera was taken to click it. Ask them how grids could make it better. Ask students to answer question 2a and 2b from exercise on page 42.

## Performance Targets

Students can:

- identify different types of cameras.
- understand the concept of pixels.
- use the grid feature on a smartphone camera to take photos.

## Lesson Plan 2

**Topics:** Editing Pictures and Changing filters

**Page number:** 38-39

## Core Competencies

- **Digital Literacy**: Using digital tools for photo editing.
- **Creativity**: Enhancing photos through editing.
- **Technical Skills**: Operating photo editing software.

## Learning Outcomes

Students will be able to:

- Learn how to crop and rotate images using phone and online tools.
- Understand how to apply filters to images.

## Materials

- Smartphones or tablets with photo editing apps
- Projector and screen
- Sample images for editing

## Teaching Methodologies

1. **Introduction**

   Read pages 38 and 39 and ask students if they have ever used a photo-editing app. Show a before-and-after example of an edited photo. Discuss the basic editing tools available on smartphones. Use Visual Aids to make the concepts clear. Tell them we can use editing tools to change the size, make the colours brighter, or add cool effects to images and videos. It's like being a digital artist.

2. **Cropping and Rotating**

   Demonstrate how to crop and rotate images using the chosen editing tool. Tell them that cropping is like trimming the edges of a photo to focus on what's important. Imagine you took a picture of your pet, but there's a lot of clutter in the background. Cropping lets you remove the clutter and make your pet the star! Rotating helps us fix tilted photos. Sometimes we accidentally hold our phones the wrong way.

   Demonstrate how to crop and rotate images using a photo editing app. Use a step-by-step approach and project the process on the screen. Apply the Guided Practice method, where students follow along on their devices.

3. **Applying Filters**

   Show how to apply different filters to images. Explain how filters can change the mood and tone of a photo. Use Collaborative Learning by having students work in pairs to explore different filters. Tell them that filters are like magic lenses that can change the mood of a photo. Some make it look old and vintage; others make the colours bright and vibrant! It's like adding a special effect to your photo. Discuss the different effects of filters (black and white, sepia, vibrant colours). 'Think about what feeling you want to create with your photo. A black and white filter can make a photo look dramatic, while a bright filter can make it look cheerful.'

4. **Guided Practice**

   Provide additional editing challenges. You can ask them:

   a. Can you crop this photo to make it a portrait (tall and skinny)?

   b. Can you rotate this image so the horizon is perfectly straight?

   c. How does any editing tool allow colour adjustments (brightness, contrast)?

5. **Wrap-up**

   Review the editing tools covered in the lesson. 'Let's play a game! I'll describe a photo, and you tell me which editing tools you would use to make it look even better.' Ask students to do the Application-based question activity on page 43.

## Performance Targets

Students can:

- crop and rotate images using a photo editing app.
- apply filters to images and understand their effects.

## Lesson Plan 3

**Topics:** Exploring Metadata

**Page number:** 40

## Core Competencies

- **Digital Literacy**: Understanding and using metadata.
- **Technical Skills**: Accessing and interpreting metadata.
- **Critical Thinking**: Analysing the information provided by metadata.

## Learning Outcomes

Students will be able to:

- Understand what metadata is for images in a smartphone.
- Learn how to access metadata for images.

## Materials

- Smartphones or tablets
- Projector and screen
- Sample images with metadata

## Teaching Methodologies

1. **Introduction**

   Read page 40 and explain metadata using a simple analogy, such as comparing it to a label on a jar that tells you what's inside. Show examples of metadata for images. Use storytelling to make the concept relatable. Explain that metadata is like a digital label attached to a photo. It tells us things like the date and time the photo was taken, the camera settings used, and even the location where the photo was taken if your phone's location services are turned on. It's like a library card for a photo. It helps us organise our photos and find them easily. Relate it to a library catalogue entry for a book.

2. **Accessing Metadata**

   Every phone is a little different, but usually, you can find the metadata by opening the photo and then looking for a menu option that says 'Details,' 'Properties,' or 'Info.' Show them how to find the date, time, file size, and other information.

3. **Metadata Exploration**

   Provide students with sample images or just refer to the illustration of page 40 and ask them to describe the information on the metadata. Use a Scavenger Hunt activity where students look for specific information in the metadata, such as the date the photo was taken or the camera settings used.

4. **Discussion**

   Discuss the importance of metadata and its usefulness, such as organising photos or understanding how a photo was taken. Use Group Discussion to encourage the sharing of ideas and experiences. Encourage them to think about real-life scenarios: How could metadata help you find a specific photo quickly? How could it help a photographer organise their photos?

5. **Wrap-up**

   Review what metadata is and make students summarise the key concepts of the lesson. Students can be asked to answer question 2c and do In the lab activity on page 42.

## Performance Targets

Students can:

- explain what metadata is and give examples of the types of information it contains.
- access metadata for images on a smartphone and locate specific information (date, time, file size, etc.).
- explain at least three ways that metadata can be useful for organising and managing photos.

## Lesson Plan 4

**Topics:** Using a smartphone to make a video

**Page number:** 40-41

## Core Competencies

- **Digital Literacy**: Recording and editing videos.
- **Technical Skills**: Operating video recording features.
- **Creativity**: Creating engaging video content.
- **Communication**: Sharing and discussing video projects.

## Learning Outcomes

Students will be able to:

- record video using a smartphone.
- explain the difference between portrait and landscape video orientations.
- identify appropriate uses for portrait and landscape video orientations.

## Materials

- Computer/Projector
- Smartphone (for demonstration)
- Examples of portrait and landscape videos

## Teaching Methodologies

1. **Introduction**

   Ask students how many of them have ever recorded a video with their phone. Phone videos are a great way to capture memories and tell stories. Show examples of videos recorded in portrait and landscape orientations. Discuss the differences and when to use each orientation. Use Multimedia Presentations to illustrate the concepts.

2. **Recording Video**

   Demonstrate how to record a video using a smartphone. Show the steps on the screen and guide students through the process. Use Modelling to provide a clear example. It's as easy as taking a photo, but instead of tapping the photo button, we tap the video button. Make sure your phone is steady, so the video doesn't shake too much. Discuss basic video recording tips (good lighting, clear sound).

3. **Orientation Practice**

   Students practice recording videos in both portrait and landscape orientations. Use a Role-Play activity where students act as news reporters or filmmakers, choosing the best orientation for their video. Provide scenarios like reporting on a school event or making a short film.

