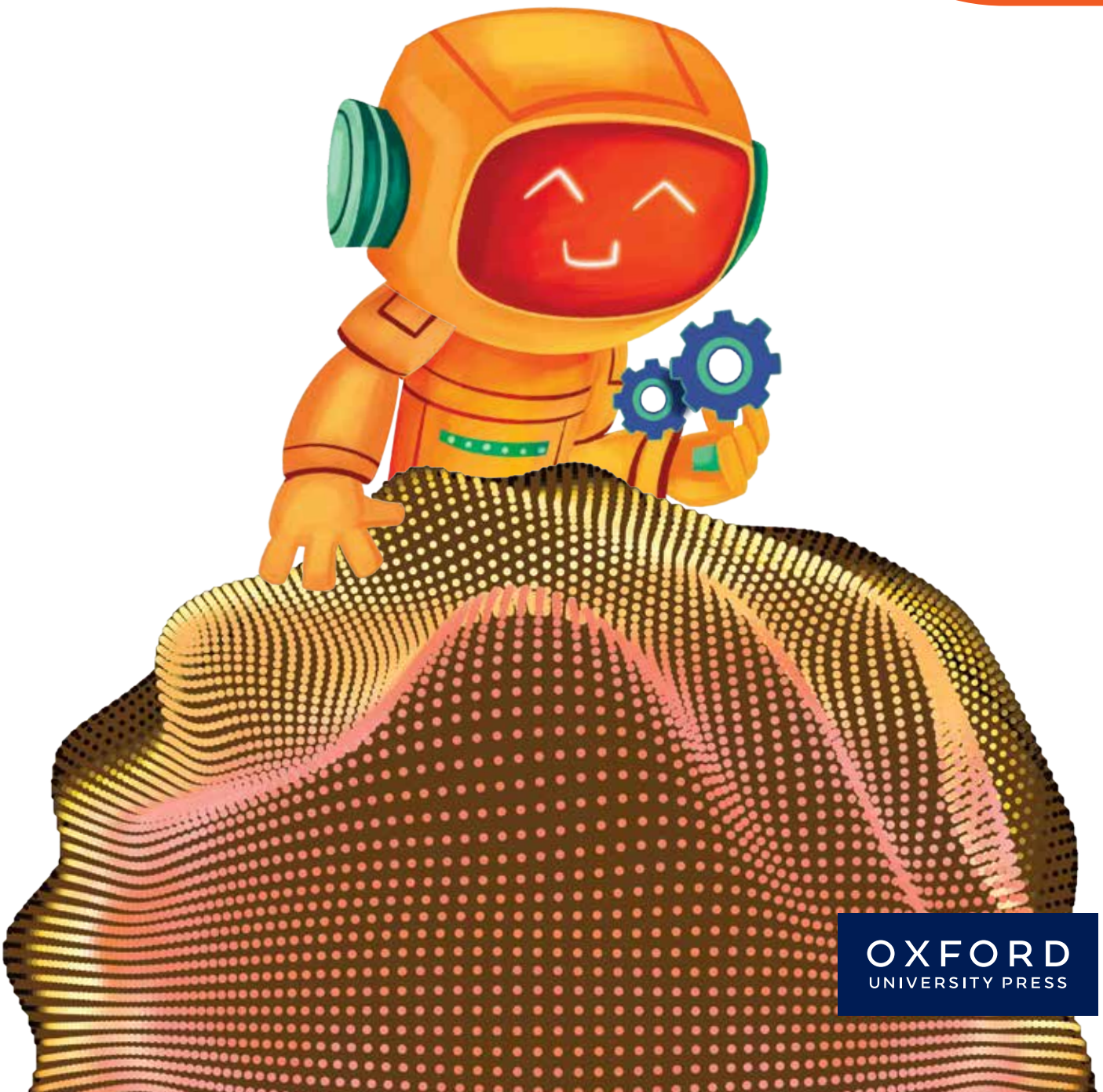
COMPUTER WHIZ 5

Fourth Edition



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Introduction

Computer Whiz books 1-8 is a diligent attempt to provide the necessary knowledge, skills, and attitudes compatible with modern developments in computers and technology.

This guide is a collaborative effort, drawing insights from educational experts and the latest pedagogical approaches. It also maps the *Computer Whiz* primary series on Howard Gardner's theory of 'Multiple Intelligences'. Awareness of multiple intelligences promotes an inclusive classroom where all students feel valued and supported, regardless of their learning style.

Knowing about 'Multiple Intelligences' can significantly enhance teaching effectiveness by recognising and addressing the diverse ways in which students learn. Recognising and valuing different types of intelligence helps students feel appreciated for their unique abilities. This can boost their confidence and motivation to learn.

The content in each chapter is supported by

Word Whiz

Explains essential terminology used in the chapter.

1 Word Whiz

Lesson Plan

Step-by-step and interactive lesson plans that cater to diverse pupil needs

(Depending on available time, resources, and pupils' understanding, the ideas from these lesson plans can be redistributed among lessons. It is recommended to organise the class in such a manner that pupils get some practice time at the end of the class.)

2 Lesson Plans

Concept Cloud

Delves into additional/ optional information and intriguing analogies to deepen understanding.

3 Concept Cloud

Class Activity

Fosters an interactive classroom environment with our specially designed activities which are integrated into the curriculum.

4 Interactive Class Activities

Digital Resources

Lesson wise mapped digital resources provided on the Oxford University Website to enrich students' learning experience. These resources are accessible via QR codes at the back of the book.

5 Digital Resources

Homework

Suggested homework at the end of each lesson plan to reinforce the concepts.

6 Homework For Extended Learning

Answer Key

Potential responses to end-of-chapter questions, ensuring a well-rounded educational experience for your students.

7 Suggested Answers to End-of-Chapter Questions

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Multiple Intelligences

Multiple Intelligences is a theory proposed by Howard Gardner in 1983, which suggests that intelligence is not a single, fixed attribute that can be measured solely by IQ tests. Instead, Gardner identified several distinct types of intelligences that individuals may possess in varying degrees.

The theory of multiple intelligences broadens the understanding of human capabilities and emphasises the importance of recognizing and nurturing diverse talents in educational settings. By acknowledging that intelligence is multifaceted, educators can create more inclusive and effective learning environments that cater to the unique strengths of each student.

Implications for education

Gardner's theory has significant implications for education. It suggests that teaching methods should be diversified to cater to different types of intelligences. Following are the types of intelligences:

Linguistic Learners might benefit from reading and writing activities.

Logical-mathematical Learners might excel with problem-solving tasks.

Spatial Learners might engage more with visual aids and diagrams.

Bodily-kinesthetic Learners might thrive in hand-on activities.

Musical Learners might enjoy learning through songs and rhythms.

Interpersonal Learners might prefer group work and discussions.

Intrapersonal Learners might benefit from self-reflective tasks.

Naturalistic Learners might enjoy learning through nature-related activities

How to assess multiple intelligence in students?

Assessing multiple intelligences in students involves using a variety of methods to identify their strengths and preferences across different types of intelligences. Here are some effective strategies:

1. Observations

- **Classroom Activities:** Observe how students engage in different activities. Note which tasks they excel in and enjoy the most.
- **Behavioural Patterns:** Pay attention to how students interact with peers, solve problems, and express themselves.

2. Surveys and Questionnaires

- **Self-Assessment Tools:** Use surveys where students can reflect on their own preferences and strengths.
- **Teacher-Designed Questionnaires:** Create questionnaires that ask about students' interests and activities outside of school.

3. Portfolios

- **Work Samples:** Collect samples of students' work across various subjects and activities.
- **Reflective Journals:** Encourage students to keep journals where they reflect on their learning experiences and achievements.

4. Performance Tasks

- **Projects and Presentations:** Assign projects that allow students to demonstrate their skills in different areas, such as creating a video, writing a report, or designing a model.
- **Hands-On Activities:** Use tasks that require physical manipulation, such as building, drawing, or conducting experiments.

5. Peer and Self-Evaluations

- **Peer Feedback:** Have students provide feedback on each other's work, focusing on different intelligences.
- **Self-Evaluation:** Encourage students to assess their own work and identify areas where they feel most competent.

6. Standardised Tests and Inventories

- **Multiple Intelligences Inventories:** Use standardised tools designed to measure multiple intelligences, such as the Multiple Intelligences Developmental Assessment Scales (MIDAS).

How to embed multiple intelligences in the lesson plans of Computer Whiz?

To embed multiple intelligences in the teaching and lesson plans of the Computer Whiz, you can incorporate various activities and strategies that cater to different types of intelligences. Here are some suggestions:

1. Linguistic Intelligence

- **Reading and Writing Tasks:** Include activities where students read instructions, write reflections, or create stories related to computer concepts.
- **Discussions and Debates**: Encourage students to discuss topics like the ethical use of technology or the impact of computers on society.

