TRACKPAD

Ver. 2.1

1

Teacher's Manual

Extended Support for Teachers

ORANGE
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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

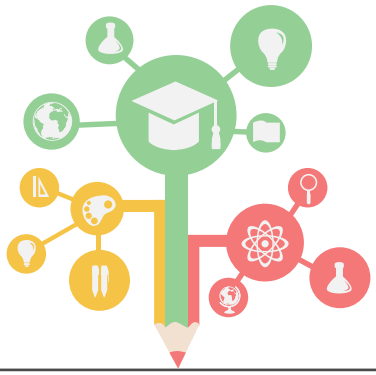
Age 11 - 20 Years

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.

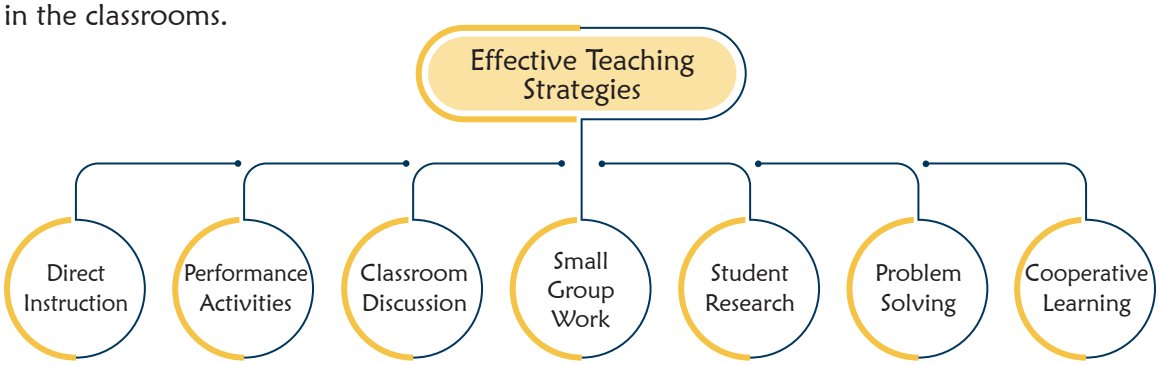
After the class

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

"Knowing yourself is the beginning of all wisdom."

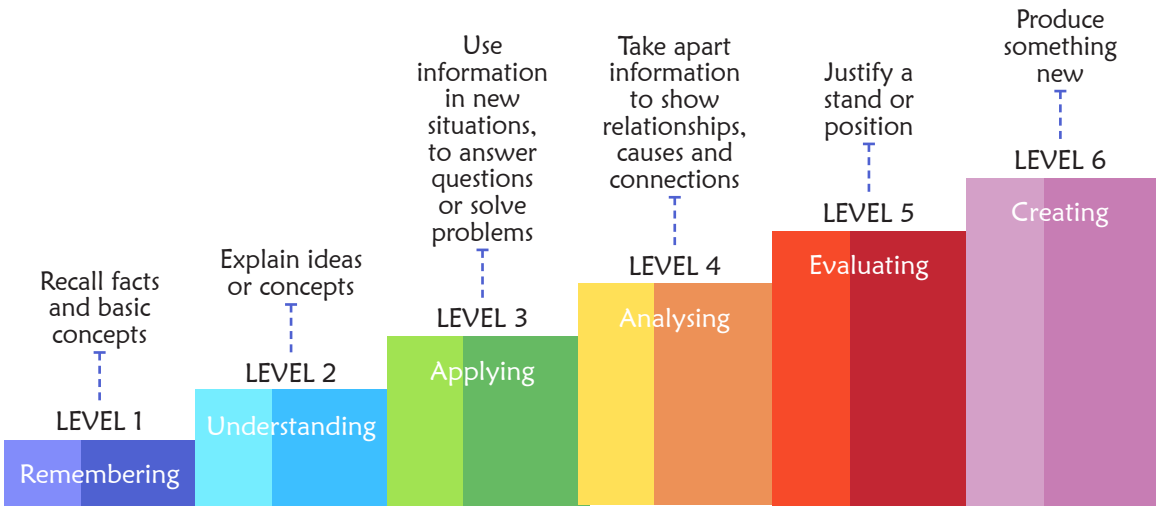
Teaching Strategies

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 1

LESSON PLAN

1 Computer – My Best Friend

Teaching Objectives

Students will learn about

- Natural and Human-made Things
- Computer – A Smart Machine

Number of Periods	
Theory	Practical
1	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 7 to understand the recap of the topic.

