TOUCHPAD

Ver. 2.2

2

Teacher's Manual

Extended Support for Teachers

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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

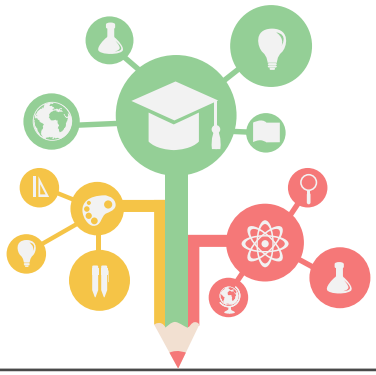
Age 11 - 20 Years

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.

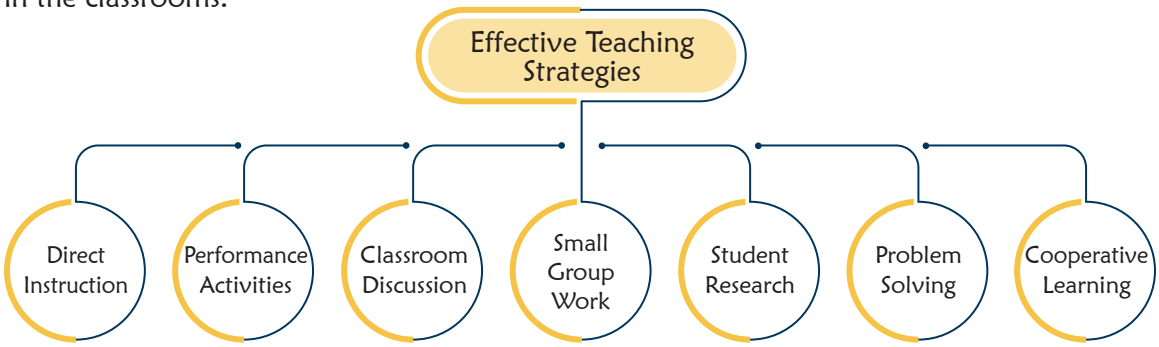
After the class

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

> "Knowing yourself is the beginning of all wisdom."

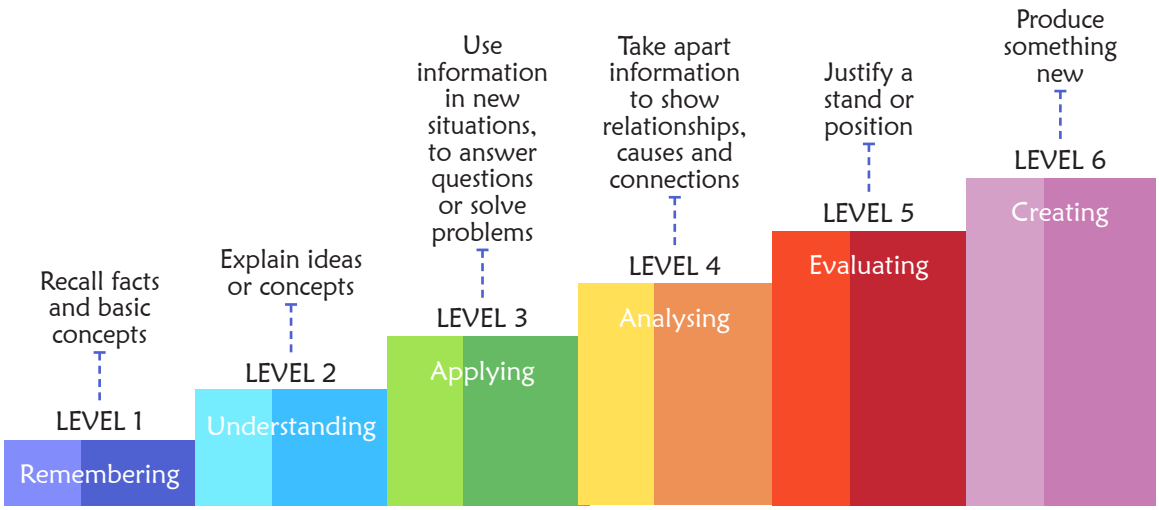
Teaching Strategies

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 2

LESSON PLAN

1 More about a Computer

Teaching Objectives

Students will learn about

- Computer and Human
- Places where Computers are Used
- Types of Computers

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 7 of the main course book.