2. Logical-Mathematical Intelligence

- **Problem-Solving Activities:** Integrate exercises that involve coding, debugging, and logical reasoning.
- **Data Analysis:** Use tasks that require students to analyse data, such as creating graphs or interpreting computer-generated reports.

3. Spatial Intelligence

- **Drawing and Design:** Include activities that involve creating digital art using Paint or other graphic design software.
- **Visualization Tasks:** Use diagrams and flow charts to help students understand computer processes and networks

4. Bodily-Kinesthetic Intelligence

- **Hands-On Activities:** Incorporate tasks that require physical interaction with computer hardware, such as assembling parts or using input devices.
- **Movement-Based Learning:** Use role-playing or physical games to teach concepts like network topologies or data flow.

5. Musical Intelligence

- **Sound and Music Projects:** Include activities where students create or edit audio files, or use music software to compose digital music.
- **Rhythmic Learning:** Use songs or rhythms to help students memorise computer commands or sequences.

6. Interpersonal Intelligence

- **Group Projects:** Encourage collaborative projects where students work together to solve problems or create presentations.
- **Peer Teaching:** Use activities where students teach each other about different computer concepts.

7. Intrapersonal Intelligence

- **Self-Reflection:** Include journal entries or self-assessment tasks where students reflect on their learning and set personal goals.
- **Independent Projects:** Allow students to pursue individual projects that align with their interests in technology.

8. Naturalistic Intelligence

- **Environmental Context:** Use examples of how technology is used in environmental science or agriculture.
- **Nature-Inspired Projects:** Include activities that involve creating simulations or models related to natural phenomena using computer software.

Chapter Wise Mapping of Computer Whiz 5

This is a chapter-wise mapping of the book *Computer Whiz 5* to Howard Gardner's Multiple Intelligences, highlighting which activities or content support each type of intelligence among children:

Chapter 1: Robotics and Artificial Intelligence

- **Linguistic Intelligence:** Reading articles about the latest advancements in AI and robotics, writing essays on the impact of AI on society.
- **Logical-Mathematical Intelligence:** Solving problems related to AI algorithms, creating flowcharts for robotic processes.
- **Spatial Intelligence:** Designing 3D models of robots, visualising the internal components of AI systems.
- **Bodily-Kinesthetic Intelligence:** Building and programming a simple robot, engaging in hands-on activities with robotic kits.
- **Musical Intelligence:** Exploring how AI can compose music, analysing sound recognition algorithms.
- **Interpersonal Intelligence:** Participating in group discussions about ethical implications of AI, collaborating on projects to design robots for specific tasks.
- **Intrapersonal Intelligence:** Reflecting on personal views about AI, considering the ethical dilemmas posed by advanced robotics.

Chapter 2: Working with Files

- **Linguistic Intelligence:** Writing instructions for file management, reading about different file types and their uses.
- **Logical-Mathematical Intelligence:** Organising files systematically, understanding the logic behind file conversions.
- **Spatial Intelligence:** Visualising file structures and hierarchies, designing efficient file storage systems.
- **Bodily-Kinesthetic Intelligence:** Practicing file management on different devices, converting files using various software tools.
- **Musical Intelligence:** Managing and organising music files, understanding metadata in audio files.
- **Interpersonal Intelligence:** Collaborating on projects to organise shared files, discussing best practices for cloud storage.
- **Intrapersonal Intelligence:** Reflecting on personal digital organisation habits, considering the importance of file management in daily life.

Chapter 3: Searching on the Internet

- **Linguistic Intelligence:** Writing search queries effectively, reading articles on search engine optimization (SEO).
- **Logical-Mathematical Intelligence:** Analysing search algorithms, understanding the logic behind search engine rankings.
- **Spatial Intelligence:** Visualising the layout of search results, designing effective web pages for better search visibility.
- **Bodily-Kinesthetic Intelligence:** Practicing different search techniques, using various search engines to find information.
- **Musical Intelligence:** Searching for music and audio content, understanding how search engines index audio files.
- **Interpersonal Intelligence:** Collaborating on research projects, discussing strategies for effective online searches.
- **Intrapersonal Intelligence:** Reflecting on personal search habits, considering the impact of search engines on information access.

Chapter 4: Building a Website Using Canva

- **Linguistic Intelligence:** Writing content for the website, reading tutorials on web design.
- **Logical-Mathematical Intelligence:** Understanding the principles of web design, organising website elements logically.
- **Spatial Intelligence:** Designing and visualising web layouts, creating visually appealing templates.
- **Bodily-Kinesthetic Intelligence:** Hands-on website creation, customizing templates using Canva.
- **Musical Intelligence:** Integrating audio and music into web design, creating sound effects for the website.
- **Interpersonal Intelligence:** Collaborating on website projects, discussing design choices with peers.
- **Intrapersonal Intelligence:** Reflecting on personal design preferences, considering the impact of web design on user experience.

Chapter 5: Project Development in ScratchJr

- **Linguistic Intelligence:** Writing scripts for animations, reading guides on ScratchJr programming.
- **Logical-Mathematical Intelligence:** Coding and sequencing in ScratchJr, solving programming challenges.
- **Spatial Intelligence:** Visualising animations and stories, designing characters and backgrounds.

- **Bodily-Kinesthetic Intelligence:** Hands-on programming tasks, creating interactive projects in ScratchJr.
- **Musical Intelligence:** Creating sound effects and music for animations, integrating audio into ScratchJr projects.
- **Interpersonal Intelligence:** Collaborating on ScratchJr projects, discussing coding strategies with peers.
- **Intrapersonal Intelligence:** Reflecting on personal coding strategies, considering the creative aspects of programming.

Chapter 6: Being a Responsible Digital Citizen

- **Linguistic Intelligence:** Writing essays on digital citizenship, reading about copyright laws and ethical behavior online.
- **Logical-Mathematical Intelligence:** Analysing digital practices, understanding the logic behind digital footprints.
- **Spatial Intelligence:** Visualising digital footprints and online behaviour, designing infographics on digital ethics.
- **Bodily-Kinesthetic Intelligence:** Engaging in activities to manage digital waste, practicing safe online behaviour.
- **Musical Intelligence:** Understanding the impact of digital music sharing, discussing the ethics of music piracy.
- **Interpersonal Intelligence:** Collaborating on discussions about digital ethics, participating in group activities to promote responsible digital behaviour.
- **Intrapersonal Intelligence:** Reflecting on ethical behaviour, considering the impact of one's actions online.

Reflection

Reflection after chapter-wise lesson planning is vital for continuous improvement, better student understanding, personal and professional growth, and the creation of more effective and inclusive lesson plans. It transforms teaching into a dynamic and responsive practice, ultimately enhancing the overall educational experience.. Here are some key reasons why reflection is important:

Reflecting on each lesson helps teachers identify what worked well and what didn't. It provides valuable insights that can inform future lesson planning. Teachers can build on successful strategies and avoid repeating mistakes, leading to more coherent and effective lesson sequences.

Every classroom is diverse, with students having different learning styles and needs. Reflection helps teachers adapt their lessons to cater to this diversity, ensuring that all students have the opportunity to succeed.

While there are many reflection keys available online, attached here is a template that can be used with the Computer Whiz series lesson planning.

Reflection Key for Computer Studies

Chapter: _____ **Date:** _____

Key Competencies Checklist

1. Understanding Basic Concepts

- ☐ Can students explain the main concepts covered in this chapter?
- ☐ Do they understand the terminology used?

2. Practical Skills

- ☐ Are students able to perform the basic tasks and operations taught?
- ☐ Can they use the software or tools introduced in this chapter?

3. Problem-Solving

- ☐ Can students apply what they've learned to solve simple problems?
- ☐ Are they able to troubleshoot common issues?

4. Collaboration and Communication

- ☐ Do students work well in pairs or groups?
- ☐ Are they able to communicate their ideas effectively?

5. Creativity and Innovation

- ☐ Have students shown creativity in their projects or assignments?
- ☐ Are they able to think of new ways to use the tools and concepts learned?

6. Digital Citizenship

- ☐ Do students understand the importance of online safety and etiquette?
- ☐ Are they aware of the ethical use of technology?

Teacher's Notes

1. What went well in this chapter?

_____

_____

2. What can be improved in the next chapter?

_____

_____

3. Additional Comments:

_____

_____

01 ROBOTICS AND ARTIFICIAL INTELLIGENCE

Teaching Objectives

Students will be able to:

1. understand what robots and AI are,
2. learn how robots and AI help in different industries,
3. find examples of robots and AI in everyday life,
4. state the functions and uses of NLP,
5. understand the role of chatbots,
6. understand prompts in AI.