Introduce the students with their best friend – Computer.

Encourage the students to name some things which they see around themselves.

Make them understand some of these things are natural like sun, moon, star, mountains, cat, dog, tree, boy, girl, etc. The other things are Human-made like chair, table, TV, fan, pencil, eraser, board, building, washing machine, mobile, etc.

Explain to the students that machines are made by Human.

Give examples of some machines around us like refrigerator, air conditioner, television, mobile, car, etc. and their use.

Share with them that computer is also a machine.

Tell them the various things we can do with the computer like doing sums, drawing, listening to music, watching movies, learning, etc.

Encourage them to tell why computer is different from other machines (other machines can only do the work for which they are made but computer can do many kinds of work).

Ask the students to solve the exercise **I Know** given on page number 9.

Ask the students to solve the exercise **Quiz Bee** given on page number 10.

Extension

Ask the students some oral questions based on this chapter.

Q. Name some natural things.

Q. Name some Human-made things.

Q. Who makes machines?

Q. Are machines natural?

Q. What is the use of air conditioner / refrigerator / washing machine / television / mobile / car?

Q. Is computer a machine?

Q. What does a computer need to run?

Q. How is computer different from other machines?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 10 and 11 in the main course book as Assess Yourself. Tell them to solve the critical thinking skill developing exercise as Coding Zone given on Page 12.

Take the students to the computer lab and let them practice the activity given in the Fun Activity on page 12 and Lab Activity section on Page 11 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Show pictures of some machines (calculator, fan, sewing machine, set top box, cycle, clock, microwave, stapler, electronic toy, etc.) and ask the students what they are used for?

2 Uses of a Computer

Teaching Objectives

Students will learn about

- Features of a Computer
- Role of computer in Daily Life
- Places where Computers are used

Number of Periods	
Theory	Practical
1	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 13 to understand the recap of the topic.

While teaching this chapter, tell the students that computer is a magical machine and makes our work faster and easier.

Tell the students about various functions of a computer, covering:

- type letters, words and sentences.
- calculate sums.
- draw and colour images.
- play games.
- watch cartoons and movies.
- play songs.

While teaching this chapter, tell the students that computers are used in different places for different kinds of work.

Tell the students why computer is used:

- at home to watch movies, play games, make school projects, online shopping, etc.
- in schools to store student records, library books record.
- in offices to maintain records.
- in banks to keep record of money.
- in hospitals to make medical reports, controlling machines while doing surgeries.
- in shops to make bills, storing details of items.

Ask the students to solve the exercise **I Know** given on page number 15.

Ask the students to solve the exercise **Quiz Bee** given on page number 16.

Extension

Ask the students some oral questions based on this chapter.

Q. Why do we use computers?

Q. Write the use of computer in the following places:

a. At Home b. In School c. In Bank

d. In Hospitals e. In Offices f. In Shops

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 16 and 17 in the main course book as Assess Yourself. Tell them to solve the critical thinking and creativity skill developing exercise as Coding Zone given on Page 18.

Take the students to the computer lab and let them practice the activity given in the Fun Activity and Lab Activity section on Page 18 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to discuss with their parents and elders and learn more about what they use the computer for. Encourage the students to share some more uses of computers with the class.

3 Parts of a Computer

Teaching Objectives

Students will learn about

- Main parts of a Computer
- Additional Parts of a Computer

Number of Periods	
Theory	Practical
1	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 20 to understand the recap of the topic.

Tell the students that a computer has four main parts:

- **Monitor** – looks like a television, used to see pictures, games, cartoons, alphabet, numbers and words.
- **Keyboard** – has small buttons called keys, used for typing numbers and letters.
- **Mouse** – device with long wire, two buttons and scroll wheel, used to draw pictures.
- **CPU** – stands for Central Processing Unit, fixed inside CPU box, called brain of the computer, most important part of the computer.

