TRACKPAD

Ver. 5.1

3

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

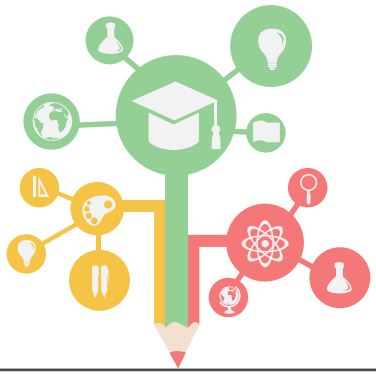
Age 11 - 20 Years

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.

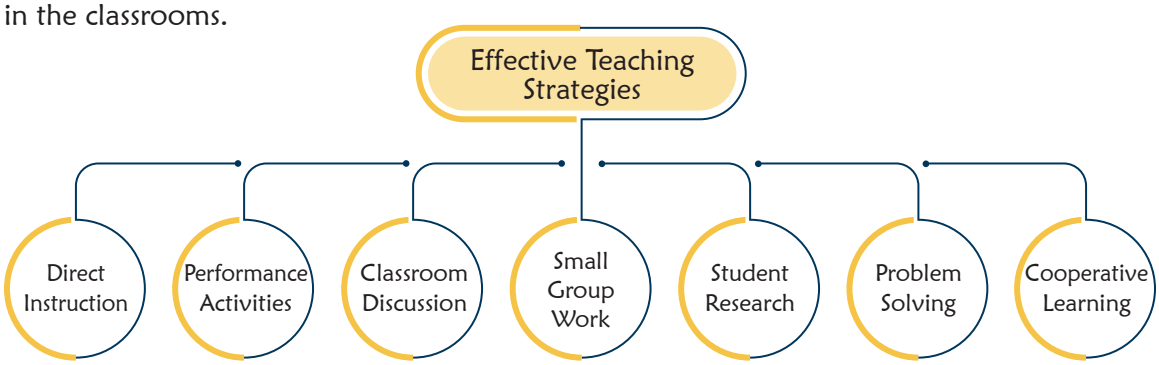
After the class

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

"Knowing yourself is the beginning of all wisdom."

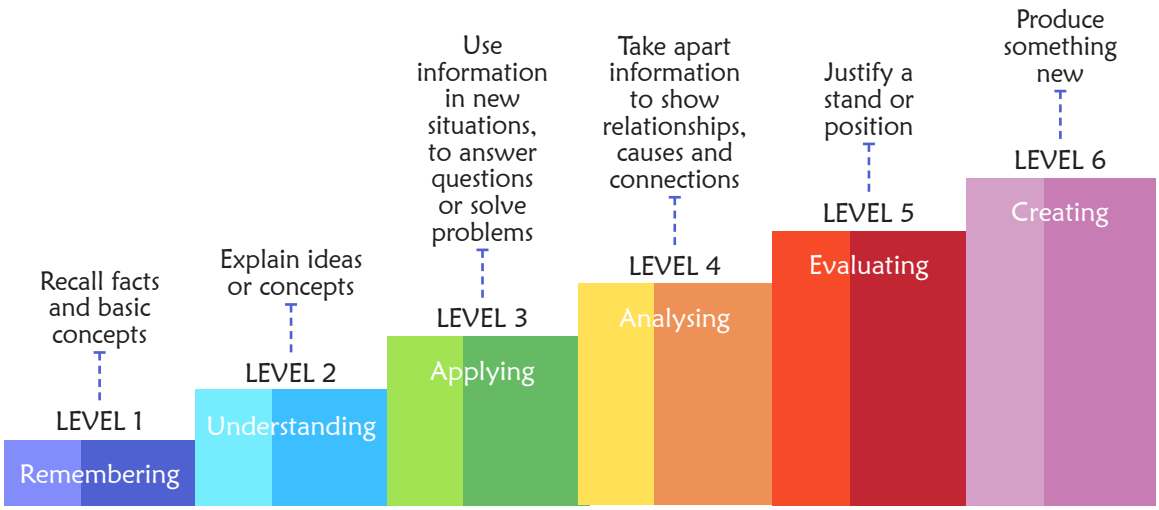
Teaching Strategies

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 3

Lesson Plan

1 Hardware and Software

Teaching Objectives

Students will learn about

- Features of a Computer
- Working of a Computer
- Parts of a Computer
- Hardware
- Software

Number of Periods	
Theory	Practical
2	2

Teaching Plan

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

Begin with how machines have made our work easier and faster.