Lesson plan 1

Resources

- ✓ Textbook pages 1-4
- ✓ Images of different robots on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

- ✓ What operating systems have you heard of other than Windows?
- ✓ Can you open an app by tapping on it?

Reading and explanation (20 min)

Explain that robotics is a branch of computer science that involves the conception, design, manufacture and operation of robots. It aims to create intelligent machines that can help humans in different ways. A robot might resemble a human or be in the form of a robotic application that simulates how humans perform repetitive tasks.

Ask students to think about the robots they see and discuss how they perform tasks.

Discuss the different kinds of robots:

1. Industrial Robots used in factories to assemble parts or package goods
2. Humanoid Robots that resemble humans
3. Exploration Robots used in outer space or the ocean to explore remote areas
4. Educational Robots that teach kids how to code

Discuss how they are used in different fields:

1. Home: Robots can help in domestic chores such as cleaning and cooking. Some are designed to help the elderly or people with special needs.
2. Scientific research: Robots are used to explore planets and deep-sea environments.
3. Healthcare: Robots assist in surgeries which require high precision and are also used to diagnose and administer treatments.
4. Industry: Robots are used for tasks such as assembling, welding, painting, and packaging. They can operate in hazardous environments and for tasks that require a high degree of precision.

5. Entertainment: Robots are used in film production, creating special effects or animating characters. Humanoid robots are used in theme parks, museums, or exhibitions also.

   Ask your students what robots should be allowed to do. Is it okay for them to be used in unsafe situations?

Word Whiz	
Accurate	Correct in all details, exact
Attributes	A quality or feature regarded as an inherent part of someone or something
Chatbot	A computer program designed to simulate conversation with human users, especially over the internet
Combat	Take action to reduce or prevent something undesirable
Flexible	Able to be easily modified to respond to altered circumstances
Immersive	Generating an image which appears to surround the user
Optimisation	The action of making the most effective use of a situation or thing
Personalise	Design or produce something to meet someone's individual requirements
Precision	Marked by or adapted for accuracy and exactness
Predictions	The act of forecasting something
Rescue	Save someone from a dangerous or difficult situation

WHIZ TASKS

Suggested answers:

Number the following steps in the right sequence.

It sheds its skin multiple times. (4)

The caterpillar emerges from the egg and begins to eat and grow. (2)

The adult female butterfly lays a small egg on a plant. (1)

Inside the chrysalis, the butterfly's head, body, legs, and wings are formed. (5)

It hangs upside down and spins a cocoon or chrysalis. (3)

Once the wings dry, the butterfly flies off. (7)

After a long period, the adult butterfly emerges from the chrysalis. (6)

Conclusion (5 min)

Ask:

- ✓ How do you think robots will change the world in years to come?
- ✓ Will robots take over jobs that humans do?

Homework assignment

✓ Complete Whiz Tasks as your homework assignment.

WHIZ TASKS

Suggested answers:

Make a list of five tasks that a robot can do more easily than a human.

Robots can perform repetitive tasks without getting tired.

They can lift and move heavy objects without injuring themselves.

They can do work that requires exactness and precision.

They can analyse data faster and more accurately.

Robots can work around the clock without needing to take any breaks.

They can perform tasks in dangerous environments without any risk to their lives.

Robots can explore environments that are unsafe or unreachable for humans.

Robots can package products with speed and accuracy.

What jobs do you think robots will do in the future?

1. Surgery, elderly care
2. Self-driving vehicles
3. Warehouse automation
4. Customer service with AI assistants
5. Construction, robotic buildings
6. Design of art, music, and writing
7. Cleaning, personal assistants
8. Working in dangerous or extreme conditions.

Class Activity (40 min)

Ask students to create their own robots on A4 size coloured paper or even models of robots at home. Encourage them to be creative. They can use materials like cardboard, empty tin cans, paper, straws etc. They should research their robots (if needed) and be able to describe what the robot will be capable of doing.

In class, there will be a Show and Tell session. Each student will be required to stand up in class and introduce their robot and give a short presentation on what the robot will be able to do. They can even role-play.

Lesson plan 2

Resources

Textbook pages 5 - 8

Images of tools used in Artificial Intelligence on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

✓ What happens when you ask Google or Siri a question?

Reading and explanation (25 min)

Read pages 5, 6, 7 and 8.

Explain that Artificial Intelligence (AI) is when computers are designed to think and learn like humans and can solve problems, make decisions, and understand language. Ask students to list everyday things that use AI. Tell them that AI doesn't have emotions like humans but learns by looking at data and making decisions based on that. Discuss the use of artificial intelligence in different fields. Ask them how they think the use of artificial intelligence has changed the world. How do they think the use of artificial intelligence will be beneficial to different areas. Tell them to research and write an essay on the above topic.

DIGITAL RESOURCES

1. Presentation Slides - Uses of AI

Conclusion (10 min)

Ask:

✓ What would you like artificial intelligence to help you with?

✓ Can artificial intelligence be as smart as humans?

Homework assignment

✓ The children are instructed to research the answers and complete Whiz Tasks as their homework assignment.

WHIZ TASKS

Find out how AI has changed the world.

AI has become a part of almost every aspect of our lives. It has changed how we work and create content. AI enables computers to perform tasks like humans: it can process a huge quantities of data rapidly; it can easily perform repetitive and detailed tasks very quickly; and it can make accurate predictions based on patterns. And along with this, AI can have human-like conversation with its users and personalise content to improve their experience.

Is AI beneficial to support humans in healthcare and education or not? Give reasons for your answer.

AI in Healthcare:

AI can help diagnose illnesses. It can help develop effective treatment plans by analysing an individual's genetic makeup, lifestyle, and environmental factors. It can analyse X-rays, MRIs, and CT scans faster and more accurately than humans. It helps in maintaining and analysing electronic health records. AI models predict the onset of diseases, complications, or patient outcomes by analysing patient history and genetic data. AI-powered chatbots and virtual assistants can help schedule appointments, monitor symptoms, and provide patients with health advice. AI-driven robots can perform delicate surgeries with precision.

AI in Education:

AI can create individual learning experiences for students, based on their learning style and speed. AI tools can help generate quizzes, practise problems, or even reading materials and even assess these and other assignments, providing instant feedback to students. They enable real-time language translation, thereby overcoming language barriers and making learning resources more accessible. AI-powered tutoring systems clarify concepts, answer questions and have practice exercises, thereby giving guidance and support outside the classroom. AI integrates with technology to create immersive learning experiences, such as virtual field trips, science simulation, or hands-on practice in medicine, engineering, and art.

CONCEPT CLOUD

How is AI transforming business and industry?

Artificial Intelligence (AI) has been integrated into business and industry. It has led to increased efficiency and accuracy by automating repetitive tasks, predicting customer preferences, and optimizing supply chains. Its ability to analyse data and make decisions instantly is making it indispensable for modern businesses.

AI-powered chatbots answer customer inquiries, troubleshoot problems, and process orders. AI tools can help analyse customer feedback, user behaviour and preferences to provide businesses with insight and create more effective ads. They can predict future sales trends based on accumulated data, and enable businesses to make informed decisions about inventory, pricing, and promotions. AI systems analyse client data to determine which products are more popular based on previous purchases, browsing history, and preferences.

AI-powered robots are used in industries to automate repetitive tasks such as assembling parts or packaging, improving speed and accuracy and reducing human monotony and labour costs.

Artificial Intelligence is used to recruit employees, screen resumes, match job requirements to appropriate candidates and conduct interviews. It can provide training to new employees.

AI-powered vision systems can assist in quality control by detecting product defects, ensuring that goods are all of a superior quality.

AI tools use data about market and location trends to determine which property holds more value, thereby helping buyers, sellers, and real estate agents make more informed decisions.

Artificial Intelligence assists in automating and optimizing energy use in smart buildings. It can help calculate which delivery routes will be the fastest; this saves time and reduces transport costs.

Lesson plan 3

Resources

Textbook pages 8 - 11

Images of functions of NLP on the softboard or a tablet or multimedia if available.

Starter activity (10 min)

Which apps or games have you used where you can talk to the computer or where it understands what you are typing?

If you could talk to a computer, what would you want it to do?

Reading and explanation (25 min)

Read pages 8, 9, 10 and 11

Explain to your students that NLP stands for "Natural Language Processing." It is a way in which computers read, talk and comprehend language in the same way as us. It helps computers understand words, sentences, and even conversations.

Demonstrate how we use NLP in our everyday lives. Cite examples. Discuss how the spell check feature corrects spelling: that is NLP helping the computer sense that the word is spelt wrong. NLP helps voice assistants such as Alexa and Siri understand your voice and respond so you can understand. It helps computers translate what words in one language means in another language. NLP is like teaching computers to talk and listen to us, similar to how humans talk to one another. You can ask a computer to do things for you, help people speaking different languages understand each other and have computers help you with homework, games, and more. Chatbots use NLP to understand and reply to your questions on a website.