4. **Portrait and Landscape**

   Explain the difference between portrait (vertical) and landscape (horizontal) video orientations. Portrait is when you hold your phone tall and skinny, like a portrait painting. Landscape is when you hold it wide, like a landscape painting. Show examples of both types of videos. Portrait videos are great for things like showing a person talking, while landscape videos are better for showing a wide scene, like a group of people or a beautiful view.

5. **Hands-on Practice**

   Students create a short video about a topic of their choice, using both orientations. Use a Showcase activity where students present their videos to the class and discuss their choices. Encourage peer feedback and discussion.

6. **Discussion**

   Discuss the appropriate uses for portrait and landscape videos. Tell them that if they're recording a video of someone talking portrait is usually best. If they're recording a video of a wide scene, like a sporting event or a concert, landscape is usually better.

7. **Wrap-up**

   Review how to record videos and the difference between portrait and landscape orientations. Ask what's the difference between tapping the photo button and the video button? When should we use portrait video? When should we use landscape video? Ask students to answer question 1 of the exercise on page 42 and the Group Project activity on page 43.

## Performance Targets

Students can:

- record a video using a smartphone.
- explain the difference between portrait and landscape video orientations.
- identify appropriate uses for portrait and landscape video orientations.

## IN THE LAB

### Activity

Design a balanced scrapbook. Select a few photos you want to include and improve the layout of the scrapbook using cropping and rotating techniques.

### Instructions

- Instruct students to open the photo editing software on their computers.
- Guide students to select a few photos they want to include in their scrapbook.
- Encourage them to choose photos that represent different aspects of their theme.
- Have students insert the selected photos into the digital scrapbook template.
- Ensure the photos are placed in a way that creates a balanced layout.
- Show students how to use the cropping tool to remove unwanted parts of the photos.
- Ask students to demonstrate how to use the rotating tool to adjust the orientation of the photos. Encourage students to experiment with different angles to enhance the layout.
- Guide students to arrange the cropped and rotated photos in the scrapbook.
- Review each student's scrapbook layout to ensure it is balanced and visually appealing.


## APPLICATION BASED QUESTIONS

### Activity

Ayla wanted to take a picture of a cute cat that she saw. Use the gven grid to draw a cat where the cat should be so that it appears at the center of the photograph.

### Instructions

- Instruct students to open the drawing software on their computers.
- Guide students to insert the grid template into the drawing software.
- Ensure the grid is visible and properly aligned on the screen.
- Students should plan where to place the cat on the grid so that it appears at the center of the photograph.
- Discuss the importance of symmetry and balance in the drawing.
- Using the drawing tools, make sure students draw the cat on the grid on page 43.
- Encourage them to use the grid lines to help with proportions and placement.
- Suggest starting with basic shapes and then adding details.

- Ask students to add details to their cat drawing, such as eyes, whiskers, and fur patterns.
- Use the colour tools to make the drawing more realistic and visually appealing.
- Evaluate each student's drawing based on their ability to center the cat on the grid and the overall quality of the drawing.
- Offer additional support and resources for students who need further assistance.

## GROUP PROJECT

### Activity

In small groups, take a series of photos or make a short video around the theme 'School life'. Use multimedia software to edit your photos and videos. Add effects, text, and sound. Present your multimedia content to the class. Explain your theme, process, and challenges. Discuss your experience and evaluate how these skills can be applied in the future.

### Instructions

- Divide students into small groups.
- Each group discusses and plans their approach to the theme 'School Life.'
- Decide on the specific aspects of school life to capture (e.g., classrooms, playground, events).
- Groups take a series of photos or record a short video around the theme.
- Encourage creativity and variety in their shots.
- Use multimedia software to edit the photos and videos.
- Add effects, text, and sound to enhance the content.
- Ensure each group member contributes to the editing process.
- Groups prepare to present their multimedia content to the class.
- Include explanations of their theme, process, and challenges faced.
- Each group can presents their multimedia content.
- Evaluate each group's performance based on their creativity, technical skills, and presentation.
- Offer additional support and resources for students who need further assistance.

## Engagement Activities

### Editing Challenge

Show two images: one unedited and one edited. In pairs, let students discuss what changes they notice and how those changes affect the image.

### Filter Fun

Provide a selection of filter examples (printed or on a screen). Ask students to choose a filter they would like to use and explain why they chose it.

### Quick Video Tips

Share one or two quick tips for taking videos (e.g., holding the camera steady, keeping the subject in focus). Have students practice holding their imaginary cameras and pretending to record a short clip.

### Would You Rather Questions

1. Would you rather take a picture of a beautiful sunset or a fun group of friends?
2. Would you rather use a filter that makes everything look colourful or a filter that makes everything look black and white?
3. Would you rather record a video of a funny pet or a beautiful nature scene?

### Deep Question

How do you think the way we take pictures can change how we see the world around us?

### Riddles

1. I have a lens but cannot see, I capture moments, just like thee. What am I?
   **Answer:** A camera
2. I can be square or rectangular, but I can't hold any shape. I help you focus on what's great. What am I?
   **Answer:** A camera grid
3. I help you share your story in a flash, but I'm not a book or a cash. What am I?
   **Answer:** A photo or video

## Answer for Exercise

### True or False statements

a. False
b. True
c. True
d. False
e. True

### 2. Answer the questions

a. Pixels are the tiny dots that make up a digital image on a screen. The more pixels an image has, the clearer and more detailed it looks.

b. Grids on a phone camera help you compose your photos better. They divide the screen into sections, usually with two horizontal and two vertical lines. This helps you align elements in your photo and achieve balance, making your pictures look more professional.

c. Metadata is information about a digital file, like a photo or video. It includes details such as the date and time the photo was taken, the camera settings used, and the location. Metadata can be used to organise and find your files easily, and it helps you understand how a photo or video was created.

CHAPTER 5

# JUMPSTART TO GOOGLE DOCS

Is there a way for many people to view and edit a document at the same time?

Google Docs is a collaborative online application that allows you to create, edit, store, and share documents on the Internet.

## Learning Objectives

Students will be able to:

- identify online processing tools from Microsoft and Google.
- to explain the uses of Google Drive.
- access and navigate Google Drive.
- create new documents and open existing ones in Google Docs.
- access and use templates in Google Docs.

## Lesson Plan 1

**Topics:** Introduction to Online Processing Tools and Google Drive

**Page numbers:** 44-47

## Core competencies

- **Digital Literacy:** Understanding the concept of online processing tools and their advantages. Learning to navigate and utilise Google Drive for file management and access to Google Workspace apps.
- **Communication and Collaboration:** Discussing the benefits of online collaboration and file sharing.
- **Critical Thinking and Problem Solving:** Comparing and contrasting online and offline processing tools.