Tell the students that a computer is a multitasker.

Let the students know about the features of a computer.

Explain the working of a computer to the students.

Tell them that a computer works through Input-Process-Output (IPO) cycle.

Tell the students that the parts of the computer-hardware and software

Tell them about computer hardware and how it is divided into four groups.

Explain the meaning of the terms input and input devices.

Explain some of the input devices are keyboard, mouse, scanner, joystick, touchscreen, microphone, web camera, light pen, etc.

Tell the students the devices that show us the result of processing done by the CPU are called output devices.

Explain that the result can be in any of these forms: display on the monitor, print by the printer, sound from the speakers.

Tell them how keyboard, mouse and scanner are used to input data into a computer.

Explain the meaning of the terms process, processor and processing besides processing devices.

Tell them how CPU processes data with the help of Arithmetic Logic Unit (ALU) – for arithmetic and logical calculations, Memory Unit (MU) – for storing data and instructions and Control Unit (CU) – for coordinating between all parts of the CPU.

Explain the meaning of the terms output and output devices.

Make the students understand the meaning of the term Storage and discuss storage devices.

Demonstrate to them the difference between hard copy and soft copy.

Tell to the students about computer software and its types.

Explain to the students the difference between Application software and System software.

Ask the students to solve the exercise **Quiz Bee** given on page number 11.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What makes our work easier?

Q. Name the multiple tasks that a computer performs.

Q. What are features of a computer?

Q. How does a computer work?

Q. What are input devices?

Q. Name some input devices.

Q. What are processing devices?

Q. Name the parts of the CPU.

Q. What are output devices?

Q. Name some output devices.

Q. Name different types of printers.

Q. What are storage devices?

Q. Name some storage devices.

Q. What is software?

Q. Differentiate between system software and application software.

Q. Name some system software and application software.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 15, 16 and 17 in the main course book in the form of Assess Yourself. Tell them to solve the critical thinking skills developing exercise as Coding Zone given on page 18.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on page 17 and 18 in the main course book. This will enhance the ability of the students and serve as a creativity, Information and technology literacy activity.

Ask the students to try Video based question given on page 17 in the computer lab, and carry out the Group Discussion session given on page 17 in the class only to enhance media literacy, technology literacy and communication skills.

Suggested Activity

Ask the students to collect information about some new system & application software along with some more input/output devices and the purpose for which they are used.

2 Windows 11 – An Introduction

Teaching Objectives

Students will learn about

- Windows 11
- Desktop
- Icons
- Taskbar
- Desktop Background

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 19 to understand the recap of the topic.

While teaching this chapter, tell the students that operating system is one of the most important software as without this software we cannot use our computer at all.

Give a brief introduction of Microsoft Windows.

Tell the students about the useful features of Windows 11 .

Demonstrate to the students the steps to start Windows 11 .

Make the students aware of the concept of desktop.

Familiarize the students with some important icons on the desktop like This PC, Recycle Bin, Folder and Network.

Demonstrate to the students the steps to sort icons on the desktop.

Show the students how some or all of the icons on the desktop can be hidden.

Introduce the students to the taskbar and its components covering Start button, Search Box and Notification Area.

Demonstrate to the students the steps involved in changing the position of the taskbar.

Explain to the students the use of the 'Desktop Background' icon.

Demonstrate to the students the steps to change desktop background.

Make the students aware that Virtual Desktop is one of the most innovative and unique features of Windows 11.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

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. What does a computer require to work or start?
Q. What is the importance of an operating system?
Q. Give examples of some popular operating systems.
Q. Which company developed Windows operating system?
Q. What are the important features of Windows 11?
Q. What is desktop?
Q. What are the main components of desktop?
Q. Define icons.
Q. What is taskbar?
Q. What is peek button?
Q. How can an application be pinned to the taskbar?
Q. Can the position of the taskbar be changed?
Q. What is desktop background?
Q. How can you change the desktop background?
Q. What is virtual desktop?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 27 and 28 in the main course book in the form of Assess Yourself. Tell them to solve the technology literacy and information literacy skills developing exercise as Coding Zone given on page 29.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 29 in the main course book. This will enhance the ability of the students and serve as a information & technology literacy activity.

