3

DIGICODE AI

Teacher's Manual

Extended Support for Teachers

ORANGE
www.orangeeducation.in
www.thetouchpad.com

Teacher's Time Table

Periods / Days	0	I	II	III	IV	BREAK	V	VI	VII	VIII
Monday										
Tuesday										
Wednesday										
Thursday										
Friday										
Saturday										

Development Milestones in a Child

Development milestones are a set of functional skills or age-specific tasks that most children can do at a certain age. These milestones help the teacher identify and understand how children differ in different age groups.

Age 5 - 8 Years	
Physical	• First permanent tooth erupts • Shows mature throwing and catching patterns • Writing is now smaller and more readable • Drawings are now more detailed, organised and have a sense of depth
Cognitive	• Attention continues to improve, becomes more selective and adaptable • Recall, scripted memory, and auto-biographical memory improves • Counts on and counts down, engaging in simple addition and subtraction • Thoughts are now more logical
Language	• Vocabulary reaches about 10,000 words • Vocabulary increases rapidly throughout middle childhood
Emotional/Social	• Ability to predict and interpret emotional reactions of others enhances • Relies more on language to express empathy • Self-conscious emotions of pride and guilt are governed by personal responsibility • Attends to facial and situational cues in interpreting another's feelings • Peer interaction is now more prosocial, and physical aggression declines

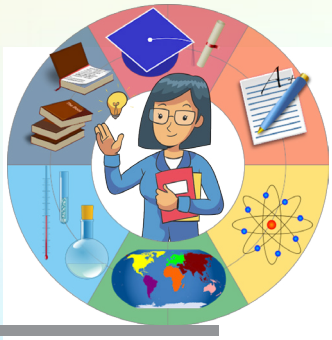
"If you cannot do great things, do small things in a great way."

Age 9 - 11 Years	
Physical	• Motor skills develop resulting in enhanced reflexes
Cognitive	• Applies several memory strategies at once • Cognitive self-regulation is now improved
Language	• Ability to use complex grammatical constructions enhances • Conversational strategies are now more refined
Emotional/Social	• Self-esteem tends to rise • Peer groups emerge

Age 11 - 20 Years	
Physical	• If a girl, reaches peak of growth spurt • If a girl, motor performance gradually increases and then levels off • If a boy, reaches peak and then completes growth spurt • If a boy, motor performance increases dramatically
Cognitive	• Is now more self-conscious and self-focused • Becomes a better everyday planner and decision maker
Emotional/Social	• May show increased gender stereotyping of attitudes and behaviour • May have a conventional moral orientation

Managing the children's learning needs according to their developmental milestones is the key to a successful teaching-learning transaction in the classroom.

"Family is the most important thing in the world."



Teaching Pedagogies

Pedagogy is often described as the approach to teaching. It is the study of teaching methods including the aims of education and the ways in which such goals can be achieved.

Lesson Plans

A lesson plan is the instructor's road map which specifies what students need to learn and how it can be done effectively during the class time. A lesson plan helps teachers in the classroom by providing a detailed outline to follow in each class.

A lesson plan addresses and integrates three key components:

- Learning objectives
- Learning activities
- Assessment to check the student's understanding

A lesson plan provides an outline of the teaching goals:

Before the class:

1. Identify the learning objectives.
2. Plan the lesson in an engaging and meaningful manner.
3. Plan to assess student's understanding.
4. Plan for a lesson closure.

↓

During the class:

Present the lesson plan.

↓

After the class:

Reflect on what worked well and why. If needed, revise the lesson plan.