While teaching this chapter, tell the students that a computer is an electronic machine which helps us to solve many problems.

Tell the students that the computer is a human-made machine and very much different from man. Share with the students the features of a computer covering:

- **Memory -** computer can store many things in its brain.
- **Speed -** A computer works very fast and can do many tasks at a time.
- **Accuracy -** A computer never makes mistake.
- **Tiredness -** A computer never gets tired and can word for a long time.

Explain to the students about the different types of computers covering:

- **Desktop** – kept on desk or table.
- **Laptop** – can be kept on lap also and is portable.
- **Tablet** – smaller than a laptop and has a touchscreen.
- **Smartphone** – mobile phone which has computer facilities.

Share with the students, the names of the places where computers are used and the reason the computers are used there covering:

- **Home -** Do homework and study, Watch movies and listening songs, searching informations etc.

- **School -** make worksheets, timetable and report cards , keep fee and library books records.
- **Hospital -** For prepare medical reports, treat patients and keep their records.
- **Office -** Type letters and documents, send and receive message and emails.
- **Bank -** Keep details of bank accounts and deposit and take out from ATM.

Ask the students to solve the exercise **Let's Catch Up** given on pages 10 and 13.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a computer?

Q. State any two features of a computer.

Q. Name two things which man can do better than computers.

Q. Name any two types of computers.

Q. Which is the largest type of computer?

Q. Which is the smallest type of computer?

Q. Can we keep all computers in our pocket?

Q. Name two computers which we can keep in our pocket.

Q. Name the computer which we keep on a desk or a table.

Q. Name some smart machines.

Q. Why are some machines smart?

Q. State any two uses of computers at home / railway station / airport.

Q. State any two uses of computers in a school / bank / shop / office / hospital.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 16 to 18 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 18 and 19 in the main course book to imbibe Critical Thinking, Information Literacy and Leadership & Responsibility skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 19 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Show the pictures of different types of computers to the students and ask the name of each type of computer.

2 Working of a Computer

Teaching Objectives

Students will learn about

- IPO Cycle
- IPO Devices

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 20 of the main course book.

While teaching this chapter, tell the students that a computer works according to the commands or instructions given by us.

Tell the students about the working of some machines like:

- **Juicer** – we put fruit pieces inside it, the juicer squashes the fruits and gives out fresh juice.

Share with the students that in both these cases, the first step is input, the second step is process and the third step is output.

Share with the students that this cycle of working of machines is called Input-Process-Output cycle or IPO cycle.

Introduce the term Input as giving instructions to the computer.

Ask the students to solve the exercise **Let's Catch Up** given on page 22.

Tell the students that keyboard and mouse are used as input devices in a computer.

Introduce the term Process as action performed by computer on the instructions given by us.

Tell the students that Central Processing Unit (CPU) is processing device of a computer and is called Brain of the computer.

Introduce the term Output as result given by the computer after processing.

Tell the students that monitor, headphones, speakers and printer are used as output devices in a computer.

Extension

Ask the students some oral questions based on this chapter.

Q. What does IPO stand for?

Q. What is Input-Process-Output cycle?

Q. Define Input / Process/ Output.

Q. Name two input / output devices.

Q. Which part of the computer is called Brain of the computer?

Q. Why is CPU called brain of the computer?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 24 and 25 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve** and **Let's Explore** given on Page 25 in the main course book to imbibe Critical Thinking skill in them.

Suggested Activity

Show some more machines with input and output to the students and ask the students to arrange these in correct order of the IPO cycle.

3 Parts of a Computer

Teaching Objectives

Students will learn about

- Input Devices
- Output Devices
- Processing Device
- Storage Devices

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 27 of the main course book.

While teaching this chapter, tell the students that a computer is made up of many devices which are categorised as input devices, processing device, output devices and storage devices.