## Materials

- Computer/Projector
- Internet access
- Google Drive account (teacher account for demonstration, student accounts if available)
- Handout with Google Drive interface elements labelled

## Teaching Methodologies

1. **Introduction**

   Begin by asking students about their experiences sharing school projects. Ask, 'Have you ever worked on a group project where you needed to combine everyone's work into one document? What were the challenges? Did you email files back and forth? Did anyone lose their work? Did you have trouble keeping track of the latest version?' Explain that online processing tools and cloud storage like Google Drive can solve these problems. Students can share their experiences and discuss the challenges of traditional file sharing.

2. **Online Processing Tools**

   Introduce the concept of online processing tools. 'These are programs we use on the Internet, just like apps on your phone, but for creating documents, presentations, and spreadsheets. Microsoft and Google both offer online versions of their popular software.' Display the interfaces of Microsoft Office Online and Google Workspace side-by-side. 'Notice how they look like the programs you might use at home or in the library. Google Workspace is what we'll be using in class. It's free, easy to use, and great for collaborating with others.

3. **Google Drive**

   Introduce Google Drive using the analogy of a digital filing cabinet. 'Google Drive is like a special online folder where you can keep all your files safe and organised. Think of it as your personal space on the Internet where you can store your homework, projects, and even photos and videos! You can access it from any computer, tablet, or even your phone, as long as you have Internet access.' Demonstrate how to create folders ('Just like you organise your schoolwork into different folders for each subject'), upload files ('Imagine uploading a picture you took on your phone to your Drive so you can work on it later'), and share files ('You can share a file with a friend so you can work on it together'). Use the handout to explain the different parts of the Drive interface (My Drive, Shared with me, Recent, etc.).

4. **Activity**

   Students can practice navigating Google Drive, creating folders (e.g., Math, Science, Art), and uploading sample files (provided by the teacher or created by the students).

5. **Google Docs Basics**

   Show how to create a new Google Doc. 'Click on the 'New' button, then choose 'Google Docs.' It's just like opening a new document in Word. Now, let's open an existing document. Click on 'My Drive' and then double-click on the file you want to open.' Explain the use of templates. Templates are like pre-made documents. They have a design and some sample text already in place, so one can just fill in the blanks. It's a great way to save time and make documents look professional. You can show accessing and using a template for a simple letter.

6. **Wrap-up**

   Review the key concepts. Ask: 'What are the benefits of using online processing tools? What is Google Drive and how do we use it? What are templates and why are they helpful?''

## Performance Targets

Students can:

- identify online processing tools from Microsoft and Google.
- explain the uses of Google Drive and navigate its interface.
- create new documents and open existing ones in Google Docs.
- use templates to create documents in Google Docs.

## Lesson Plan 2

**Topic:** Working with Text in Google Docs

**Page Numbers:** 47-50

## Core Competencies

- **Digital Literacy:** Developing skills in text manipulation within Google Docs, including inserting, selecting, spell-checking, and using find and replace.
- **Communication and Collaboration**: Discussing effective writing strategies and the importance of proofreading.
- **Critical Thinking and Problem Solving:** Applying problem-solving skills to correct spelling errors and efficiently locate and modify text using find and replace.

## Learning Outcomes

Students will be able to:

- insert and select text in Google Docs.
- use spell check in Google Docs.
- find and replace feature in Google Docs.
- shortcut keys for common tasks in Google Docs.

## Materials

- Computer/Projector
- Internet access
- Google Docs (shared account or student accounts)
- Handout with common shortcut keys for Google Docs

## Teaching Methodologies

1. **Inserting and Selecting Text**

   Read and walk through screenshots of pages 47-50. Demonstrate inserting text by typing. Show how to select text using the mouse (click and drag) and keyboard shortcuts (Shift + arrow keys).

Tell them, 'Selecting text is important because it lets us change how the text looks. We can make it bigger, change the colour, or make it bold.' Give them specific instructions: Type your name at the top of the document. Select the name and make it bold. Select the rest of the text and change the font to Arial.

2. **Similarities and Differences between Docs and Word**

   Discuss the similarities and differences between Google Docs and Microsoft Word. Tell them to 'Think of Google Docs and Word as two different brands of cars. They have steering wheels, pedals, and seats, but they might look slightly different inside. Google Docs is designed to be used online, which makes it great for sharing and working together. MS Word is often used offline but also has online features. Compare the toolbars in both programs. Can you find the 'bold' button in both programs? What about the 'font' menu?

3. **Spell Check**

   Show how to use spell check. 'Spell check is like having a helpful friend who reads over your shoulder and points out any spelling mistakes. It underlines misspelt words in red. Right-click on the word to see suggestions. You can choose the correct spelling, ignore the suggestion, or add the word to the dictionary if it's a word spell check doesn't recognise (like a name).

4. **Find and Replace**

   Demonstrate the find and replace feature. 'Imagine you wrote a story about a cat named 'Fluffy,' but you decide you want the cat's name to be Snow.' Find and replace feature can change all the instances of 'Fluffy' to 'Max' in just a few clicks! You can also use it to find a specific word or phrase in a long document. Students can practice using find and replace to modify text in their documents. Give them specific scenarios: Replace all instances of the word 'happy' with 'joyful.' Find all the places where you used the word 'big' and replace it with 'large.'

5. **Shortcut Keys**

   Introduce a few essential shortcut keys (Ctrl+C for copy, Ctrl+V for paste, Ctrl+Z for undo). Tell them that shortcut keys are like secret codes that let you do things much faster. Instead of clicking on the menu, you can press these keys. Ctrl+C copies selected text, Ctrl+V pastes it, and Ctrl+Z undoes your last action.' Provide the handout with shortcut keys. 'Let's practice these shortcuts. Select your name, press Ctrl+C to copy it, then press Ctrl+V to paste it a few times.

6. **Wrap-up**

   Review the text customisation tools.

## Performance Targets

Students can insert, select, and edit text using basic features.

## Lesson Plan 3

**Topic:** Text Formatting Tools; Text Alignment

**Page Numbers:** 51-54

## Core Competencies

- **Digital Literacy:** Mastering text formatting tools in Google Docs to enhance document readability and visual appeal. Understanding the impact of different formatting choices on the overall message.

- **Creativity and Innovation:** Experimenting with various formatting options to express ideas effectively and create visually engaging documents.
- **Communication and Collaboration:** Discussing the importance of clear and consistent formatting in written communication.

## Learning Outcomes

Students will be able to:

- use text formatting tools (font, size, colour, bold, italics, underline).
- align text (left, centre, right, justify).