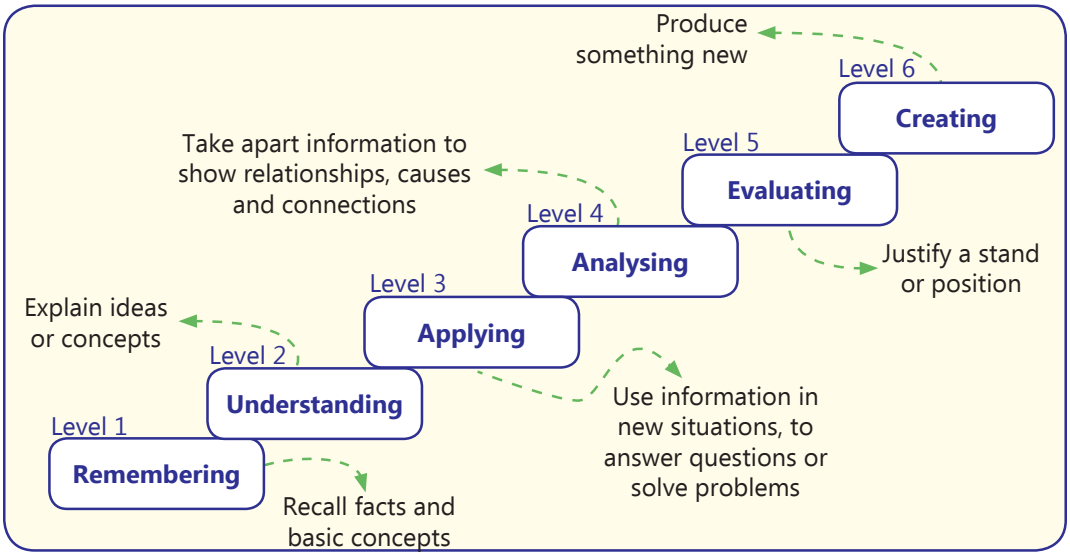
"Knowing yourself is the beginning of all wisdom."

Teaching Strategies

Numerous strategies have evolved over the years to facilitate the teaching-learning process in the classrooms.

Bloom's Taxonomy

Bloom's Taxonomy was created by **Dr Benjamin Bloom** and several of his colleagues, to promote higher forms of thinking in education instead of rote learning. There are three domains of learning: cognitive (mental), affective (emotional), and psychomotor (physical).However, when we refer to Bloom's Taxonomy we speak of the cognitive domain. Bloom's Taxonomy is a list of cognitive skills that is used by teachers to determine the level of thinking their students have achieved. As a teacher, one should attempt to move students up the taxonomy as they progress in their knowledge.



Teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on.

"If you have no confidence in self, you are twice defeated in the race of life."

Class 3

Lesson Plan

DigiCode AI

1. Introduction to Windows 10

Teaching Objectives

Students will learn about

- Operating System
- How to Start a Computer
- Components of Desktop
- Hiding Desktop Icons
- Setting the Screen Saver
- How to Shut Down a Computer
- Windows 10
- Desktop
- Sorting Desktop Icons
- Changing Desktop Background
- Mouse Pointer Shapes

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to Solve the question in 'Tech Set Go' given on page 7 of the main course book.

While teaching this chapter, let the students know about Windows Operating System.

Make the students aware of Windows 10.

Recognise basic differences between GUI (Graphical User Interface) and CUI (Character User Interface).

Explain to the students about features of Windows 10 and its desktop.

Give explanations of taskbar, icons.

Share with them different parts of taskbar – start button, opened programs, clock, etc.

Tell them about desktop background and steps to change desktop background. Also show the steps involved in sorting desktop icons and hiding desktop icons.

Let the students know about the steps of setting the screen saver.

Share the shapes of mouse pointers.

Demonstrate the steps involved to start and shut down the computer.

Ask the students to read the Byte Fact given on page 8, 10 and 14.

Ask the students to solve the exercise given on page 14 as Byte Quest.

IMPRINT 1

Extension

Ask the students some oral questions based on this chapter.

Q. Explain some features of Windows 10.

Q. What are icons?

Q. What is a taskbar?

Q. What do you mean by start button?

Q. Explain desktop background

Q. What is screensaver?

Q. Discuss different mouse pointers briefly.

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 15 to 16 of the main course book as Tech Ready. After solving the course book exercises, tell the students to solve Tech Twister activity given on page 17 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 17 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Byte Task given on page 17 of the main course book will enhance the ability of the students and serve as a creativity & innovativeness, collaboration & team work, digital literacy and experiential learning activity.