A chatbot which resembles a robot that you can talk to on a computer device can answer your questions, help with problems, and give you advice. When you ask a chatbot a question, it comprehends your words and then responds with an answer. Some chatbots are smart and can answer almost anything, while others are designed for specific things, like helping you with homework or giving directions.

For instance, when you ask a voice assistant such as Siri about the weather, you are talking to a chatbot. It reads your words, understands what you're asking, and gives you an answer. The little box that pops up on a website offering you help is a chatbot.

Chatbots are helpful because they can answer questions instantly, help you find things on a website quickly and save you time. Some chatbots are designed to help you solve math problems or answer questions about school subjects and even give you suggestions on what book to read or what game to play next. Some chatbots can help you schedule appointments.

Explain that a prompt is like a question that you ask a computer or to help it understand what you want it to do. Imagine you are talking to a chatbot. If you want it to tell you a story, the words you say to it are like a prompt. The clearer and more specific your prompt, the better the response. Ask your students to give examples of effective and ineffective prompts. Discuss specific and creative prompts. Emphasize the importance of using artificial intelligence ethically. When we use technology, we must make sure that we are doing the right thing and helping people in a fair and safe way.

DIGITAL RESOURCES

1. Presentation Slides - Tips on writing AI prompts
2. Worksheet - AI prompts

Conclusion (5 min)

Ask:

- ✓ Can a computer think like a human?
- ✓ Give an example of NLP in our everyday lives.

Homework assignment

✓ Ask children to complete the Worksheet.

Class Activity: Robot Trivia

Use blank flash cards to write words related to robotics and artificial intelligence. Give each of the students an equal number of cards. As you call out the definitions of each, the students identify the word whose meaning it corresponds with, raises their hand and the teacher tells them if its correct. Alternately, you can divide the class into four teams and quiz them. The group that gets most answers correct wins.

Suggested answers to end-of-chapter Workstation (page 12)

Explore with Whiz

Tick the Statement if it is true✓ and Cross × if false.

1. ✓
2. ×
3. ×
4. ✓
5. ✓
6. ×

Whiz Quiz

1. Robotics deals with the design, construction, operation, and use of robots which are machines that can perform tasks automatically.
2. Robots function with the help of hardware such as sensors, motors, and arms and software programming that teaches them how to perform tasks.
3. Artificial Intelligence (AI) refers to the ability of machines to learn, reason, and problem-solve like humans. AI has changed the world with technologies such as voice assistants, self-driving cars, and medical diagnoses, making everyday tasks easier and more efficient.
4. Chatbots are AI programs designed to mimic conversation. They help with tasks, answer questions, and provide customer service.
5. When writing prompts for AI, it is important for the prompts to be clear, specific, and detailed so AI understands exactly what you are asking for.

Worksheet

Identifying parts of the prompt

1. **Identify which part of the prompt is creative and which part is specific**
   - **Creative Part:**"Hi, can you tell me about the current global warming situation in Pakistan?"
   - **Specific Part:**"Also, what are some actions we can take to reduce its impact?"

Rating the prompt

2. **Rate the prompt on the following measures (where 1 is the lowest rating and 5 is the highest)**
   - Clarity and Precision:4
   - Providing Context:3

- Defining Format:4
- Setting Parameters:3

Improving the prompt

3. **Rewrite the same prompt to make it better.**
    - **Improved Prompt:**"Hi, can you provide an overview of the current global warming situation in Pakistan? Additionally, please suggest some actionable steps that can be taken to mitigate its impact."

02 WORKING WITH FILES

Teaching Objectives

Students will be able to:

1. Customise your computer desktop with fun backgrounds and icons,
2. Recognise different types of files like documents, pictures, and videos,
3. Convert a word document to a pdf,
4. Take a screenshot and save it as a picture,
5. Describe cloud computing,
6. Save your files on cloud services like Google Drive.

Lesson plan 1

Computer Lab Activity

Resources

- ✓ Textbook pages 14 - 17
- ✓ Images of desktop and icons if actual computers are not available.

Starter activity (5 min)

- ✓ What do you see first when you turn on the computer?
- ✓ What are icons?

Reading and explanation (25 min)

Ideally, this class should be conducted in the computer lab. Put on the computer and show your students what a desktop is. Explain that this is the main screen interface of a computer where they can interact with the different features. The desktop background, more popularly known as the wallpaper is the image or design that appears on the background of the desktop. It can be customized with photos, artwork, or different themes that are inbuilt in the software.

Show them the icons that are small pictorial representations of programs, files, and folders and that clicking on them will open the respective program or file.

Show them how to change their desktop background. Instruct them to right-click on the desktop and select Personalize or Change Desktop Background. Show them how to select a new image or use a downloaded background. It can be an image from their computer or the internet. Allow them to experiment with different images or themes. The textbook has screenshots displaying how you can change the wallpaper. Use that as reference for your students. The teacher can also demonstrate how to move around icons on the desktop. Discuss the importance of organising the desktop for efficiency. This encourages creativity and gives them hands-on experience in personalizing their digital workspace. The children can also attempt Whiz's tasks on Pg 17 which instructs them to change the computer's wallpaper to a solid colour. Look for the drop-down menu in the background settings, it will help them change from a picture to solid colour.

Conclusion (10 min)

Ask:

- ✓ How can you organise the desktop, so it is easier and more efficient to use?

Homework assignment

✓ The children are instructed to complete Word Whiz (Pg 14) at home.

Word Whiz	
Format	A way of reviewing the appearance of a document before it is printed
Homepage	Arrange or put into a format
Hyperlink	Link from a document to another location by clicking on a highlighted word or image
Preview	A web page set as the default or start-up page on a browser

Lesson plan 2

Computer Lab Activity

Resources

✓ Textbook pages 17- 21

Reading and explanation (35 min)

Read pages 17, 18, 19, 20 and 21.

Ideally, this class should be conducted in the computer lab.

Explain to your students that files can come in many different types. These file types are put into different categories based on the kind of data or content they hold.

1. Text Files (.txt): Contains plain text with no special formatting. You can open them with a program such as Notepad.
2. Image Files (.jpg, .jpeg, .png, .gif): Stores pictures or graphics. You can open these with programs like Windows Photo Viewer
3. Document Files (.doc, .docx): Stores text, images, and formatting. Word documents are opened with Microsoft Word,
4. (.pdf): PDFs open in a PDF reader like Adobe Acrobat.

Put on the computer. On the computer screen, show them where the different types of files are stored. They could be on the desktop or in folders. Teach them how to identify the different types of files. Show them the file extension (e.g., .jpg, .pdf, .docx) that helps identify the type of file. Teach them how to save different kinds of files, such as a Word document or an image and how to select the correct file type during the save process.

Discuss the significance of PDFs. PDFs ensure that documents have consistent formatting across different devices. They preserve the document's layout, fonts, and images. PDFs are smaller in file size, making them easier to share. Demonstrate on the computer how to change files from MS Word to PDFs. Next, show them how to take screenshots and save as JPEG files as illustrated in the text book.

DIGITAL RESOURCES

1. Video - Converting Word file to PDF

Conclusion (5 min)

Ask to recap:

- ✓ What types of files did we work with today?
- ✓ What is an important feature of a PDF file?

Homework assignment

- ✓ The children are instructed to research the answers and complete Whiz Tasks as their homework assignment.

Lesson plan 3

Resources

- ✓ Textbook pages 22 - 26
- ✓ Image of step-by-step process flow showing how data goes from the user's device to the cloud and back on the softboard.

Starter activity (5 min)

- ✓ Are you afraid sometimes that you may lose all your data from your computer device?
- ✓ How can you keep all your data safe?

Reading and explanation (25 min)

Read pages 22, 23, 24, 25 and 26

Explain that cloud computing allows you to use software and apps over the internet, instead of just keeping them on your device. Imagine that there is a huge, library in the sky, namely, the cloud.

Cloud computing enables you to play games with apps or software on the internet, use online tools to write, draw, or design projects and share files and collaborate with others using apps like Google Docs. In the cloud, you can access your apps and files from anywhere—at home, school, or even on vacation.

Cloud storage is like having a safe folder in the cloud where you can store all your pictures, music, and documents. You can upload your files to the cloud, and they are available to you anytime, anywhere, as long as you are connected to the internet. Explain to your students how cloud storage works. You upload and save your files to the cloud instead of your device. The files are stored on servers, that are like giant computers that always stay connected to the internet. Whenever you want your files, you simply connect to the internet, and the cloud delivers them to your phone, tablet, or computer.