## Materials

- Computer/Projector
- Internet access
- Google Docs (shared account or student accounts)
- Handout with examples of different text formatting styles

## Teaching Methodologies

1. **Introduction**

   Show students examples of text formatted in different ways (e.g., a formal letter vs. a casual email, a poem vs. a news article). 'Notice how the way the text looks change the feeling of the message. Think about a time you received a letter or email that was hard to read because of the formatting. Good formatting makes our writing clear and easy to understand. Students discuss the impact of different text formatting styles and share examples of good and bad formatting they have encountered.

2. **Text Formatting Tools**

   Demonstrate each formatting tool clearly. 'Let's start with fonts. We can choose different fonts to make our writing look elegant, fun, or serious. 'Arial' is a common, easy-to-read font. 'Comic Sans' is more casual. We can also change the size of the text. Big text is good for titles, while smaller text is better for paragraphs. Bold, italics, and underline are used to emphasise words. Bold makes text look stronger, italics make it slanted, and underline draws attention to it. We can also change the colour of the text to make it stand out. Students can practice using the text formatting tools on sample text. Give them specific formatting challenges: Make the title of this paragraph bold and 16pt font. Make the first sentence italic. Change the colour of the last sentence to blue.

3. **Text Alignment**

   Show how to align text left, center, right, and justify. 'Text alignment controls how the text lines up. Left alignment is most common for paragraphs. Center alignment is good for titles. Right alignment is sometimes used for dates or addresses. Justified alignment makes the text line up neatly on both sides, like in a book.

4. **Wrap-up**

   Present scenarios: 'You're writing a poem. Which text alignment would you use for the title? You're writing a formal letter. What font and size would you choose for the body text? Why?' Review the different formatting tools and their uses. 'What's the difference between bold and italics? When would you use centre alignment? Students can do Application-based question activity on page 62.

## Performance Targets

Students can:

- use text formatting tools to change font, size, colour, bold, italics, and underline.
- align text left, center, right, and justify.
- apply appropriate text formatting to different types of text (titles, paragraphs, lists).

## Lesson Plan 4

**Topics:** Inserting and Customising Tables

**Page numbers:** 54-55

## Core Competencies

- **Digital Literacy:** Developing skills in creating and customising tables in Google Docs for organising information.
- **Critical Thinking and Problem Solving**: Applying problem-solving skills to design and format tables effectively.
- **Organisation and Time Management:** Using tables to create weekly schedules and manage time efficiently.

## Learning Outcomes

Students will be able to:

- insert tables in Google Docs.
- add and delete rows and columns in tables.
- customise tables (borders, shading).
- create weekly schedules using tables.

## Materials

- Computer/Projector
- Internet access
- Google Docs (shared account or student accounts)
- Handout with examples of different table designs

## Teaching Methodologies

1. **Introduction**

   Show students examples of tables used in everyday life (e.g., a class schedule, a multiplication table, a menu). 'Tables are a great way to organise information and make it easy to read. Think about how much harder it would be to understand this information if it was just written in a paragraph!

2. **Inserting Tables**

   Demonstrate how to insert a table. 'Click on 'Insert,' then 'Table,' and choose the number of rows and columns you want. You can always add or remove more later.' Explain the basic structure of a table (rows and columns).

3. **Adding and Deleting Rows/Columns**

   Show how to add and delete rows and columns. 'Right-click inside the table to see the menu. You can choose to insert a row above or below or insert a column to the left or right. You can also delete rows and columns that you don't need.

4. **Customising Tables**

   Show how to customise tables by changing border styles and adding shading. By changing the border style and adding colour to the cells, we can make our tables look more attractive.

5. **Activity: Making Weekly Schedules**

   Ask students to use their table skills to create a weekly schedule. They can put the days of the week in the top row and our activities in the other cells.

6. **Wrap-up**

   Review the steps for inserting and customising tables. Ask 'How do we add a row to a table? How can we make a table look more visually appealing?'

## Performance Targets

Students can:

- insert tables with the correct number of rows and columns.
- add and delete rows and columns in tables as needed.
- customise tables using borders and shading.
- create a functional weekly schedule using a table.

## Lesson Plan 5

**Topics:** Adding and Positioning Images

**Page numbers:** 56-57

## Core competencies

- **Digital Literacy:** Developing skills in inserting and positioning images within documents to enhance visual communication.
- **Creativity and Innovation:** Exploring different ways to use images to illustrate ideas and enhance the overall design of a document.
- **Communication and Collaboration:** Discussing the effective use of images in written communication.

## Learning Outcomes

Students will be able to:

- add images to Google Docs.
- position images within the document.

## Materials

- Computer/Projector
- Internet access
- Google Docs (shared account or student accounts)
- Sample images

## Teaching Methodologies

1. **Adding Images**

   Demonstrate how to add images. 'Click 'Insert,' then 'Image.' You can choose an image from your computer, search the web for an image, or even use an image from your Google Drive.' Explain the different image sources. 'Using images from the web is excellent but remember to respect copyright. Look for images that are free to use.

2. **Positioning Images**

   Show how to position images. We can make images appear in different places in our document. We can wrap text around them and place them in front of the text or behind the text. 'Wrap text' is useful for placing images side-by-side with text. 'In front of text' or 'behind text' lets us create interesting effects, like a watermark or a background image.

   Students can experiment with different image positioning options and observe how they affect the document's layout. Give them specific instructions: Place a given image to the left of a paragraph. Make the image appear behind the text.

3. **Sizing Images**

   Show how to resize images. 'Click on the image and drag the corners to make it bigger or smaller. Be careful not to make the image too big, or it might look blurry.'

4. **Wrap-up**

   Review the steps for adding and positioning images. Ask: How do we insert an image from the web? What's the difference between 'wrap text' and 'behind text'? Students can attempt Activity 1 from In the Lab on page 62.

## Performance Targets

Students can:

- insert images from various sources (computer, web, Drive).
- position images using different options (wrap text, in front of text, behind text).
- resize images appropriately.

## Lesson Plan 6

**Topic:** Adding Headers and Footers; Sharing and Collaborating

**Page Numbers:** 58-60

## Core Competencies

- **Digital Literacy:** Developing skills in using headers and footers to add consistent information to documents. Learning how to share documents with different permission levels and collaborate effectively with others.
- **Communication and Collaboration:** Understanding the importance of clear communication and respectful collaboration when working on shared documents.
- **Critical Thinking and Problem Solving:** Making informed decisions about sharing permissions based on the needs of the project.

## Learning Outcomes

Students will be able to:

- add headers and footers to Google Docs.
- Students will be able to share Google Docs with others.
- Students will be able to collaborate on Google Docs.