Suggested Activity

Ask the students to gather more information about Windows 11 and also ask which features they like more than others.

3 Word 2021 – An Introduction

Teaching Objectives

Students will learn about

- Uses of Word 2021
- Starting Word 2021
- Components of Word 2021
- Creating a New Document
- Saving a Document
- Opening an Existing Document
- Printing a Document
- Closing a Document

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 31 to understand the recap of the topic.

Begin with description of a Word processing software.

Let the students know about the latest Word processor, i. e. Word 2021.

Make the students aware of the various uses of MS Word 2021 .

Demonstrate to the students the steps involved in starting MS Word 2021 .

Show the students the various components of MS Word 2021 Window covering Title bar, Quick Access Toolbar, Ribbon, Rulers, Horizontal and Vertical Scroll bars, Text / Document Area and Status bar.

Explain the students that while working on MS Word, some frequently used keys other than alphabet and number keys are Spacebar, Enter, Delete and Backspace.

Demonstrate to the students the steps involved in:

- Creating a new Word file

- Typing text
- Saving a document
- Opening a saved document
- Printing a document
- Closing MS Word

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Ask the students to solve the exercise **Quiz Bee** given on page number 35.

Ask the students to solve the exercise **I Know** given on page number 36.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a Word processing software?

Q. What is MS Word?

Q. Which company developed MS Word?

Q. What are the various uses of MS Word 2021 ?

Q. Write the steps to start Word 2021.

Q. Name some important components of MS Word 2021 window.

Q. What are the shortcut keys to open / save / print a document?

Q. Write the steps to create a new document.

Q. What is Word Wrap?

Q. What are the various ways in which the user can exit from MS Word 2021 ?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 38 and 39 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 40.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on pages 40 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 Word document on Myself. They can include details like hobbies, fovourite sports and celebrities.

4 Editing Text in Word 2021

Teaching Objectives

Students will learn about

- Inserting Text
- Selecting Text
- Deleting Text
- Copying Text
- Moving Text
- Undo and Redo

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 41 to understand the recap of the topic.

Explain to the students that to edit text, first it needs to be selected.

Tell the students about selecting text with the help of mouse and with the help of keyboard.

Show to the students that text can simply be inserted by moving the cursor to the point where text is to be entered and start typing.

Introduce Undo as a feature used to cancel the command and Redo as a feature to reverse the action of Undo.

Familiarize the students with the icons and the shortcut keys to Undo and Redo actions.

Introduce Cutting as moving the text from one place to another and Copying as duplicating text at another place also.

Demonstrate the steps to Cut-Paste and Copy-Paste text in a Word document.

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

Ask the students to solve the exercise **I Know** given on page number 45.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Word 2021?

Q. What is editing?

Q. Define insertion point in Word 2021.

Q. How is letter / word / text / paragraph selected using a keyboard?

Q. Which key is used to delete a letter?

Q. What is the use of Undo command?

Q. When is Redo command used?

Q. What is the difference between cutting and copying text?

Q. Where are Undo and Redo commands present in Word 2021?

Q. How does Word 2021 help us easily reverse a change and restore the original point?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 46 and 47 in the main course book as Assess Yourself. Tell them to solve the Critical Thinking skills developing exercise in the form of Coding Zone given on page 48.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 48 in the main course book. This will enhance the ability of the students and serve as a technology literacy activity.

Ask the students to carry out the Group Discussion session given on page 47 in the class only to enhance social interaction and communication skills.

Suggested Activity

Ask the students to copy first page of this chapter and edit it by making at least 5 changes in the text.

5 Pivot Animator

Teaching Objectives

Students will learn about

- Pivot Animator
- Uses of Pivot Animator
- Getting Started with Pivot Animator
- Components of Pivot Animator App
- Creating Simple Animation
- Saving an Animation Project
- Exporting an Animation
- Creating a Figure in Pivot Animator
- Loading the Figure

Number of Periods	
Theory	Practical
2	4

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 52 to understand the recap of the topic.