Introduce input devices as the parts that are used to give commands or instructions to the computer or tell the computer what to do.

Share with them pictures / models of some input devices like:

- **Keyboard** – used for typing text and numbers through keys.
- **Mouse** – used for drawing pictures and selecting objects through click.
- **Scanner** – used to send document or images from paper to computer.
- **Microphone** – used to record voice, music and sounds.

Introduce processing device as the device which processes the input according to the instructions given and returns back the output to the output device.

Introduce output devices as the parts that are used to show result or output after processing.

Share with them pictures / models of some output devices like:

- **Monitor or Visual Display Unit (VDU)** – used to show the data that is input and its result after computer process through its front portion, screen.

- **Printer** –used to print the work done by computer on paper

Tell the students about the types of printers as Inkjet printers and Laser printers:

- **Speakers** – used to listening to music, sound and voice on a computer.
- **Headphones** – work as small speaker and used to hear sound without disturbing others.

Introduce storage devices as the parts that are used to store our work in the computer.

Share with them pictures / models of some storage devices like:

- **Hard Disk** – rectangular in shape and fixed inside the CPU box.
- **Memory Card** – small in size and mainly used in mobile phones, digital cameras and other similar devices to increase their storage capacity.
- **Pen Drive or USB Flash Drive** – small storage device in shape and the storage is less than Hard Disk.

Show to the students Pen Drive and USB ports used to read the files.

Ask the students to solve the exercise **Let's Catch Up** given on page 30.

Extension

Ask the students some oral questions based on this chapter.

Q. What are the parts of a computer?
Q. What are input / output / storage devices?
Q. Give two examples of input / output / storage devices.
Q. What is a USB port used for?
Q. What is the name given to the combination of microphone and headphones?
Q. Which has more storage capacity: Hard disk or Pen drive?
Q. Arrange in increasing order of storage capacity:
Memory card Pen Drive Hard Disk

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 32 and 33 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 34 and 35 in the main course book to imbibe Critical Thinking, Creativity and Information Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 35 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to collect information about a modern storage device – Blue Ray Disc which looks like a CD/DVD but has much more storage capacity than the two.

4 The Keyboard and The Mouse

Teaching Objectives

Students will learn about

- Keyboard
- Mouse

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 36 of the main course book.

While teaching this chapter, tell the students that keyboard and mouse are input devices which tells the computer what to do.

Show to the students a keyboard and demonstrate:

- A keyboard has 104 to 107 keys
  - **Alphabet keys –** used to type letters, words and sentences.
  - **Number keys –** used to type numbers.

Tell the students that there are some special keys in details:

- **Spacebar –** used to give a blank space when you type words, letters or numbers.
- **Enter key –** used to start a new line or a paragraph.
- **Backspace key –** used to erase letters and numbers on the left side of the cursor.
- **Delete key –** used to erase letters and numbers to the right of the cursor.
- **Arrow keys –** used to move the cursor up, down, right and left.
- **Caps Lock key –** used to type in capital letters.
- **Shift key –** used with other keys for different purposes like with alphabet keys to type in capital letters with caps Lock turned off and with number keys and symbol keys to type the symbols in the upper row of that key.
- **Symbol keys –** used to type special signs like @,$, %, *, etc. and punctuation marks like ?, ! :, " ", etc.

Show to the students a mouse and demonstrate:

- A mouse has buttons to click and wheel to scroll.
- Displays an arrow called pointer on the screen.

Explain different types of mouse to the students.

Tell the students about the parts of a mouse and mouse pointer.

Show the proper use of a mouse along with the position of fingers.

- **Single-click –** used to select an item.

- **Double-click –** used to open the selected item.
- **Right-click –** used to display list of properties of the selected item.
- **Drag –** used to move an item from one location to another.
- **Scroll -** used to move a page on the screen up or down.

Ask the students to solve the exercise **Let's Catch Up** given on page 40.

Extension

Ask the students some oral questions based on this chapter.