## Materials

- Computer/Projector
- Internet access
- Google Docs (shared account or student accounts)

## Teaching Methodologies

1. **Introduction**

   Show students examples of documents with headers and footers (e.g., a book, a research paper, a newsletter). Headers and footers are like special sections at the top and bottom of each page. They're used to add information that's repeated on every page, like the title of the document, the page number, or the date.

2. **Adding Headers and Footers**

   Demonstrate how to add headers and footers. 'Double-click at the top of the page to open the header area. Type your text here. Do the same at the bottom of the page for the footer.' Show how to insert page numbers automatically. Allow students to practice adding headers and footers to their documents, including page numbers.

3. **Sharing and Collaborating**

   Show how to share a document. 'Click the 'Share' button. You can type in the email address of the person you want to share with. You can also choose what kind of access they have. Refer to the screenshot on page 60 showing restricted access options. 'Viewer' lets them see the document but not change it. 'Commenter' lets them add comments, and 'Editor' lets them make changes.' Emphasise online safety and responsible sharing. Role-play different sharing scenarios: You want to share your story with your teacher for feedback. Which permission level should you choose? You want to work on a project with a classmate. Which permission level should you choose?

4. **Activity**

   Show the steps to collaborate on a document. Tell them that when you're working with someone else, you can see their changes in the document in real-time. You can also leave comments for each other to discuss ideas. Students can work in pairs to collaboratively edit a shared document on their devices or in the lab over a document shared by you. They can practice adding text, making changes, and leaving comments for each other.

5. **Wrap-up**

   Review the steps for adding headers and footers, sharing documents, and collaborating. 'Why are headers and footers useful? What are the different sharing permission levels? What are some tips for collaborating effectively? Students can answer the exercise from pages 60-61. Students can also answer Activity 2 from In the Lab and the group project on page 62.

## Performance Targets

Students can:

- add headers and footers, including page numbers.
- share documents with different permission levels (viewer, commenter, editor).
- collaborate effectively with others on shared documents.

## IN THE LAB

### Activity 1

Create a new document in Google Docs and write a brief weather report. Format the text using different font styles and colours.

### Instructions

- Explain the purpose of the activity and what students will learn.
- Instruct students to open their web browser and go to Google Docs. Guide them to sign in with their Google account.
- Direct students to click on the '+' button to create a new blank document.
- Ask students to write a brief weather report. They should include:
  a. The current temperature
  b. Weather conditions (e.g., sunny, rainy, cloudy)
  c. Any additional details (e.g., wind speed, humidity)
  d. Show students how to select the text they want to format.
- Demonstrate how to change the font style:
  a. Click on the font dropdown menu and choose a different font.
- Demonstrate how to change the font size:
  a. Click on the font size dropdown menu and select a different size.
- Demonstrate how to change the font colour:
  a. Click on the text colour button and choose a different colour.
  b. Encourage students to use different font styles and colours for different parts of their weather report.
  c. Review the formatted weather reports.
- Highlight the importance of using different font styles and colours to make the document more engaging.
- Check each student's document to ensure they have followed the instructions and formatted their text correctly.

### Activity 2

Collaborate with a friend. Share a Google Docs document with them and work together on writing a short story. Use the commenting feature to leave feedback on each other's work.

### Instructions

- Explain the purpose of the activity and what students will learn. Club students to collaborate and share a document with each other as A and B – A will share the document with B.

- Allocate a computer for each student in the lab.
- Instruct students to open their web browser and go to Google Docs. Guide them to sign in with their Google account.
- Ask group A to share one document for the activity with their partner from B.
- Check that they click on the Share button in the top right corner and enter their partner's email address.
- Make sure they set the permission to Editor so both can make changes before sending.
- Ask students to begin editing their short story together. They can take turns writing paragraphs or sections.
- Ask them team B to highlight the text they want to comment on. Check that they click on the Add comment button (a speech bubble with a plus sign) that appears on the right to add their feedback or suggestions and click Comment.
- Ask students from group A to respond to these comments.

## APPLICATION BASED QUESTIONS

### Activity

Write a formal letter in Google Docs to your principal, sharing your last academic session performance. Also share any feedback regarding the school.

### Instructions

- Instruct students to open their web browser and go to Google Docs.
- Guide them to sign in with their Google account.
- Direct students to click on the '+' button to create a new blank document.
- Ask students to write a brief weather report. They should include:
  a. The current temperature
  b. Weather conditions (e.g., sunny, rainy, cloudy)
  c. Any additional details (e.g., wind speed, humidity)
- Check how students select the text they want to format.
- Demonstrate how to change the font style and size with students still struggling by click on the font dropdown menu and choose a different font and by clicking on the font size dropdown menu and select a different size.
- Encourage students to use different font styles and colours for different parts of their weather report.

## GROUP PROJECT

### Activity

Create a school newsletter using Google Docs. Each group member should be responsible for one section of the newsletter, such as 'Sports', 'Student Achievements', 'Upcoming Events', and 'Teacher Spotlight'. Collaborate within your group to write, format, and design your assigned section. Include images, headings, and text formatting to make your newsletter visually appealing. Once complete, share the document with your teacher for review.

### Instructions

- Instruct students to open Google Docs and sign in with their Google account.
- Have students create a new blank document and name it School Newsletter.
- Divide students into groups and assign each group member a specific section of the newsletter:
  a. Sports
  b. Student Achievements
  c. Upcoming Events
  d. Teacher Spotlight
- Each student writes content for their assigned section, ensuring relevance and detail.
- Students should use different font styles, sizes, and colours to enhance their sections.
- Include headings and subheadings for clarity.
- Guide students to insert relevant images and ask them to resize and change its positions.
- Encourage students to collaborate within their groups for a consistent design.
- Use the 'Comments' feature for peer feedback and suggestions.

## Engagement Activities

### Quick Sign-In Race

Have students race to sign in to their Google Drive accounts. The first few to successfully log in can share their favourite Google application and why.

### Text Formatting Challenge

Display a short paragraph on the board. Ask students to format it in Google Docs with bold, italics, and underline in under 5 minutes. Review their formatting choices as a class.

### Spell Check Scavenger Hunt

Provide a list of common misspelled words. Challenge students to find and correct these words in a sample Google Doc using the spell check feature.

### Collaborative Drawing

Using Google Drawings, ask students to sketch a simple object collaboratively. Each student adds one feature to the drawing, and they can do this in under 5 minutes.

### Fast Form Creation

Instruct students to create a simple Google Form with at least two questions in under 5 minutes. Discuss the types of questions they chose and why.