Suggested Activity

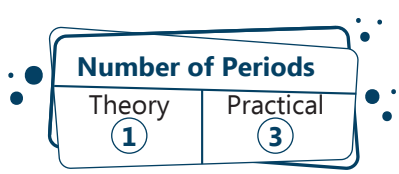
Ask the students to draw the various shapes of a mouse pointer and the action being performed at that time on an A3 sheet of paper.

2. Editing and Formatting on Word

Teaching Objectives

- ☞ Features of Word 2016
- ☞ Formatting the Text
- ☞ Shortcut Keys
- ☞ Editing the Text
- ☞ Difference Between Editing and Formatting

Teaching Plan



Before starting the chapter, ask the students to Solve the question in 'Tech Set Go' given on page 18 of the main course book.

While teaching this chapter, tell the students that formatting the text means changing the appearance and arrangement of the text.

Explain to the students about features of Word 2016.

Share with the students the default font and font size in a Word 2016 document.

Demonstrate to the students the method of changing font and font size.

Tell the students the steps involved in changing color of the selected text in the document.

Introduce highlighting feature of Word as marking important text and placing a colored rectangle over it.

Show to the students the steps involved in highlighting text.

Share with the students about the Bold, Italic and Underline features and the method of applying these features to the text.

Tell the students that Word has some in-built text styles which can be applied to the selected text.

Demonstrate to the students the method of:

- Applying text effects
- Applying borders
- Applying shading
- Changing text alignment
- Applying artistic borders

Introduce Change Case feature as changing text to upper, lower and other common capitalizations.

Show the students how to change case of the selected text.

Introduce bullets as small symbol used to mark items in a list.

Show to the students the method of adding bullets or numbers to the items in a list.

Ask the students to read the Byte Fact given on page 31.

Ask the students to solve the exercise given on page 30 as Byte Quest.

Extension

Ask the students some oral questions based on this chapter.

Q. Define formatting a text.

Q. What is the default font / font size of text in a Word 2016 document?

Q. What do you mean by highlighting text?

Q. What is the difference between bold and italic format of the text?

Q. What are text effects?

Q. Define text alignment.

Q. What are the different types of text alignment options?

Q. Why is shading added to text?

Q. What does Change Case option do?

Q. What are bullets?

Q. When are bullets or numbers added to text?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 33 to 35 of the main course book as Tech Ready. After solving the course book exercises, tell the students to solve Tech Twister activity given on page 35 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 35 of the main course book. Help the students to solve these questions.

IMPRINT 1

In Creative Assignment, activity like Byte Task and Go Online on page 36 of the main course book will enhance the ability of the students and serve as a Interdisciplinary Learning, Experiential Learning.

Suggested Activity

Ask the students to collect write a paragraph on My Favourite Sport in Word 2016 applying various formatting features to make the paragraph attractive.

3. Let's Learn Paint 3D

Teaching Objectives

Students will learn about

- Starting Paint 3D
- Freehand Drawing
- Creating 3D Shapes
- Changing Colour of a Shape
- Adding Stickers
- Adding Effects
- Opening a Saved Project
- Paint 3D Window
- Creating 2D Shapes
- Filling Colours in a Shape
- Adding Text
- 3D Library
- Saving a Project
- Closing Paint 3D

Teaching Plan

Before starting the chapter, ask the students to Solve the question in 'Tech Set Go' given on page 38 of the main course book.

Number of Periods	
Theory	Practical
1	3

While teaching this chapter, tell the students that Paint 3D is used to create and edit 3D images.

Tell them the steps involved in starting Paint 3D.

Demonstrate to the students about all the components of Paint 3D window:

- Title bar displays the name of the program and the name of your drawing on the top-left corner.
- Menu displays options such as New, Open, Insert, Save and Save As.
- Canvas is the area where you can create or draw your shape or you can say it is the drawing area of Paint 3D.
- Brushes Tool opens a panel on the right side of the drawing area and displays brush options, and colour palette. It has options Brushes Option and Color Palette.
- 2D Shapes Tool replaces brushes option and displays a 2D shapes library with options like line and curve and 2D shapes to select from.
- 3D Shapes Tool replaces the Brushes options and displays options like Open 3D library, 3D Doodle,
- 3D Objects and 3D Models to select from.