Share with the students that a computer also has some other parts like:

- **Printer** – used to print text and images on paper.
- **Speakers** – attached to computer, used to hear sounds and music stored in computer.

Ask the students to solve the exercise **I Know** given on page number 21.

Ask the students to solve the exercise **Quiz Bee** given on page number 22.

Extension

Ask the students some oral questions based on this chapter.

Q. Name the four main parts of a computer.

Q. What is the use of Monitor / Mouse / keyboard /CPU?

Q. What does CPU stand for?

Q. Where is CPU fixed?

Q. Name some other parts of a computer.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 23 and 24 in the main course book as Assess Yourself.

Take the students to the computer lab and let them practice the activity given in the Fun Activity on page 25 and Lab Activity section on Page 24 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to paste pictures of different parts of a computer in their computer notebook and write their names.

4 Using a Keyboard and Mouse

Teaching Objectives

Students will learn about

- Keyboard
- Types of Keys
- Mouse
- Parts of a mouse
- Holding a mouse
- Actions of a mouse

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 26 to understand the recap of the topic.

While teaching this chapter, tell the students that keyboard is used to write on computer screen and tell the students that a mouse helps us to tell the computer what to do.

Show to the students that a keyboard has small buttons on it called keys and share with the students some uses of a computer mouse.

Make the students count that a computer keyboard has 101 to 104 keys.

Make the students understand that the keys on a keyboard are divided into three categories:

- Alphabet keys – 26 in number (A to Z)
- Number keys – 10 in number (0 to 9)
- Special keys – Enter, Spacebar, Backspace, etc.

Make the students understand that there are two types of computer mouse:

- **Two-buttoned mouse** – has two buttons – left button and right button.
- **Scroll mouse** – has two buttons (left and right) and a scroll wheel.

Show to the students the position of various categories of keys on the keyboard and also show to the students that the small arrow moving on the screen is called pointer.

Make the students understand that the alphabet keys (A to Z) on the keyboard are also used to write in small letters (a to z) and show the students the correct way of holding the mouse with reference to the position of fingers and palm.

Share with the students that the number keys are used to type numbers and there are two sets of number keys on a keyboard.

Show to the students that there are some special keys also on the computer like:

- **Spacebar key** – longest key at the bottom, used to give blank space between letters and words.
- **Enter key** – also called Retrun key, two in number, used to move to the next line.
- **Backspace key** – used to erase what we have typed.
- **Arrow** – Show to the students the four arrow keys (up, down, left and right) on the keyboard, used to move the cursor.

Show to the students that a computer mouse can be used for:

- **Clicking** – by pressing mouse buttons
- **Single-clicking or Clicking** – pressing and releasing left button quickly, used to select an icon.
- **Double-clicking** – pressing and releasing the left button twice quickly, used to open a program.
- **Scrolling** – placing the index finger on the scroll wheel and moving it up or down.

Open a MS Word file and show to the students the small blinking line called cursor.

Make the students understand that the cursor shows the place where the typed letters will appear.

Ask the students to solve the exercise **I Know** given on page number 28.

Ask the students to solve the exercise **Quiz Bee** given on page number 29.

Ask the students to solve the exercise **Quiz Bee** given on page number 31.

Ask the students to solve the exercise **I Know** given on page number 32.

Extension

Ask the students some oral questions based on this chapter.

Q. What are the small buttons on a keyboard called?

Q. How many keys are there on a keyboard?

Q. Name the categories in which the keys on a keyboard are divided into.

Q. What are alphabet / number keys used for?

Q. How many sets of number keys are there on the keyboard?

Q. How many alphabet keys are there on the keyboard?

Q. What is the use of Enter / Spacebar / Backspace key?

Q. Name some special keys.

Q. What is the use of arrow keys?

Q. How many arrow keys are there?

Q. What is a cursor?

Q. What is a mouse used for?

Q. Name the pointing device.

Q. Name the two types of mouse.

Q. Which finger must be placed on left button / right button?

Q. Which finger must be used to scroll the wheel?

Q. Which fingers must be used to hold the sides of the mouse?

Q. Define pointing / clicking / scrolling.

Q. What is the meaning of single-click / double-click?

Q. What is single-click / double-click used for?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 33 and 34 in the main course book as Assess Yourself. Tell them to solve the critical thinking skill developing exercise as Coding Zone given on Page 36.