List the benefits of cloud storage:

1. You can access your files from any computer device connected to the internet.
2. Cloud storage automatically backs up your files, so if your device gets damaged or lost, you don't have to worry about losing important data.
3. You free up storage space on your computer devices by storing files in the cloud.
4. You can share files and folders by simply sending a link, so it is easy to collaborate on projects or send pictures, documents, or videos to friends and family.
5. Cloud providers have encryption and password protection, so it keeps your files safe from unauthorized access.
6. Cloud storage allows multiple users to work and collaborate on the same file at the same time.
7. It is more cost-effective to store and manage large amounts of data in the cloud.

8. Files stored in the cloud are automatically synced across all your computer devices.
9. The risk of losing data due to a device getting spoilt or data getting deleted by mistake is minimized.

Give them the options of using different cloud storage services:

1. Google Drive
2. Dropbox
3. OneDrive
4. iCloud
5. Box
6. Amazon Drive

DIGITAL RESOURCES

1. Video 1 - How does computing works?
2. Video 2 - Environmental impact of Cloud Computing
3. Video 3 - Environmental impact of data centers
4. Presentation Slides 1 - Benefits of Cloud Computing
5. Presentation Slides 2 - Environmental impact of Cloud Computing
6. Worksheet - Cloud Computing

Conclusion (5 min)

Ask:

✓ Name the benefits of cloud storage. Which cloud storage service will work best for you?

Homework assignment

✓ The children are instructed to answer this question: How will cloud storage help you in organising your files for school or personal projects.

Lesson plan 4

Resources

✓ Textbook pages 26 - 29

✓ Screenshots of Microsoft One Drive on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

✓ What does cloud storage help us with?

✓ Can you recall different cloud storage services?

Reading and explanation (30 min)

Read pages 26, 27, 28 and 29

Explain that Microsoft OneDrive is a cloud storage service which lets you store files and data online so you can access them from any computer device with an internet connection. Think of a distant space where you can keep your important files safe and accessible anytime. This space is called the cloud.

OneDrive allows you to upload your files to the cloud. Once they are in OneDrive, you can access them from any computer device with an internet connection. OneDrive can automatically

sync files across all your devices. When you edit a file on your phone, the changes will appear on your computer also.

Tell your students that OneDrive will give them 5 GB of free storage after which they will need to pay for extra storage.

They can easily share files or folders with other people. For example, if they are working on a project with a friend, they can share their file with them, and they can both edit it at the same time from their respective devices. OneDrive is connected with Microsoft Office tools like Word, PowerPoint, and Excel. This means you can create, edit, and collaborate on documents directly within OneDrive. Your files are safe in OneDrive. Microsoft uses encryption to protect your data, and you can set up a password to keep your account secure.

Follow the text in the textbook carefully to guide your students how to use and sign in on OneDrive. Part of this class can be conducted in the computer lab where the teacher can demonstrate to them practically the varied features of OneDrive and its interface on the computer. Teach them how to use the different OneDrive options.

DIGITAL RESOURCES

1. Video - Google Drive: Interface, making folders, retrieving and uploading files

Conclusion (5 min)

Ask:

- ✓ How can OneDrive help in your daily computing tasks?
- ✓ How would you use OneDrive to collaborate on a project?

Homework assignment

- ✓ The children are instructed to answer Explore with Whiz exercises and Whiz Quiz as part of their homework assignment.

Suggested answers to end-of-chapter Workstation (page 30)

Explore with Whiz

Choose the correct answer.

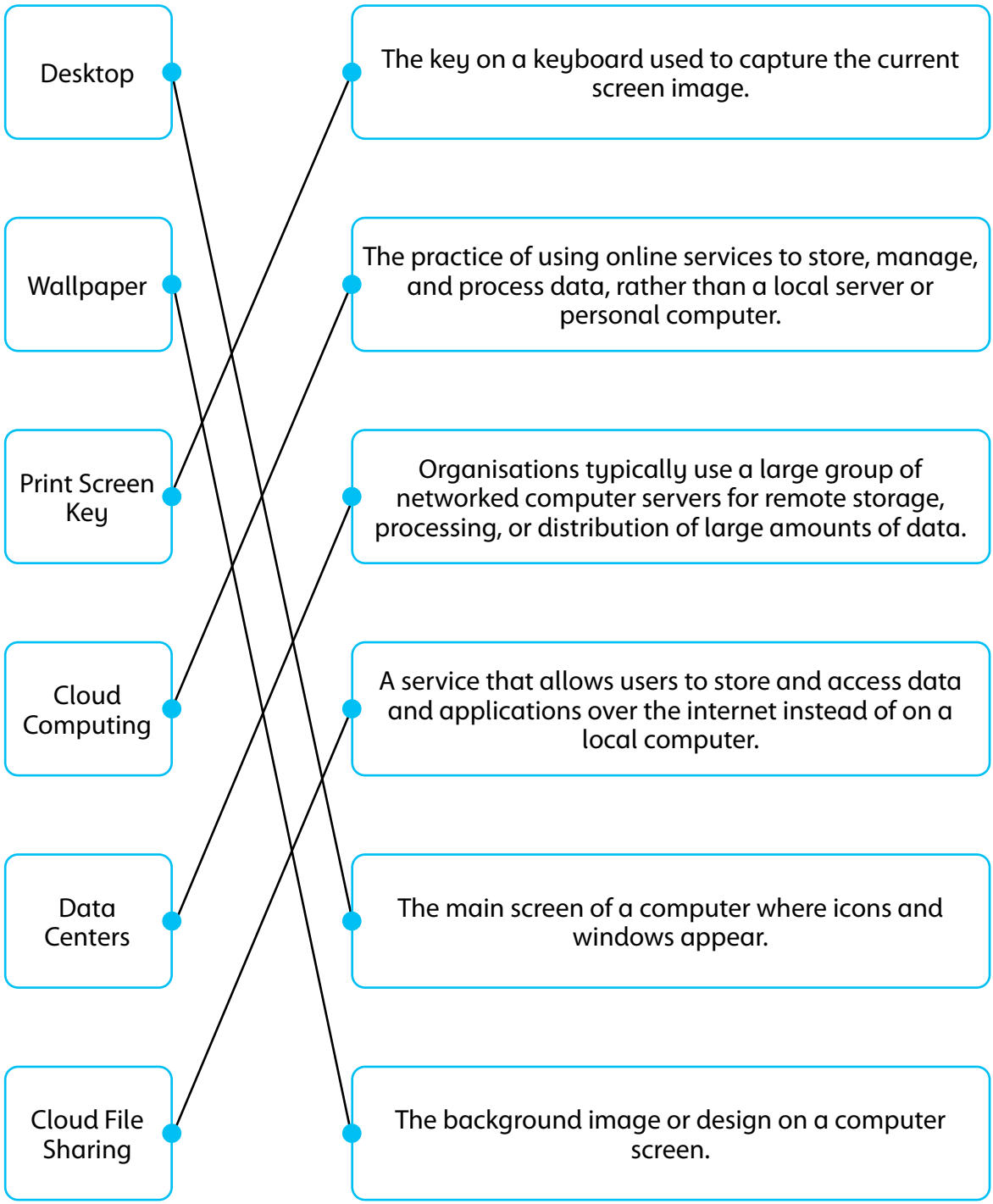
1. JPEG
2. Primary user interface of the computer
3. To make the image smaller to store
4. Retrieve them from the cloud

Whiz Quiz

1. The desktop on the computer consists of a wallpaper, icons, task bar, start menu, search bar, quick launch toolbar, system tray, clock, files, and folders.
2. Information should be stored in folders as they help organise information, making it easier to find, manage, and access files.
3. Three different ways in which we can customise the desktop are by changing the wallpaper, rearranging icons, and creating new folders.

4. Three benefits of having documents in PDF format are as follows: They are easy to share across devices. They are ideal for printing and viewing. The file size is smaller than other formats.
5. We should store images in JPEG format as JPEG files are compressed and reduce the file size while preserving the quality of the image, so they are ideal for storage and sharing.
6. Cloud storage allows you to store data online, ensures easy access from various computer devices, automatic backup, and protects you from accidental loss of data.

Worksheet


Desktop
Wallpaper
Print Screen Key
Cloud Computing
Data Centers
Cloud File Sharing
The key on a keyboard used to capture the current screen image.
The practice of using online services to store, manage, and process data, rather than a local server or personal computer.
Organisations typically use a large group of networked computer servers for remote storage, processing, or distribution of large amounts of data.
A service that allows users to store and access data and applications over the internet instead of on a local computer.
The main screen of a computer where icons and windows appear.
The background image or design on a computer screen.

03 SEARCHING ON THE INTERNET

Teaching Objectives

Students will be able to:

1. Use web browsers to find information online,
2. Learn how to use keywords to search better,
3. Understand how seo makes online content more relevant and accessible,
4. Identify digital advertisements and interact with them safely,
5. Learn basic rules of safe browsing.