- Names Toggle Tool is on the right side of the toolbar and has an option for hiding/showing he tool names.
- Options Tool displays options such as Select, Crop, Magic select, 3D View, Mixed reality and Zoom slider.

Explain the students about Brushes tool which is used for freehand drawing.

Demonstrate the step involved in using Brushes tool.

Show the step involved in creating 2D and shapes with example.

Demonstrate the step involved in creating 2D and 3D text with example.

Explain the steps involved in selecting a shape and changing colour in a shape.

Tell students the uses of Fill tool (to fill colours in a shape), Edit color option (to change colour of a shape), Text tool (to add text), Stickers tool (to add stickers), 3D Library (to add 3D objects) and Effects option (to add effects).

Demonstrate the steps to:

- Fill colours in a shape l Change colour of a shape
- Add text l Add stickers
- Add 3D objects l Add effects

Show to the students the steps involved in saving and opening a drawing. Also show the steps to close Paint 3D.

Extension

Ask the students some oral questions based on this chapter.

Q. What can Paint 3D be used for in computers?

Q. State the use of Shapes / Text / Brushes Tool.

Q. How to add 3D shape and text?

Q. How to save a drawing?

Q. How to open a saved drawing?

Q. What is the use of Fill tool?

Q. Which option is used to change colour of a shape?

Q. What is 3D library?

Q. Which option is used to add effects?

Ask the students to solve the exercise given on page 43 as Byte Quest.

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 49 and 50 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 50 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 50 of the main course book. Help the students to solve these questions.

In Creative Assignment, activity like Byte Task and Go Online on page 51 of the main course book will enhance the ability of the students and serve as an Interdisciplinary Learning Creativity.

Suggested Activity

Ask the students to draw a bus using shape tool and also add 3D text in the drawing.

4. Introduction to Internet

Teaching Objectives

Students will learn about

- ☞ Uses of Internet
- ☞ Internet Terms
- ☞ Requirements for an Internet Connection
- ☞ Microsoft Edge

Teaching Plan

Number of Periods	
Theory	Practical
2	2

Before starting the chapter, ask the students to Solve the question in 'Tech Set Go' given on page 52 of the main course book.

While teaching this chapter, tell the students that Internet is a network in which millions of computers are connected to each other to share information and is an abbreviation of International Network.

Explain to the students the various uses of internet.

Share with the students the various requirements for an internet connection covering computer, telephone/cable line, modem/network card, software and company providing the connection.

Introduce the students to common internet terms like Website (collection of related web pages), Web Page (electronic page on a website), Home Page (main or first page of website), World Wide Web (largest collection of websites) and Web Browser (software to open websites).

Familiarise the students with the most common web browser, Microsoft Edge and its components covering Title Bar, Menu Bar, Toolbar and Address Bar.

Make the students understand the use of common tools on the toolbar covering Back, Forward, Refresh and Stop buttons.

Extension

Ask the students some oral questions based on this chapter.

Q. What is internet?
Q. What are the uses of internet?
Q. What are the requirements for an internet connection?
Q. Define Website / Web Page / Home Page / World Wide Web / Web Browser.
Q. What does WWW stand for?
Q. Which is the most common Web Browser?
Q. Define Title Bar / Menu Bar / Toolbar / Address Bar.
Q. What is the use of Back / Forward / Stop / Refresh button in a web browser?

IMPRINT 1

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 55 and 56 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 56 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 50 of the main course book. Help the students to solve these questions.

In Creative Assignment, activity Byte Task given on page 56 of the main course book will enhance the ability of the students and serve as a Experiential Learning and Technology Literacy activity.

Suggested Activity

Ask the students to paste a picture of Internet Explorer in their computer notebook / practical file and label its components and tools discussed in the chapter.