Q. Name the two commonly used input devices.

Q. How many keys are there on a standard keyboard?

Q. State one use of Shift key.

Q. What is Escape / Tab / Caps Lock key used for?

Q. How many Shift / Function keys are there on a keyboard?

Q. What is the use of Function / Symbol keys?

Q. What is a mouse?

Q. What is pointer?

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

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 43 and 44 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 44 and 45 in the main course book to imbibe Critical Thinking, Communication and Initiative skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 45 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to draw a keyboard on an A4 sheet of paper and label these keys:

- Shift keys
- Escape key
- Symbol keys
- Keys to spell the name of the student
- Enter key
- Tab key
- Function keys

5 More on Tux Paint

Teaching Objectives

Students will learn about

- Starting Tux Paint
- Parts of Tux Paint Window
- Tux Paint Tools

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 48 of the main course book.

While teaching this chapter, tell the students that Tux Paint is a program that is used to draw beautiful pictures.

Tell the students that the Tux mascot, that is, a penguin guides you while working in Tux Paint.

Demonstrate to the students the steps to open Tux paint.

Make the students recall the components of the Tux Paint window covering Toolbox, Colors Palette, Help Area, Selector pane, Up and Down Arrows and Drawing Area or Canvas.

Introduce some more tools to the students.

Demonstrate to the students the steps involved in use of Text tool.

Make the students understand that Magic tool is a collection of tools to add a lot of special effects to the drawings.

Show to the students the method to use Magic tool.

Introduce Stamp tool as the tool used to insert different stamps or images from the Selector.

Explain the steps involved in the use of Stamp tool to the students.

Introduce Save tool as the tool which is used to save the drawing by just clicking on it

Demonstrate to the students the steps involved to open an existing drawing in Tux Paint.

Demonstrate to the students the steps to use Quit tool.

Ask the students to solve the exercise **Let's Catch Up** given on page 53.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the use of Text / Magic / Stamp / Open tool?

Q. When is Magic tool used?

Q. Can Open tool be used to open a drawing which was not saved earlier?

Q. What is the use of Selector in Tux Paint?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 55 and 56 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 56 and 57 in the main course book to imbibe Critical Thinking, Information Literacy and Creativity skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 57 in the main course book. This will enhance the ability of the students and serve as a Creativity activity.

Suggested Activity

Ask the students to draw a jungle scene in Tux Paint.

6 More on Paint

Teaching Objective

Students will learn about

- Parts of the Paint Window
- Brushes Tool
- Selecting a Drawing
- Cropping an Image
- Tools Group
- Shapes Group
- Moving the Selection
- Foreground and Background Colours

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 58 of the main course book.

While teaching this chapter, make the students recall that Paint can be used to draw and paint on computer.

Demonstrate the parts of Paint windows along with their purpose.

Tell the students that Tools group has different tools like the Pencil, Eraser, Color Picker, Text, Magnifier, and Fill with Color tool.

Show the students the use of Pencil tool and steps involved in using the tool.

Tell the students that the Text tool is used to write some text in the drawing area.

Demonstrate to the students the use of Text tool in Paint.

Tell the students the use of Magnifier tool and steps involved in using the tool.

Explain and show to the students the use of Color picker tool and steps involved in using the tool.

Explain to the students the use of Brushes tool and steps involved in using the tool.

Tell the students that Rounded Rectangle shape is used to draw rectangles and squares with rounded corners.

Tell the students that Rounded Rectangle shape is used to draw rectangles and squares with rounded corners.

Demonstrate to the students the steps involved in use of Rounded Rectangle shape.

Share with the students that Curve shape is used to draw curved lines.

Show to the students the steps involved in using Curve shape.

Tell the students that Select command is used to select a drawing or part of a drawing.

Show to the students how a drawing or part of a drawing can be selected.

Demonstrate to the students the steps involved in moving the selected part of an image from one place to another using click and drag feature of the mouse.

Show to the students the use of Cropping tool and steps involved in using the tool.

Tell the students about Foreground and Background colours. Also explain the steps involved in changing these in your drawing.

Ask the students to solve the exercise **Let's Catch Up** given on page 65.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Paint?