### Would You Rather Questions

1. Would you rather use Google Docs to write a story or Google Slides to create a presentation about your favourite animal?
2. Would you rather share a document with your classmates for collaboration or keep it private and work alone?
3. Would you rather add fun images to your Google Slides or create colourful charts in Google Sheets?

### Deep Question

How do you think using online tools like Google Drive can change the way we work together and share ideas?

### Thought Experiment

If you could create a new Google application that helps students learn better, what features would it have, and how would it work?

## Riddles

1. I can hold your words but have no voice. I can help you share your thoughts with ease. What am I?

   **Answer**: Google Docs

2. I can show you numbers and help you track. I'm not a pet, but I'll help you keep your stack. What am I?

   Answer: Google Sheets

3. I let you create and gather data in a flash. Fill me with questions, and watch the responses dash. What am I?

   **Answer:** Google Forms

## Answer for Exercise

### 1. Choose the correct answer

a. Creating, editing, and sharing documents
b. Presentation
c. Find and Replace
d. Center align
e. Share the document link and grant editing access
f. Tables
g. Text Formatting

### 2. Answer the questions

a. Steps to create a table in Google Docs:
   - Open your Google Docs document.
   - Click on 'Insert' in the top menu.
   - Select 'Table' from the dropdown menu.
   - Choose the number of rows and columns you need by dragging your mouse over the grid.
   - Click to insert the table into your document.

b. Steps to share a document with someone in Google Docs:
   - Open your Google Docs document.
   - Click on the 'Share' button in the top right corner.
   - Enter the email address of the person you want to share with.
   - Choose their permission level (Viewer, Commenter, or Editor).
   - Click 'Send' to share the document.

c. The section at the top of each page in a document is called the header. It can contain text, page numbers, dates, or other information. The section at the bottom of each page in a document is called the footer. It can also contain text, page numbers, dates, or other information. Headers and footers are used to provide consistent information on every page, such as the document title, author name, or page numbers.

d. Steps to insert an image in the Google Doc:
   - Open your Google Docs document.
   - Click on 'Insert' in the top menu.
   - Select 'Image' from the dropdown menu.
   - Choose where you want to get the image from (Upload from computer, Search the web, Drive, Photos, URL, or Camera).
   - Select or upload the image you want to insert.
   - The image will appear in your document, and you can resize or move it as needed.

e. Text wrapping options in Google Docs:
   - Inline: The image is placed in line with the text, like a character in a sentence.
   - Wrap text: The text wraps around the image, creating a more integrated look.
   - Break text: The text is placed above and below the image, with no text on the sides.
   - Behind text: The image is placed behind the text, allowing the text to overlay the image.
   - In front of text: The image is placed in front of the text, covering it.

CHAPTER
6

# SEQUENCING AND LOGIC

Why is it important to apply logic to the tasks we do?

Logic helps us break problems into manageable parts to solve easily.

## Learning Objectives

Students will be able to:

- Define input and output in the context of computers.
- Explain how computers follow instructions.
- Understand the concept of code and programming languages.
- Define sequence and explain its importance in computer programs.
- Identify and navigate the Blockly interface (workspace, toolbox, blocks, trashcan, zoom controls).

## Lesson Plan 1

**Topics:** Following Instructions; Sequence; Sequencing with Blockly

**Page number:** 63-66

## Core Competencies

- **Digital Literacy:** Understanding the basic functions of computers, including input and output devices.
- **Computational Thinking:** Recognising the importance of sequences in programming and how they guide computer operations.
- **Programming Fundamentals:** Introduction to programming languages and basic coding concepts.
- **Software Navigation:** Familiarity with the Blockly software interface and its components.



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## Materials

- Projector/Interactive whiteboard
- Computers/Tablets with Internet access
- Access to Blockly software on computer devices
- Worksheets with simple sequence puzzles (optional)
- Real-world objects for input/output demonstration (e.g., light switch, fan, keyboard, mouse, monitor, speaker, remote control, microphone)

## Teaching Methodologies

1. **Introduction**

   Start with an engaging question: What do a robot, a phone, and a traffic light have in common? (They all follow instructions). Discuss how we give instructions to both robots and computers. Introduce **input** as the information we give (e.g., pressing a button, speaking a command) and **output** as what the computer does (e.g., the robot moving, the light turning on).

   Use real-world objects to demonstrate: a light switch (input: flipping the switch, output: light turning on), a fan (input: turning the knob, output: fan spinning), a keyboard (input: typing, output: letters on the screen), a mouse (input: clicking, output: cursor movement), a remote control (input: pressing a button, output: changing the TV channel), a microphone (input: speaking, output: recording sound). Emphasise how different input devices lead to different outputs.

2. **Interactive Exploration**

   Explain code as a secret language computers understand. Compare it to a recipe: specific steps in a specific order. Introduce the concept of a programming language as the way we write these recipes for the computer. Mention different programming languages like English for computers, but explain that Blockly is a visual way to code, like building with LEGOs – you snap the instructions together.

3. **Sequence Activity**

   Play Human Robot, where one student acts as the robot and another gives instructions. Start with simple sequences (Walk forward two steps, Turn left). Gradually increase complexity (Walk forward three steps, turn right, clap your hands, then say your name). Emphasise the importance of the *order* of the actions. If the robot does the actions in the wrong order, it won't work! Relate this directly to computers: the program won't work correctly if the instructions aren't in the correct sequence. Use the worksheet puzzles for further practice. Have students create a simple dance routine for the 'robot' using sequenced instructions.

4. **Blockly Exploration**

   Introduce Blockly. Relate the workspace to a stage where the action happens, the toolbox to a box of instructions, and the blocks to individual instruction cards. Have students drag and drop blocks to create a simple sequence. Tell them to make their character say 'Hello!' and then move forward. Explain the trashcan as a way to undo mistakes and the zoom controls as a way to see the code better. *Teacher Strategy: Use think-pair-share to encourage collaboration and problem-solving during Blockly exploration.* Have students create a simple story using a sequence of blocks, like having a character walk across the screen and say a greeting.

## Performance Targets

Students can:

- successfully create a simple program in Blockly
- demonstrate understanding of sequence and basic interface navigation.

## Lesson Plan 2

**Topics:** Navigating a Blockly maze; Blockly Blocks and Loops

**Page number:** 66-68

## Core Competencies

- **Block-Based Programming:** Understanding the concept of blocks in Blockly and how they are used to build programs.
- **Logical Thinking:** Recognising and applying loops to repeat actions in programming.
- **Problem-Solving:** Developing strategies to create efficient and effective programs using loops.