5. Stepwise Thinking

Teaching Objectives

Students will learn about

- ☞ Simple Instructions
- ☞ Loops
- ☞ Decision Making
- ☞ Understanding Programs

Teaching Plan

Number of Periods	
Theory	Practical
2	0

Before starting the chapter, ask the students to solve the question in 'Tech Set Go' given on page 57 of the main course book.

Begin with description of simple instructions and make them understand how the order of instructions is important to do a task successfully.

Explain the Stepwise Thinking to the students with the steps involved in the process using suitable examples.

Tell the students about decision making and give a brief introduction about it.

Introduce Looping to the students with simple example.

Ask the students to solve the exercise 'Code Quest' given on page number 60.

Extension

Ask the students some oral questions based on this chapter.

Q. What are instructions?

Q. Write the sequence of instructions to make a fruit salad.

Q. What is stepwise thinking?

Q. What decision making?

Q. Write a decision making situation involving 'if', 'then' and 'otherwise'.

Q, Define loopinhg.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 62 and 63 in the main course book. Tell the students to solve Tech Twister activity given on page 63 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 63 of the main course book. Help the students to solve these questions.

Take the students to the computer lab and let them practise the activity given in the Code Task section on page 64 in the main course book. This will enhance the ability of the students and serve as a Creativity and Social Interaction activity.

Suggested Activity

Ask the students to write a decision making situation.

6. Introduction to Scratch

Teaching Objectives

Students will learn about

- Scratch
- Components of Scratch Window
- Changing the Backdrop
- Exiting Scratch
- Starting Scratch
- Adding a Sprite
- Changing Appearance of the Sprite

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go on Page 68 of the main course book.

While teaching this chapter, tell the students that Scratch is a block-based programming language.

Demonstrate to the students the steps to start Scratch 3.0.

Make the students understand the uses of Scratch.

Familiarise the students with the various components of Scratch window covering Title bar, Menu bar, Sprite, Stage, Blocks Palette, Scripts Area, Coding Area, Blocks Menu, Backdrop, Tabs, Green Flag and Stop button.

Show to the students the steps to choose a sprite from the Library.

Tell the students the steps to change the backdrop in Scratch.

Tell the steps to exiting Scratch.

Ask the students to solve the exercise Code Quest given on page number 72.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Scratch?

Q. What are the uses of Scratch?

Q. Name the various components of Scratch window.

Q. Define Sprite / Stage / Scripts Area / Green Flag / Stop button.

IMPRINT 1

Q. What is a backdrop in Scratch?

Q. What are the steps to exit Scratch?

Evaluation

After explaining the chapter, let the students do the exercises given on page 73 and 74 in the main course book as Tech Ready.

Take the students to the computer lab and let them practice the activity given in the Tech Twister section on page 75 in the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 75 of the main course book. Help the students to solve these questions.

Suggested Activity

Ask the students to develop a program of speaking and moving cat in Scratch.

7. More on Scratch

Teaching Objectives

Students will learn about

- ☞ Block Categories
- ☞ Programs in Scratch
- ☞ Saving a Project
- ☞ Setting the Sprite Position
- ☞ Creating a New Project
- ☞ Opening a Project

Teaching Plan

Number of Periods	
Theory	Practical
2	2

Before starting the chapter, ask the students to solve the question in Tech Set Go given on Page 76 of the main course book.

Tell the students to recall about Scratch and revise the components of Scratch window components.

Explain the Block categories and its types using appropriate examples:

- Motion blocks
- Sound blocks
- Control blocks
- Looks blocks
- Events blocks

Introduce Motion Blocks for changing placement, direction, rotation and movement of sprites.

Show the students how to change the sprite position with suitable example.

Demonstrate the use of blocks by creating a new project.

Tell the steps to save a program and opening a Scratch project.

Ask the students to solve the exercise Tech Set Go given on page number 78.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Scratch?