Q. What is the use of Pencil tool?

Q. What is the use of Brushes tool?

Q. What is the use of Magnifier tool?

Q. What is the use of Color Picker tool?

Q. What is the Select command used for?

Q. What do you mean by moving the selected area?

Q. When do we use Text tool in Paint?

Q. What is the use of Rounded Rectangle shape?

Q. What is Curve Shape used for?

Q. What is the foreground colour?

Q. What is background colour?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 71 to 73 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 73 and 74 in the main course book to imbibe Critical Thinking and Creativity skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Pages 74 and 75 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to draw a picture of a school with its name written on a board at the top of the school building.

7 Reasoning and Analysis

Teaching Objectives

Students will learn about

- Number Pyramid
- Directions
- Number Grid

Number of Periods	
Theory	Practical
1	0

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 77 of the main course book.

While teaching this chapter, introduce Number Pyramids to the students in details with the help of pictures or charts.

Tell the students about what Number Grid. Also, tell them how solve by giving some examples which will improve their understanding of the topic.

Show the students what is direction and how to identify it with the help of analysis.

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

Ask the students to solve the exercise **Let's Catch Up** given on pages 79 and 80.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a number pyramid?

Q. What is a grid?

Q. What is a number grid?

Q. What is a direction?

Evaluation

After explaining the chapter, let the students do the exercises given on Page 81 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, given on Page 82 in the main course book to imbibe Critical Thinking skill in them.

Suggested Activity

Ask the students to practice to identify directions.

8 More about ScratchJr

Teaching Objectives

Students will learn about

- ScratchJr Programming Language
- Blocks of ScratchJr
- Components of ScratchJr Window

Number of Periods	
Theory	Practical
1	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on pages 83 of the main course book.

While teaching this chapter, make the students recall the learnings about ScratchJr taught in previous class that ScratchJr is a computer program or app used to create animated stories and games.

Introduce ScratchJr as a programming language that is developed for young children to create their own interactive projects through coding.

Begin with description of components of ScratchJr window like:

- Save
- Presentation Mode
- Background
- Green Flag
- Undo and Redo buttons
- Block Palette
- Programming Area
- Block Categories
- Stage

Tell the students about the Blocks of the ScratchJr.

Explain how Motion blocks are used to move a character.

Make the students understand how Looks blocks are used to modify the character.

Let the students know how to control the script.

Tell the students about Sound blocks.

Let the students know about the role of Event blocks.

Also tell them about the role of End block.

Explain how control blocks are used to control the character.

Make the students understand how to use all the above mentioned blocks to create a project.

Ask the students to solve the exercise **Let's Catch Up** given on pages 87 and 88.

Extension

Ask the students some oral questions based on this chapter.

Q. Explain components of ScratchJr window.

Q. What is Events block?

Q. What are the steps to move a character using Motion blocks?

Q. Which block is used to modify a character?

Q. What is the use of Sound blocks?

Q. What are control blocks used for?

Q. What are the steps to create a project using different blocks?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 91 and 92 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 92 and 93 in the main course book to imbibe Critical Thinking, Information Literacy and Technology Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 93 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to create a project of their choice using different blocks of ScratchJr.

9 Artificial Intelligence Around Us

Teaching Objectives

Students will learn about

- Artificially Intelligent Machines
- AI in Our Lives
- Robots

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 94 of the main course book.

Explain the meaning of Artificially Intelligent machines to the students with proper and simple examples.

Tell the students what is AI which is around us and what is the purpose of this in real life in simple words.

Define the following to the students:

- Voice Assistant
- Face Detection
- Navigation

Explain the meaning of Robots to the students with their role around us with examples.

Relate all these to their daily life routine.

Extension

Ask the students some oral questions based on this chapter.

Q. Define the following:
   - Voice Assistant
   - Face Detection
   - Navigation

Q. What is a robot?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 98 and 99 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone– Let's Solve**, **Let's Explore** and **Let's Get Better** given on Page 99 in the main course book to imbibe Critical Thinking, Information Literacy and Creativity skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 100 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to practice more in Quick Draw.