Lesson plan 1

Resources

- ✓ Textbook pages 32 - 35
- ✓ Images of different web browsers on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

- ✓ What have you used the Internet for?
- ✓ What helps you find the correct information you are looking for on the Internet?

Reading and explanation (20 min)

Explain to the students that a web browser is an app that helps you access websites on the internet. Some common web browsers are Google Chrome, Safari, Firefox, Opera and Microsoft Edge. Type in a website address such as www.google.com or use a search engine such as Google to search for information. For example, if you want to know about snow leopards, you open a web browser and type in the search bar. The browser will show you a list of websites where you can get information about them. Try using different words to elicit more information such as endangered species of Pakistan. These are referred to as keywords. They help you find the best answers. The more specific your keywords are, the better the results.

Teach the children that Search Engine Optimization or SEO is a way to help websites show up more in search results when they are looking for information on something on the internet. When they search for something on Google, they get a list of websites. The websites at the top of the list are usually the ones that have the best SEO.

When people use a search engine to look for information, the search engine tries to find the best websites based on the keywords they use, the quality of the content and their links to other websites. The right keywords always help children find what they are looking for. The title of the blog, video, or website is really important because it helps them identify the data content. When they share the link to a really good website with their friends or family, the website gets noticed more. Also, if the website content is interesting, children will stay on that page longer, and that helps with SEO also.

Word Whiz	
Filter	Process items in order to reject those that are unwanted
Incognito	In a way that conceals one's true identity
Keywords	Words that you type into a computer so that the computer will find information that contains that word
Retrieve	The act of working together with someone to produce something
Search history	A web page set as the default or start-up page on a browser

DIGITAL RESOURCES

1. Presentation Slides - Using search engines effectively
2. Worksheet - Using search engines effectively

Conclusion (5 min)

Ask:

✓ Why do you think SEO is important?

Homework assignment

✓ The children are instructed to answer the following question:

✓ Write a short paragraph illustrating what keywords you will use to find a holiday destination on the Internet. Give reasons for your answer.

Lesson plan 2

Resources

✓ Textbook pages 36 -37

✓ Images of digital ads on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

✓ What kind of ads do you see online?

✓ What should you do if you see an ad that makes you uncomfortable?

Reading and explanation (25 min)

Read pages 4, 5 and 6.

Explain to the children that digital advertisements are those that they see on websites, apps, and even videos when they are browsing the Internet.

Examples of digital ads include:

Long, rectangular ads called banners that appear at the top or sides of websites

Pop-up ads that appear when you are browsing

Short Video ads that play before or during videos

Ads or links that seem like search results but are actually paid for. The word sponsored will appear by that ad.

Teach the children how to stay safe while browsing. Instruct them to avoid clicking on suspicious ads that may trick them into giving away personal information or even infects their computer device with viruses or malware. They should not share personal information or passwords on

a website unless they are sure it is absolutely safe. They should use strong passwords to keep their personal info safe. If they see something online that seems suspicious or makes them uncomfortable, they should let an adult know. Many websites, apps, and games have privacy settings that allow them to control what other people can see about them. They should use these privacy settings to protect themselves. They should use anti-virus software to protect their computer or tablet from harmful ads and viruses.

DIGITAL RESOURCES

1. Presentation Slides 1 - Checking the creditability of a website
2. Presentation Slides 2 - Types of digital ads
3. Worksheet 1 - Checking website credibility
4. Worksheet 2 - Digital Ad Analysis

Conclusion (10 min)

Ask:

- ✓ What may happen if you click on an advertisement?
- ✓ What should you do if an advertisement seems too good to be true?

Homework assignment

- ✓ The children are instructed to complete Explore with Whiz and Whiz Quiz as their homework assignment.

Suggested answers to end-of-chapter Workstation (page 38)

Explore with Whiz

Underline the correct answer

1. A web browser
2. Incognito mode
3. Google Chrome
4. SEO
5. keywords
6. social media

Whiz Quiz

1. A web browser is used to access and view websites on the internet, such as Google Chrome or Safari.
2. The History feature helps retrieve content we looked up earlier.
3. Keywords help search engines find relevant pages based on what people are searching for.
4. SEO helps websites appear more in search results, making it easier for people to find them.
5. We should only visit secure websites, use strong passwords and avoid clicking on suspicious ads to protect ourselves during browsing sessions.
6. Online advertisements are effective because they are targeted to specific interests of viewers.

Worksheet

This is a hands on activity. Student's must do the worksheet while using a search engine.

04 BUILDING A WEBSITE USING CANVA

Teaching Objectives

Students will be able to:

1. Learn basic terminologies of websites,
2. Learn to create a simple website using canva,
3. Add text and images to the webpage,
4. Learn basic entrepreneurial skill of promoting products online.

Lesson plan 1

Resources

✓ Textbook pages 40 - 42

✓ Images of different website screenshots on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

✓ How many of you have shopped online?

✓ Do you understand how websites are created?

Reading and explanation (20 min)

Read pages 40, 41 and 42.

Explain that a website is a collection of web pages that are all linked together and can be accessed through the internet. Show them a website and explain how it works. Ask your students to give examples of websites they visit and explain what they do on those websites. Teach them the basic terms related to websites: URLs, domain, web hosting, web server, etc.

A URL or Uniform Resource Locator is the unique online address that takes them to a specific page on a website. The domain name is the name of the website they visit. They are usually in this format: server.organisation.type

A browser such as Google Chrome or Safari helps us access websites. Web hosting is like renting space on the internet where a website and its data are stored and accessed. Discuss what things they need to keep in mind when building a website.

Instruct children on creating a simple website using Canva. Explain that Canva is a design app that enables them to easily create designs for posters, social media posts, and websites. Discuss the features of Canva and the advantages of using this app.

Word Whiz

Customisation	The act of modifying something to suit a particular task
Domain	A subdivision of the Internet consisting of computers or sites usually with a common purpose and denoted in Internet addresses by a unique abbreviation

Interactive	Allowing a two-way flow of information between a computer and its user
Server	A computer program or device that provides a service to another computer program and its user

DIGITAL RESOURCES

1. Presentation Slides - Website building techniques

Conclusion (5 min)

Ask:

✓ Have you ever created a poster or a presentation with the help of the Canva app? What was your experience?

Homework assignment

✓ The children are instructed to complete Whiz Tasks (Pg 40) at home.

CONCEPT CLOUD

Features of Canva

1. Canva has apps for both iOS and Android devices, allowing users to design on the go.
2. The Canva interface has a simple layout and easy-to-use toolbars.
3. There are various pre-designed templates for social media posts, flyers, presentations, business cards, invitations, infographics, resumes, and websites. The templates can be customized fully, so you can change colours, fonts, images, and layouts.
4. A large selection of fonts, as well as pre-made text styles are available.
5. Different geometric shapes, lines, and grids can be added to the design.
6. You can collaborate with others in real-time and are able to edit or leave feedback on the design; you can also leave direct comments on the design.
7. Drag and drop tool can be used to insert elements such as images, text, shapes, and icons into the design.
8. Its simple editing tools enable you to resize, rotate, crop, and adjust elements; the alignment guides ensure that everything is well-arranged and balanced.
9. Its built-in photo editing tools allow you to adjust brightness, contrast, saturation, and apply filters.
10. You can add animated elements, such as animated text, icons, and stickers to their designs.
11. Text can be animated for use in presentations or social media posts.
12. Your work can be saved in the cloud, so you can access your designs from anywhere.
13. You can export your designs in various formats, including PNG, JPEG, PDF, and GIF.
14. Canva has a library of free and premium images, illustrations, and icons.

15. It offers a wide range of tutorials, courses, and blog posts to help you learn about the app and about design.
16. It has templates specifically designed to create educational worksheets, lesson plans, and study guides.
17. It integrates with Google Drive, Dropbox, and social media networks, making it easy to share your designs.

Canva Pro

Canva Pro allows you to quickly remove the background from an image to make it transparent.

You can also upload your brand's fonts, colours, and logos to create consistent designs across all projects.

It enables you to create simple one-page websites, perfect for portfolios, resumes, or event pages. You can choose from templates, add text, images, and other elements, and publish directly from Canva.

You can schedule posts directly to Facebook, Instagram, etc.

Lesson plan 2

This class should ideally be held in the computer lab.

Resources

- ✓ Textbook pages 43 - 47
- ✓ Images of Canva screenshots on the softboard or a tablet or multimedia if this class cannot be conducted in computer lab.

Starter activity (5 min)

- ✓ Ask your students:

What products or services would you like to create a website for?