Take the students to the computer lab and let them practice the activity given in the Fun Activity and Lab Activity section on Page 35 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to paste a picture of computer keyboard in the computer notebook and label Number keys, Alphabet keys, Enter keys, Space bar key, Backspace key and Arrow keys on it and ask the students to draw a picture of a mouse representing single-click, double click and scrolling

5 Introduction to Paint

Teaching Objectives

Students will learn about

- Opening Paint

- Parts of Paint Window
- Drawing Different Shapes
- Tools of Paint

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 39 to understand the recap of the topic.

While teaching this chapter, tell the students that Paint is a program used to draw and colour.

Familiarize the students with Paint window showing Tools group, Shapes group, Colors group and Drawing Area.

Demonstrate the steps to start Paint to the students.

Tell the students about the uses of Tools group (contains tools), Colors group (contains colour options) and Shapes group (contains shapes).

Demonstrate the steps to:

- draw straight lines using Line shape.
- draw rectangles using Rectangle shape.
- fill colours in closed shapes using Fill with Color tool.
- draw Oval using Oval shape.

Demonstrate the steps to save a drawing to the students.

Show to the students the steps to close Paint.

Ask the students to solve the exercise **I Know** given on page number 40.

Ask the students to solve the exercise **Quiz Bee** given on page number 43.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Paint?

Q. What is the use of Line / Rectangle shape?

Q. What is the use of Brushes / Fill with Color tool?

Q. How can the width of the Brush be changed?

Q. Under which category is the Paint program listed?

Q. Name the groups present on Paint window.

Q. What does the Colors / Shapes / Tools group contain?

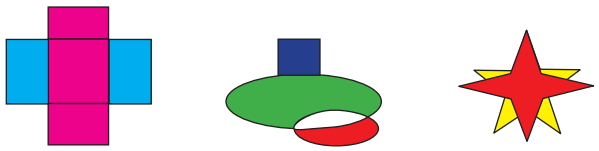
Evaluation

After explaining the chapter, let the students do the exercises given on Pages 46, 47 and 48 in the main course book as Assess Yourself. Tell them to solve the critical thinking skill developing exercise as Coding Zone given on Page 49.

Take the students to the computer lab and let them practice the activity given in the Fun Activity on page 48 and Lab Activity section on Page 48 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to draw the following shapes in Paint.



6 Introduction to Tux Paint

Teaching Objectives

Students will learn about

- Tux Paint
- Components of the Tux Paint Window
- Using the Eraser Tool
- Using the Stamp Tool
- Opening a saved File
- Starting Tux Paint
- Using the Paint Tool
- Using the Lines Tool
- Saving a File in Tux Paint
- Quitting Tux Paint

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 50 to understand the recap of the topic.

While teaching this chapter, tell the students that Tux Paint is a freehand drawing program designed for young children.

Demonstrate to the students the steps involved in starting Tux Paint.

Show to the students the Welcome Screen of Tux Paint with penguin as the mascot.

Familiarize the students with the window of Tux Paint showing the position and explain the use of Toolbar (contains drawing tools), Colors Palette (contains color choices), Selector (to select desired shapes) and Drawing Canvas (drawing and colouring space).

Tell the students about basic tools of Tux Paint covering:

- **Paint Tool** – used to draw different freehand shapes
- **Shapes Tool** – used to draw predefined shapes like circle, rectangle, square, triangle, etc.
- **Eraser Tool** – used to erase unnecessary parts of drawing
- **Lines Tool** – used to draw straight lines
- **Quit Tool** – used to come out of Tux Paint program

Demonstrate the use of each of these tools to the students.

Ask the students to solve the exercise **I Know** given on page number 52.

Ask the students to solve the exercise **Quiz Bee** given on page number 56.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Tux Paint?

Q. Name some parts of Tux Paint window.

Q. What is the use of Toolbar / Drawing canvas / Selector / Colors Palette?

Q. Name some tools of Tux Paint.

Q. What is the use of Paint /Lines / Shapes / Eraser / Quit Tool?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 69 and 70 in the main course book as Assess Yourself. Tell them to solve the critical thinking skill developing exercise as Coding Zone given on Page 73.