Q. What are blocks?

IMPRINT 1

Q. What is motion block?

Q. What is looks block?

Q. What is the use of Motion block?

Q. What is the colour code for Motion block?

Q. What are the steps to save a project in Scratch?

Q. What are the steps to open a project in Scratch?

Q. What is sound block?

Q. What is control block?

Q. How to change sprite's position?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 83 and 84 in the main course book as Tech Ready.

Take the students to the computer lab and let them practice the activity given in the Tech Twister section on page 84 in the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 85 of the main course book. Help the students to solve these questions.

Suggested Activity

Ask the students to create a program in Scratch to move sprite 360 degree and reverse to its original position.

8. Applications of AI

Teaching Objectives

Students will learn about

- Smartphone
- Smartwatch
- Smart TV
- Driverless Car
- Smart Speaker
- Chatbot
- Smart Doorbell

Teaching Plan

Number of Periods	
Theory	Practical
2	1

Before starting the chapter, ask the students to solve the question in Tech Set Go in given on Page 87 of the main course book.

While teaching this chapter, tell the students that Artificial Intelligence has become an important part of our lives.

IMPRINT 1

Make them understand about the following:

- Smartphone
- Chatbot
- Smart Doorbell
- Smart Speakers
- Smartwatch
- Smart TV
- Driverless Cars

Show the pictures of AI-enabled devices to the students.

Also, teach the students through Topic Animation.

Ask the students to solve the exercise given on page 90 as AI Quest.

Extension

Ask the students some oral questions based on this chapter.

Q. What are smartphones?

Q. What do you mean by a chatbot?

Q. Name an AI-enabled doorbell that informs the homeowner when a visitor arrives at the door.

Q. Which device accepts our voice commands to play music?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 91 and 92 of the main course book as Tech Ready. Tell them to solve the Technology Literacy and Critical Thinking exercises as Tech Twister given on page 92. Ask the students to answer the questions given as Competency-based/Application-based questions on page 93 of the main course book. Help the students to solve these questions.

Take the students to the computer lab and let them practice the activity given in the AI Task section on page 93 in the main course book. This will enhance the abilities of the students and serve as a Creativity and Art Integration Learning Activity.

Suggested Activity

Ask the students to open the link given below and play TicTacToe.

https://playtictactoe.org/

9. Introduction to Robots

Teaching Objectives

Students will learn about

- ☞ What is a Robot?
- ☞ Advantages of Robots
- ☞ Popular Robots
- ☞ Disadvantages of Robots

Teaching Plan

Before starting the chapter, ask the students to Solve the question in 'Tech Set Go' given on page 94 of the main course book.

Number of Periods	
Theory	Practical
2	1

While teaching this chapter, tell the students that most of the smart devices are made to help us in doing our work fast and efficiently. Similarly, robots are also made to help us.

Make them understand that a robot is a smart machine which can resemble human behaviour and can perform various tasks.

Share information about the popular robots with the students.

Show the pictures of different robots and also explain their role to the students.

Also, tell the advantages and disadvantages of robots to the students.

Ask the students to solve the task given on page 97 as AI Quest.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a Robot?

Q. Which is known as a lovable robotic dog whose personality and behaviour changes with time?

Q. What is the advantage of using a Robot?

Q. What is the name of a delivery robot that delivers food items?

Q. Which robot can move as quickly as 3.2 meters per second?

Q. What is the disadvantage of using a Robot?

Evaluation

Encourage the students to walk through the chapter and ask them to play the game given on page 98 on their own under the name AI Game after learning about the rules and basics.

After explaining the chapter, let the students do the exercises given on Pages 99 and 100 of the main course book as Tech Ready. Tell them to solve the Critical Thinking and Technology Literacy exercises as Tech Twister given on page 101. Ask the students to answer the questions given as Competency-based/Application-based questions on page 101 of the main course book. Help the students to solve these questions.

Take the students to the computer lab and let them practice the activity given in the AI Task section on Page 101 in the main course book. This will enhance the abilities of the students and serve as a Communication and Social Interaction Activity.

Suggested Activity

Ask the students to collect pictures of atleast 10 different robots and paste them in an A-3 size sheet. Also, write their names on the sheet.