Reading and explanation (30 min)

Read pages 43, 44, 45, 46 and 47. Here, the children have been briefed on how to make a website on Canva to sell sustainable tote bags and T-shirts. The teacher can now guide them to make their own websites in a similar manner. Explain that the class today will be making their own website on Canva. Divide the children into groups depending on the number of computers available per number of children.

Switch on the computer. Show them how to open the web browser. They should then type in www.canva.com to access Canva.

They should then click on the 'Sign up' button, using their email or Google account.

Briefly explain the different features. Show them the tools and templates.

Instruct them to type Website in the search bar on the Canva homepage.

Walk them through the process of selecting a template from the Website section.

They can start by picking a simple, clean template.

They can choose to apply all pages from the chosen template or add the pages one by one.

They can customize the template. They can create their brand and mission and add a header with their brand name and logo.

Select the Text tab from the sidebar menu or customize the text that is on the template. Make your text easy to read. Use big fonts for titles and smaller fonts for details. Do not crowd your page.

To add images, click on the Photos tab and search for images. Add pictures by dragging them into your design.

Change the background colour or elements as you like. Click on the Elements tab from the sidebar menu and add visual elements.

Create an About us section using the design and elements tab.

Next, work on the products page. Create a separate page for each product category. Add high-quality images of your products. Add small attractive details for each product or give each product a unique name.

Add a note from the founder of the company to give your website a more personalised touch. This could include your brand story.

On the next page, add contact information. Include a contact form or email address for customer inquiries. Add links to your social media profiles.

When you have completed creating your website, click the Publish button. Canva will provide a link to your website.

Have students present their final websites. The teacher can assess them on creativity, use of text/images, and clarity of their promotional message.

DIGITAL RESOURCES

1. Video - Design Principles
2. Video - On screen tutorial: Making a website using Canva (part 1)
3. Video - On screen tutorial: Making a website using Camva (part 2)

Conclusion (5 min)

Ask:

✓ What is the most important thing you should remember when promoting something online?

Homework assignment

✓ The children are instructed to research the answers and complete Whiz Tasks as their homework assignment.

Suggested answers to end-of-chapter Workstation (page 48)

Explore with Whiz

Fill in the blanks.

1. domain name
2. web hosting
3. web design
4. Canva
5. web host
6. subdomain
7. web hosting

8. compatible

Whiz Quiz

9. A website is a collection of web pages that are linked together, that contain text, images and interactive features.
10. A domain name is the unique address used to access a website. It is in the following format: server.organisation.type as for example, www.yahoo.com
11. Uploading is the process of transferring data from your computer to the internet or another device. Downloading is the process of transferring data from the internet or another device to your computer.

Worksheet

Make copies of the attached storyboarding worksheet and share with your students to work on individually.

Storyboarding Worksheet

Name: _____

Slide 1: Homepage

Slide 2: About Us

Slide 3: Products

Slide 4: Contact Us

Slide 5: Donation

Slide 6: Add an additional slide (optional)

Now try to recreate this presentation on Canva.

05 PROJECT DEVELOPMENT IN SCRATCHJR

Students will be able to:

1. Create a simple game using Scratch Junior,
2. Follow step-by-step instructions to build your game.

Teaching Objectives

Lesson plan 1

Revision Class

Resources

✓ Textbook page 50.

✓ Image of the ScratchJr screenshot on the softboard or a tablet or multimedia if available.

Revision activity (25 min)

Do a Recap class with the children to remind them about the different features of ScratchJr.

Explain that ScratchJr is a programming language that allows them to learn the basics of coding and create their own interactive games and stories. When designing their projects, it teaches them how to make characters move, talk, or interact. They learn to do animation, create stories, and interactive projects. They acquire an understanding of how actions lead to specific outcomes. They learn to collaborate, share ideas, and complete projects together.

ScratchJr allows them to:

Snap programming blocks together to make characters move, jump, dance and sing.

Modify characters and insert photos.

Add sound.

Discuss what a sprite and script are. Demonstrate how they can change a sprite. Show the children how to change the background. Teach them the contents of the Concept Cloud so as to do a recap of what they had learned in the earlier grade.

Word Whiz

Animation	The technique of photographing successive drawings to create an illusion of movement when the film is shown as a sequence
Condensation	The conversion of vapour or gas into liquid
Evaporation	The process where liquid turns into vapour
Interactive	Allowing a two-way flow of information between a computer and a computer-user
Precipitation	Any liquid or frozen water that forms in the atmosphere and falls back to earth
Storytelling	The act of telling a story using words or actions

Transpiration	Evaporation of water from a plant's leaves, stem, or flowers

CONCEPT CLOUD

Interface Guide

1. Save

   Save the current project and exit to the Home page

2. Stage

   This is where the action takes place in the project. To delete a character, press and hold it.

3. Presentation Mode

   Expand the stage to the full screen.

4. Grid

   Toggle on (and off) the x-y coordinate grid.

5. Change Background

   Select or create a background image for the stage.

6. Add Text

   Write titles and labels on the stage.

7. Reset Characters

   Reset all characters to their starting positions on the stage. (Drag characters to set up new starting positions.)

8. Green Flag

   Start all programming scripts that begin with a "Start on Green Flag" block by tapping here.

9. Pages

   Select among the pages in your project — or tap the plus sign to add a new page. Each page has its own set of characters and a background. To delete a page, press and hold it. To reorder pages, drag them to new positions.

10. Project Information

    Change the title of the project, see when the project was created, and share the project (if supported by your device).

11. Undo and Redo

    If you make a mistake, tap Undo to go back in time, reversing the last action.

    Tap Redo to reverse the last Undo.

12. Programming Script

    Snap blocks together to make a programming script, telling the character what to do. Tap anywhere on a script to make it run. To delete a block or script, drag it outside the programming area. To copy a block or script from one character to another, drag it onto the character's thumbnail.

13. Programming Area

    This is where you connect programming blocks to create scripts, telling the character what to do.

14. Blocks Palette

    This is the menu of programming blocks. Drag a block into the programming area, then tap on it to see what it does.

15. Block Categories

    This is where you can select a category of programming blocks: Triggering Blocks (Yellow), Motion (Blue), Looks (Purple), Sounds (Green), Control (Orange), End Blocks (Red).

16. Characters

    Select among the characters in your project — or tap the plus sign to add a new one. Once a character is selected, you can edit its scripts, tap its name to rename it, or tap the paintbrush to edit its image. To delete a character, press and hold it. To copy a character to another page, drag it to the page thumbnail.

Start on Green Flag

Starts the script when the Green Flag is tapped.

Start on Bump

Starts the script when the character is touched by another character.

Start on Tap

Starts the script when you tap on the character

Start on Message

Starts the script whenever a message of the specified color is sent.

Send Message

Sends a message of the specified color.

Motion Blocks

Move Right

Moves the character a specified number of grid squares to the right.

Move Left

Moves the character a specified number of grid squares to the left.

Move Up

Moves the character a specified number of grid squares up.

Move Down

Moves the character a specified number of grid squares down.

Turn Right

Rotates the character clockwise a specified amount. Turn 12 for a full rotation.

Turn Left

Rotates the character counterclockwise a specified amount. Turn 12 for a full rotation.

Hop

Moves the character up a specified number of grid squares and then down again.

Go Home

Resets the character's location to its starting position. (To set a new starting position, drag the character to the location).

Looks Blocks

Say

Shows a specified message in a speech bubble above the character.

Grow

Increases the character's size.

Shrink

Decreases the character's size.

Reset Size

Returns the character to its default size.

Hide

Fades out the character until it is invisible.

Show

Fades in the character until it is fully visible.

Sound Blocks

Pop

Plays a 'Pop' Sound

Play Recorded Sound

Plays a sound recorded by the user.

Control Blocks

Wait

Pauses the script for a specified amount of time (in tenths of seconds).

Stop

Stops all the characters' scripts.

Set Speed

Changes the rate at which certain blocks are run.

Repeat

Runs the blocks inside a specified number of times.

End Blocks

End

Indicates the end of the script (but does not affect the script in any way).

Repeat Forever

Runs the script over and over.

Go to Page

Changes to the specified page of the project.

Conclusion (5 min)

Ask:

- ✓ Now do you remember how to start a new project in ScratchJr?
- ✓ What is your favourite feature of the ScratchJr interface? Why do you like it?

Lesson Plan 2 and 3

Lab Activities (40 min each)

Starter activity (5 min)

- ✓ Can you give me examples of a game you would like to create?
- ✓ Who will be your main character?

Resources

- ✓ Textbook pages 51 – 61

Reading and explanation

Read pages 51 – 61. Break this lesson into two classes in the computer lab. Discuss how you can create a new game now that you know about all the tools. Take the children to the computer lab and demonstrate the different steps to them. Have them practise using ScratchJr tools. Explain how the game in the textbook has been created in detail.