Introduce Pivot Animator as a simple and free animation tool used to create stick figure animations.

Explain the uses of Pivot Animator, such as creating short stories, designing custom characters, and exporting animations as GIFs or videos.

Discuss the steps involved in downloading and installing Pivot Animator from its official website.

Show the steps involved in starting Pivot Animator v5.

Make the students aware about all the components of Pivot Animator app window:

- **Title Bar** – Displays the app name and project title.
- **Menu Bar** – Provides options to manage projects.
- **Frame Controls** – Allows adding, deleting, and navigating frames.
- **Player Controls** – Lets users play, pause, and loop animations.
- **Background Button** – Adds or changes backgrounds.
- **Add Figure Button** – Allows adding new stick figures.
- **Figure Controls** – Used to move, rotate, or resize figures.
- **Add Frame Button** – Adds a new frame to the animation sequence for smooth motion.
- **Frame Panel** – Displays animation frames in a timeline.
- **Canvas** – Refers to the area where you create and animate your stick figures.
- **Figure** – Refers to the stick figures made of segments and joints in your animation.
- **Segment Handle** – Lets you reposition or resize a figure's segment.
- **Origin Handle** – Acts as the pivot point for rotating the figure.
- **Status Bar** – Shows information like the current frame number, speed, and active tool.

Show the steps involved in creating a simple animation with example.

Demonstrate the steps involved in saving an animation project with an example.

Show to the students the steps involved in exporting an animation project to turn your project into a finished file, like a GIF or video.

Explain the steps involved in creating a custom stick figure in Pivot Animator with an example.

Demonstrate the steps involved in loading the custom stick figure to use it for creating an animation.

Ask the students to solve the exercise **Quiz Bee** given on page number 61.

Ask the students to solve the exercise **I Know** given on page number 57.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Pivot Animator used for?

Q. How does adding frames help in animation?

Q. What is the difference between saving and exporting an animation?

Q. How do you create a custom stick figure?

Q. Name of 3 components of Pivot Animator window.

Q. Which component of Pivot Animator let you play, pause, stop and loop the animation?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 63 and 64 in the main course book as Assess Yourself. Tell them to solve the critical thinking skills developing exercise in the form of Coding Zone given on page 65.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 65 in the main course book. This will enhance the ability of the students and serve as technology literacy activity.

Suggested Activity

- Ask students to create a simple animation of a stick figure walking and save it as a GIF.
- Let them present their animations in class and discuss challenges faced during the process.

6 Internet – An Introduction

Teaching Objectives

Students will learn about

- History of Internet
- Uses of Internet
- Requirements for Connecting to the Internet
- Commonly Used Internet Terms
- Using URLs
- Using a Search Engine

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 66 to understand the recap of the topic.

While teaching this chapter, tell the students that computers connected to a network can share data and files efficiently without any delay.

Make the students learn that Internet is a global network of millions of computers and computer networks.

Let the students know about the history of Internet.

Make the students aware of the uses of the Internet.

Share with the students the various requirements for an Internet connection covering computer system, telephone/cable line, modem, web browser and Internet Service Provider (ISP).

Explain the meaning of some common Internet terms like URL, Web Browser, Home Page, Website and Web page.

Introduce Uniform Resource Locator (URL) as a unique address or website address used for locating websites.

explain to the students how to use a search engine.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Ask the students to solve the exercise **Quiz Bee** given on page number 70.

Ask the students to solve the exercise **I Know** given on page number 71.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a computer network?

Q. What is Internet?

Q. What are the uses of Internet?

Q. What are the requirements for an Internet connection?

Q. Define URL, Web Browser, Home Page, Website and Web page.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 72, 73 and 74 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 75.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on pages 74 and 75 in the main course book. This will enhance the ability of the students and serve as a critical thinking, information and technology literacy activity.

Ask the students to try Video based question given on page 74 in the computer lab to enhance media literacy.

Suggested Activity

Ask the students to prepare a report on some more uses of Internet and present the observations to the class.

7 Stepwise Thinking

Teaching Objectives

Students will learn about

- What is Stepwise Thinking?
- How to Break a Task into Steps?
- The Computer and Step-by-Step Instructions

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 76 to understand the recap of the topic.