## Learning Outcomes

Students will be able to:

- Identify different types of blocks in Blockly.
- Define loops and explain their purpose.
- Move forward, move backwards, run, and use other loop blocks in Blockly to create simple programs.

## Materials

- Projector/Interactive whiteboard
- Computers/Tablets with Internet access
- Blockly software
- Printed maze challenges (optional)
- Physical objects to represent loops (e.g., a toy car on a circular track, a hula hoop, a jump rope)

## Teaching Methodologies

1. **Review & Connection**

   Review the previous lesson on sequence in computer studies. Discuss with students and help them recall by asking to remember how they made their character move? Ask: What if we wanted it to move 10 times? Would we write the 'move forward' block 10 times?' This leads to the concept of loops. Discuss the inefficiency of repeating the same instruction multiple times.

2. **Block Exploration**

   Categorise blocks by function (movement, looks, events, control, etc.). Tell students: These blocks tell the character *how* to move, these blocks tell the character *what* to say, these blocks control *when* things happen. Have students explore different categories of blocks and discuss their functions.

3. **Loop Introduction**

   Introduce loops as a way to repeat instructions. Use the toy car on the circular track. Tell them: The car keeps going around and around. That's a loop. It's repeating the same action over and over. Relate it to real-life loops: a spinning fan, a washing machine cycle, a hula hoop, and a jumping rope. Ask them: Why would we want to repeat instructions in a program? (To save time, make the program shorter and make complex actions easier). Discuss how loops make our code more efficient.

4. **Blockly Loop Activity**

   Start with a simple repeat loop. Give the students a task: Let's make a character move forward 5 times. Have students experiment with different numbers in the loop. Introduce move backwards and other movement blocks within loops. Use the maze challenges to make it more engaging.

   *Differentiate instruction by offering varying levels of maze complexity. Provide scaffolding for struggling students (e.g., pre-written code snippets) and extension activities for advanced students (e.g., creating their own mazes with obstacles).* Have students create a program where a character walks in a square or other shape using loops.

5. **Wrap up**

   Encourage students to explain their code to a partner to reinforce understanding. Have students create a simple animation using loops and movement blocks, like a character walking and waving repeatedly. Walk students through the practice time exercise on page 68 in the lab.

## Performance Target

Students can:

- create programs using loops to control character movement.
- demonstrate understanding of loop functionality and different loop types.

## Lesson Plan 3

**Topics:** Events in Blockly

**Page number:** 69

## Core Competencies

- **Event-Driven Programming:** Understanding the concept of events in Blockly and how they trigger actions.
- **Interactive Programming:** Using events to create interactive programs that respond to user inputs.
- **Debugging:** Identifying and fixing issues related to event handling in programs.

## Learning Outcomes

Students will be able to:

- Define events in the context of programming.
- Use event blocks in Blockly to trigger actions.

## Materials

- Projector/Interactive whiteboard
- Computers/Tablets with Internet access
- Blockly software
- Simple game controllers (optional)
- Examples of interactive websites or apps (e.g., games, educational websites)

## Teaching Methodologies

1. **Review & Connection**

   Review loops on page 69. Ask students what they will do if they want something to happen only when they do something specific.

2. **Event Introduction**

   Explain events as triggers. Imagine a video game. When you press the spacebar, your character jumps. Pressing the spacebar is the *event* that makes the character jump. Relate it to real-life events: a doorbell ringing, a light turning on when you flip the switch, clicking a button on a website, a phone ringing. Show examples of interactive websites or apps (e.g., games, educational websites) and discuss the events that trigger different actions. Ask: What happens when you click on this button? What happens when you hover your mouse over this image?

3. **Blockly Event Activity**

   Introduce the **when [event] happens** block. Tell a story such as: Let's make our character say 'Ouch!' when we click on it. Have students experiment with different events (click, hover, etc.) and actions. Introduce simple **if** conditions. Ask: If the character is near the wall, and we click the button, then make it jump. Task them to create a story where the character changes colour when we click on it and says a different thing depending on its location on the screen. Challenge students to create a simple interactive story where different events lead to different outcomes. For example, clicking on a character makes it say something, and clicking on a background object changes the scene.

4. **Wrap up**

   Have students create a simple interactive story or game using events. Encourage creativity and problem-solving. Use peer feedback to help students refine their event-based programs.

## Performance Target

Students can:

- create programs using event blocks to trigger actions.
- demonstrate understanding of event-driven programming.

## Lesson Plan 4

**Topics:** Skill Building Through Programming

**Page number:** 70-71

## Core Competencies

- **Skill Development:** Understanding the importance of programming in developing problem-solving, logical thinking, and creativity skills.
- **Program Execution:** Learning to run, observe, stop, and adjust programs to achieve desired outcomes.
- **Resilience:** Developing persistence and resilience by learning from mistakes and trying again.

## Learning Outcomes

Students will be able to:

- Explain how programming helps develop problem-solving skills.
- Use the process of running, observing, stopping, adjusting, and trying again (ROSA) to debug their programs.

## Materials

- Projector/Interactive whiteboard
- Computers/Tablets with Internet access
- Blockly software
- Pre-made programs with deliberate errors (optional)
- Debugging worksheets (optional)
- Real-life examples of problem-solving (e.g., fixing a broken toy, building a tower with blocks, solving a puzzle)

## Teaching Methodologies

1. **Discussion**

   Brainstorm with students why they are learning about programming. Discuss with them that it's not just about making games. It helps us become better problem-solvers. Discuss how programming teaches logical thinking, attention to detail, and perseverance. Connect it to real-life problem-solving: Think about when you're building with blocks. Sometimes your tower falls over. What do you do? You try again, maybe making the base stronger. Programming is similar. Discuss the importance of making mistakes and learning from them.

2. **Debugging Activity**

   Introduce the concept of **bugs** in code. Tell them that just like sometimes toys break, sometimes our programs have mistakes called bugs. Emphasise that everyone makes mistakes, even experienced programmers. The key is to learn how to find and fix them. Introduce the ROSA debugging process:

   a. **Run**

      Run the program and see what happens. Ask students to discuss what the program did and whether it was what we expected.

b. **Observe**

What went wrong? What did the program do that it wasn't supposed to do? 'Where did the character go wrong? Did it crash into a wall? Did it say the wrong thing?'

c. **Stop:**

Stop the program. Don't just keep running it and hoping it will magically fix itself!

d. **Adjust:**

Change the code to fix the problem. 'Look at the blocks. Did we use the right blocks? Are they in the right order? Did we use the right numbers in the loops?'

e. **Try again:**

Run the program again to see if the problem is fixed. 'Did it work this time? If not, go back to step 2 and observe again.' Provide students with programming challenges that require them to debug their code. Encourage them to use the ROSA process. Have them document their debugging process (e.g., on a worksheet or in a digital journal). Provide pre-made programs with deliberate errors for students to fix. Start with simple errors (e.g., incorrect sequence, wrong number in a loop) and gradually increase complexity.