DIGITAL RESOURCES

1. Video - On screen tutorial: Making a game on ScratchJRr (part 1)
2. Video - On screen tutorial: Making a game on ScratchJRr (part 2)

Conclusion (5 min)

Ask:

- ✓ What game or story do you want to create using ScratchJr?

Homework assignment

✓ The children are instructed to complete Explore with Whiz and Whiz Quiz as part of their homework assignment.

Suggested answers to end-of-chapter Workstation (page 62)

Whiz Quiz

1. The ScratchJr language helps us create interactive stories, games, and animations by using visual programming blocks.
2. To add a new character as the mascot, we take the following steps:
   i. We put our finger on the cat icon until we see the red X. Tap the red X to make the cat disappear.
   ii. Choose a character from the library or create your own.
   iii. Tap on the character to add it to the stage.
3. The different functions of the Home icon are to save the current project and exit to the Home page.
4. We add repeat blocks to make actions or movements happen multiple times, saving us from repeating the same blocks manually.
5. We can preview your project by tapping the green flag to start the project and see how it plays out on the screen.

Worksheet

Students will use the 'Interface Guide' and the 'Paint Editor Guide' from ScratchJr to complete this worksheet.

06 BEING A RESPONSIBLE DIGITAL CITIZEN

Teaching Objectives

Students will be able to:

1. Define copyright and plagiarism,
2. Distinguish between trademark and patent,
3. Recognise the importance of respecting other people's work,
4. Learn to avoid copying others' work without permission,
5. Understand and manage digital waste and e-waste.

Lesson plan 1

Resources

✓ Textbook pages 65 - 68

✓ Images of different OS on the softboard or a tablet or multimedia if available.

Starter activity (5 min)

- What would you feel if someone took your assignment or story and said it was theirs?
- Can you think of a logo or brand that you instantly recognise? What makes it special?

Reading and explanation (25 min)

Explain that when someone creates something new such as a drawing, book, or song, they have the right to dictate how others can use it. This is called copyright. Taking someone else's work and pretending that it is yours is called plagiarism and this is considered a serious offence.

Teach them the difference between trademarks and patents. A trademark is a special logo or name that helps people know who made something whereas a patent is when someone invents something new and have the sole right to be the one to make and sell it.

Teach your students the importance of respecting other people's work. Children must give credit when using other's ideas, creations, or inventions. Emphasize that copying someone's work without asking is absolutely unacceptable. Define digital waste and e-waste so your students understand the difference as well as the importance of discarding both.

Why should you copyright a book you write?

You should copyright a book you write to protect your intellectual work and have exclusive rights to use, reproduce or distribute it. Copyrighting your book ensures that others cannot copy or reproduce your material without your permission, and you can take legal action against anyone who violates your copyrights.

CLASS ACTIVITY

What is ethical and what is not?

Divide the class into two groups and read out these situations. The children have to decide if an action is ethical or not and give reasons for their answers.

1. When you create a new song, you have the exclusive right to decide how others can use it.
2. You find a drawing online. Can you use it for your project without asking?
3. Can you take someone else's work and pretend it's yours?
4. Is it okay to copy your friend's homework assignment?
5. You find a summary online that you are required to do as homework and copy paste it.
6. You submit an essay after referring to your friend's work for ideas with her permission.
7. You use a paragraph from an article on climate change and include a citation.
8. You put a quote from a famous speech online in quotation marks but forget to cite the speaker.

Word Whiz

Exclusive	Relating to the law
Legal	Restricted to the person, group, or area concerned
Patent	A symbol or word legally registered to represent a company or product.
Trademark	An official license giving the sole right to exclude others from making, using, or selling an invention

DIGITAL RESOURCES

1. Worksheet - AI and Copyright Ethics

Conclusion (5 min)

Ask:

- ✓ Can you explain the difference between a trademark and a patent?
- ✓ Give some examples of plagiarism.

Homework assignment

- ✓ The children are instructed to complete Whiz Tasks (Pg 66 - 67) at home by answering the following questions.

Why should you copyright a book you write?

How is copyright different from a patent or trademark?

What implications may plagiarizing cause in school?

How would you react if someone copies your work and submits to the teacher as their work?

Suggested answers:

How is copyright different from a patent or trademark?

Copyright protects intellectual and creative work like books and music, while trademark protects brand names and logos, and patent protects new inventions and innovations.

What implications may plagiarising cause in school?

Plagiarizing can lead to serious trouble; it can damage one's reputation, along with possible disciplinary actions, like failed assignments.

Lesson plan 2

Resources

- ✓ Textbook pages 69 - 72
- ✓ Images of different kinds of digital waste on the softboard or a tablet or multimedia if available.

Starter activity (10 min)

- ✓ What do you do when your computer device becomes old or obsolete?

Reading and explanation (25 min)

Read pages 69, 70, 71 and 72.

Explain to your students that digital waste is the unwanted or unused data, files, and devices that they no longer need, but still have on their computer devices. They include old files and photos, unused apps, emails and messages that they don't need and old unused computer devices that have not been recycled.

You must make them understand that digital waste is a waste of space and can slow down their computer devices. All the data stored on the internet requires energy so the more digital waste we have, the more energy is wasted. To reduce digital waste, it is important to delete unused files and apps from your devices, delete old emails that you don't need, unsubscribe from promotional emails and recycle old devices. The teacher should refer to the textbook to guide the children on how to manage digital waste effectively.

Differentiate between digital and e-waste so children understand the concepts clearly. Digital waste refers to all the unused data on our devices but does not include any physical trash. It slows down your devices but isn't physically harmful to the environment like e-waste. E-waste or electronic waste refers to the old, broken, or unwanted electronic devices including old phones, computers, chargers, batteries, TVs, and tablets.

Explain that e-waste can harm the environment if it is not disposed correctly. Many electronic devices contain toxic chemicals which may leak into the ground and water and harm them. E-waste fills up landfills and can even release poisonous gases into the air, leading to serious health problems in people who are exposed to them. Discuss the importance of recycling e-waste, trying to fix or reuse old gadgets or donating old ones.

Conclusion (5 min)

Ask:

- ✓ Can you explain the difference between digital waste and e-waste?

Homework assignment

✓ The children are instructed to research the answers and complete Explore with Whiz and Whiz Quiz as their homework assignment.

Suggested answers to end-of-chapter Workstation (pages 73-76)

Explore with Whiz

Fill in the blanks.

1. Copyright
2. plagiarism
3. copyright
4. plagiarism

Whiz Quiz

1. Copyright protects authors by giving them the exclusive right to reproduce, distribute, and display their work and ensure that they are given credit and compensation for their work.
2. Three ways we can respect a paper with copyright is by giving the author proper credit, getting permission from the author to use their work and not distributing their work for free.
3. A trademark protects logos, names, or symbols that represent a particular product or brand whereas a patent guards inventions or new technologies.
4. Plagiarism is the act of using someone else's ideas, words or work without giving them credit.
5. Three ways in which we can avoid plagiarism is to cite sources always, use quotation marks for direct quotes and rewrite paragraphs instead of copying.
6. We use a plagiarism checker to make sure that our work is original and to avoid copying someone else's work.

Worksheet

Scenario 1: Digital waste

Explanation: Raza's old photos and files that he does not need on his computer should be deleted as they take up space and slow down his device.

Scenario 2: E-waste

Explanation: Discarding electronic devices such as an old computer is e-waste, and if not recycled properly, it can harm the environment.

Scenario 3: Digital waste

Explanation: If Sara deletes her social media posts, she will be disposing unnecessary content taking up space on her profile.

Scenario 4: Ethical practice

Explanation: Ali's school donating old computers to a local community center is an example of an ethical practice because it benefits others who may not have access to computers.

Scenario 5: E-waste

Explanation: Musab disposing his broken tablet instead of recycling it can harm the environment.

Scenario 6: Digital waste

Explanation: Raza's old emails and documents stored in his email account take up space and cause unnecessary clutter.

Scenario 7: Ethical practice

Explanation: Samra's family recycling their old smartphones at an electronic recycling center is an ethical practice as it ensures valuable materials are reused.

Scenario 8: Digital waste

Explanation: Sara has software and applications that take up a lot of space on her computer and are of no use.

Scenario 9: Copyright infringement

Explanation: By copying and pasting a picture from the internet without giving credit to the original artist, Ali is violating copyright laws.

Scenario 10: Ethical practice

Explanation: Musab downloads a song and gives credit to the artist in his video, thereby acknowledging the artist's work.

Scenario 11: Plagiarism

Explanation: Raza is plagiarizing because he is presenting someone else's work as his own without giving them proper credit.

Scenario 12: Plagiarism

Explanation: Samra is plagiarizing as she is taking credit for someone else's writing and passing it off as her own.