Take the students to the computer lab and let them practice the activity given in the Fun Activity and Lab Activity section on Pages 71 and 72 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to redraw the shapes drawn in Paint earlier in Tux Paint also.

7 Reasoning and Critical Thinking

Teaching Objectives

Students will learn about

- Working with Shapes
- Recognising Patterns

- Word Search
- Directions

Number of Periods	
Theory	Practical
1	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 63 to understand the recap of the topic.

Introduce Shapes to the students in details which are:

- Square
- Rectangle
- Triangle
- Circle

Tell the students about what pattern is and to identify one. Also, tell them how to solve by giving some examples which will improve their understanding of the topic.

Show the students what is a word search and how to solve it with the help of critical thinking.

Explain to the students what directions are and how they help us reach a definite location.

Show examples for all the topics for better clarity of the lesson at the end.

Ask the students to solve the exercise **Quiz Bee** given on page number 65 and 66.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a shape?

Q. How many shapes are there?

Q. What is a pattern?

Q. What is a word search?

Q. What are directions?

Q. How do directions help us?

Evaluation

After explaining the chapter, let the students do the exercises given on Page 67 in the main course book as Assess Yourself.

Take the students to the computer lab and let them practice the activity given in the Fun Activity and SDG section on Page 68 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to practise any lesson two times and compare the result.

8 Introduction to ScratchJr

Teaching Objectives

- Advantages of ScratchJr
- Starting ScratchJr
- Components of a ScratchJr Window
- Adding a New Character
- Changing the Background

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 69 to understand the recap of the topic. While teaching this chapter, tell the students that ScratchJr is a computer program or app used to create animated stories and games.

Tell them that ScratchJr is simpler and easy to learn, understand and use. We can drag and drop coding blocks in it.

Familiarize the students with components of ScratchJr window showing character, stage, green flag, blocks palette, block categories, programming area, etc.

Demonstrate the steps to start ScratchJr to the students.

Tell the students about adding a new character, changing the background andcreating a ScratchJr project.

Define the following to the students:

- add a new character
- change the background
- create a ScratchJr project

Demonstrate the steps to save a project to the students.

Ask the students to solve the exercise **Quiz Bee** given on page number 73.

Extension

Ask the students some oral questions based on this chapter.

Q. What are the advantages of ScratchJr.

Q. What is ScratchJr?

Q. Why are blocks joined in ScratchJr?

Q. What is a character in ScratchJr window?

Q. What is the use of green flag in ScratchJr window?

Q. Name the menu of programming blocks.

Q. What is the purpose of changing the background in ScratchJr?

Q. How does ScratchJr save a file?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 74 and 75 in the main course book as Assess Yourself.

Take the students to the computer lab and let them practice the activity given in the SDG Activity, Fun Activity and Lab Activity section on Pages 75 and 76 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to Draw a picnic scene of their choice using ScratchJr at home.

9 AI Around Us

Teaching Objectives

- What is Artificial Intelligence?
- Goals of Artificial Intelligence
- AI and Us

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 77 to understand the recap of the topic.

Begin with the introduction of Artificial Intelligence as getting machines to behave like humans.

Make the students aware of the goals of the Artificial Intelligence.

Let the students know how AI is all around us now.

Make the students understand what self-driving cars are.

Let them know how Siri and Alexa perform tasks.

Make the students aware of the program 'AlphaGo'.

Also explain to the students about other AI devices like Amazon Echo and IBM Watson.

Ask the students to solve the exercise **I Know** given on page number 78.

Ask the students to solve the exercise **Quiz Bee** given on page number 79.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Artificial Intelligence?

Q. What are the goals of AI?

Q. Define self-driving cars.

Q. What is Alexa?

Q. What is AlphaGo?

Q. Define Amazon Echo.

Q. What can IBM Watson do?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 81 and 82 in the main course book in the form of Assess Yourself. Tell them to solve the critical thinking skill developing exercise as Coding Zone given on page 83.

Take the students to the computer lab and let them practice the activity given in the SDG Activity and Lab Activity section on Pages 82 and 83 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to find about more AI devices which have made our life easy and comfortable.