3. **Activity**

Ask students to model the debugging process aloud, thinking through the steps and explaining your reasoning. Provide positive reinforcement and encouragement throughout the debugging process. Celebrate successes, even small ones.

4. **Wap up**

Discuss the importance of persistence. Tell them that even if your program doesn't work the first time, don't give up. Encourage students to share their debugging strategies with the class. Ask: How did you find the bug? What did you change to fix it? Reinforce the idea that debugging is a valuable skill that can be applied to many areas of life.

Students can attempt the exercise on page 72-73 and activities on page 74 for In the Lab, Application-based questions, and Group Project.

## Performance Target

Students can:

- demonstrate the ability to debug programs by systematically using the ROSA process (Running, Observing, Stopping, Adjusting, Trying again).
- demonstrate understanding of the iterative design process.

## IN THE LAB

### Activity

Head over to the link https://studio.code.org/s/coursea-2023/lessons/6/levels/1?login_required=true and complete the lesson 'Programming with Rey and BB-08'.

### Instructions

- Explain the importance of sequencing and logic in programming. Use a simple analogy, like following a recipe, to explain sequencing. Discuss how following steps correctly is crucial for baking a cake. Guide students to the Code.org link:
- Steps:
  a. Open the link on your computer or tablet.
  b. Follow the instructions on the screen to complete the lesson.
  c. Use the blocks to create a sequence of commands for Rey and BB-8.
  d. Run your program to see if it works. If it doesn't, adjust the sequence and try again.
- Discuss what students learned from the activity. Use open-ended questions to encourage reflection. Ask: What was the most challenging part of the lesson? and How did you solve any problems you encountered?

## APPLICATION BASED QUESTIONS

### Activity

- Head over to the link https://studio.code.org/s/coursea-2023/lessons/12/levels/2 and complete all the skills in the lesson 'Mini Project: On the Move with Play Lab'.

### Instructions

- Explain the purpose of the mini project and how it will help students apply their programming skills.
- Use a relatable example, like creating a simple animation or game, to explain the project. Show a short video of a simple animation created with Play Lab to inspire students. Guide students to the Code.org link: Mini Project: On the Move with Play Lab.
- **Steps:**
  a. Open the link on your computer or tablet.
  b. Follow the instructions on the screen to complete the mini-project.
  c. Use the blocks to create a sequence of commands for your characters.
  d. Experiment with different actions and events to make your characters move and interact.
  e. Run your program to see if it works. If it doesn't, adjust the sequence and try again.
  f. Demonstrate the first few steps on the projector to ensure everyone understands how to start.

## GROUP PROJECT

### Activity

Students can use the space below to make a maze game of their own which they can solve using the blocks specified.

### Instructions

- Talk to students about developing a maze like they have seen on Blockly. Distribute a blank sheet for maze activity.
- Explain that the right section is for designing their maze.
- Encourage creativity and emphasise the importance of a clear start and end point.
- Students can use pencils, markers, or crayons to draw their mazes.
- **You can** provide pre-drawn maze outlines for students who need support.
- Encourage students to create complex mazes with obstacles or multiple paths if they are done quickly.
- Revisit the concept of sequencing instructions in the correct order.
- Demonstrate how to drag and drop blocks to create a simple program.
- Use physical manipulatives to represent the maze and code blocks, allowing students to manipulate the sequence of instructions physically.
- Explain that the Toolbox section on the activity sheet represents the available coding blocks and the Workspace is where they will build their code.
- Students can translate other teams' maze designs into a sequence of code blocks to guide a character from the start to the endpoint.
- Encourage experimentation and problem-solving.
- Students test their code by running the program and observing the character's movements in the digital maze environment.
- Explain that debugging is a natural part of coding - it's about finding and fixing mistakes.
- Encourage students to debug their code using the ROSA strategy (Run, Observe, Stop, Adjust).

## Engagement Activities

### Input/Output Relay

- Split students into two teams.
- Each team will have a set of simple input/output scenarios (e.g., 'If you hear 'clap,' then jump').
- One student from each team must relay the instruction to their team as quickly as possible.

### Blockly Component Hunt

- Provide students with a printed image of the Blockly interface with labelled components (e.g., blocks, toolbox, workspace).
- Ask them to match the names of the components with the correct parts on the image within 3 minutes.

### Maze Challenge

- Display a simple Blockly maze on the board.
- Ask students to identify the start and finish points and any obstacles within 3 minutes.
- Discuss the structure of the maze afterwards.

### Loop Dance

- Teach students a simple dance move that repeats (loop).
- Have them perform the move in a sequence, emphasising the repetition aspect of loops in programming.

### Problem-Solving Flash

- Present a quick coding challenge using blocks (e.g., 'How do we get through a maze using only three moves?').
- Give students 3 minutes to come up with their solutions, either on paper or by discussing.

### Would You Rather Questions for Brainstorming

1. Would you rather have a robot that can do your homework for you or a robot that can clean your room?
2. Would you rather be able to code your own video game or design your own website?
3. Would you rather work alone with a partner when solving coding puzzles?

### Riddles

1. I can take you anywhere, but I'm not a car. I can help you learn to code, but I'm not a teacher. What am I?

   **Answer:** A computer.

2. I loop around and around, but I don't get dizzy. I help your code run smoothly. What am I?

   **Answer:** A loop.

3. I am a series of steps that guide you along the way, just like a recipe you follow day by day. What am I?

   **Answer:** A sequence.

## Answer for Exercise

### 1. Multiple choice questions

a. Both a and c
b. Binary language
c. All of them
d. Play area
e. Loop

### 2. Answer the questions

a. Sequencing is putting things in a specific order. In computer studies, it means arranging instructions in the correct order so the computer can follow them step by step.

b. Sequencing is important because computers follow instructions exactly as they are given. If the instructions are not in the right order, the computer might not work correctly or do what you want it to do.

c. Blockly interface
   - Workspace: The area where you drag and drop blocks to create your code.
   - Toolbox: Contains different categories of blocks you can use, like loops, logic, and math.
   - Blocks: The pieces you connect together to build your program. Each block represents a different command or action.
   - Trash Can: Where you can delete blocks you don't need.

d. A loop is a set of instructions that repeats until a certain condition is met. Loops are useful because they let you run the same code multiple times without having to write it repeatedly. This makes your programs shorter and easier to read.