Begin with introduction of Stepwise thinking as converting a complicated task into small or simple steps to make our work easy.

Tell the students about the following in detail using appropriate examples:

- Reasoning
- Problem Solving

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

Share some Case Study with the students to explain the above taught factors in problem solving approach.

Tell the students about Programming and give a brief introduction about it.

Ask the students to solve the exercise **I Know** given on page number 79.

Extension

Ask the students some oral questions based on this chapter.

Q. What is stepwise thinking?

Q. What is reasoning?

Q. What is problem solving?

Q. How can a task be broken into steps?

Q. What is case study?

Q. What is programming?

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 84.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on page 83 in the main course book. This will enhance the ability of the students and serve as a creativity and technology literacy activity.

Ask the students to carry out the Group Discussion session given on page 83 in the class only to enhance social interaction and communication skills.

Suggested Activity

Ask the students to write a case study to create a greeting card.

8 Introduction to Scratch Programming

Teaching Objectives

Students will learn about

- What is Scratch?
- Advantages of Scratch
- Getting Started with Scratch
- Components of Scratch Window
- Coding Blocks
- Working with Sprite
- Creating a Scratch Project
- Saving a Project
- Opening an Existing Project
- Exiting Scratch

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 86 to understand the recap of the topic.

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

Make the students aware of the advantages of Scratch.

Let the students know why Scratch is used more than many other programming languages.

Demonstrate to the students the steps to start Scratch.

Familiarize the students with the various components of Scratch window covering Title bar, Menu bar, Sprite, Script, Stage Area, Coding Area, Block Menu, Backdrop, Tabs, Go Button and Stop button.

Make the students aware of the coding blocks in Scratch such as Motion Block, Looks Block and Events Block.

Tell the students the method of identifying Motion Blocks which are colour coded as blue.

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

Make the students recall backdrop as background of the stage.

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

Demonstrate the use of Motion Blocks by developing new project.

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

Ask the students to solve the exercise **Quiz Bee** given on page number 92.

Ask the students to solve the exercise **I Know** given on page number 89.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Scratch?

Q. What are the advantages of Scratch?

Q. Name the various components of Scratch window.

Q. Define Sprite / Script / Coding Area / Go button / Stop button.

Q. What is a backdrop in Scratch?

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 are the steps to exit Scratch?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 95 and 96 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 97.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 97 in the main course book. This will enhance the ability of the students and serve as a creativity activity.

Ask the students to try Video based question given on page 97 in the computer lab to enhance media literacy.

Suggested Activity

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

9 Introduction to Robotics

Teaching Objectives

Students will learn about

- Introduction
- What is a Robot?
- Characteristic of Robots
- Limitations of Robots
- Robots around Us
- Artificial Intelligence and Robotics

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 98 to understand the recap of the topic.

Introduce the students with concept of machines which help us in our daily lives. Also, introduce students with the concept of robots and robotics in detail with suitable examples.

Make the students aware of a robot in easy and simple language for better and clear understanding.

Define the meaning of robotics in detail to the students.

Explain the parts of a robot to the students which are:

- Controller
- Sensor

- Mechanical Parts

Share the characteristics of a robot with the students:

- Consistency
- Speed
- Safety
- Accomplishment

Share the limitations of a robot with the students and also tell them the suitable examples.

Make the students learn about the robots around us, some of which are:

- Eagle
- Eagle 2.0
- Ruby
- Daksha
- Goalkeeper
- MARCBOT
- Nao

Define the meaning and difference of Artificial Intelligence and Robotics in detail.

Ask the students to solve the exercise **Quiz Bee** given on page number 100.

Ask the students to solve the exercise **I Know** given on page number 101.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a robot?

Q. What do you mean by robotics?

Q. Who is a roboticist?

Q. Define the parts of a robot.

Q. What are the mechanical parts of a robot?

Q. Write the characteristics of a robot.

Q. Write the limitations of a robot.

Q. Name some AI powered robots around us.

Q. Discuss the relationship of AI and robots.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 103, 104 and 105 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 106.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on page 105 in the main course book. This will enhance the ability of the students and serve as a creativity and technology literacy activity.

Suggested Activity

Ask the students to prepare a report on some more uses of robotics and present the observations to the class.