2

TRACKPAD

Ver. 5.0

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		V	VI	VII	VIII
Monday						B				
Tuesday						R				
Wednesday						E				
Thursday						A				
Friday						K				
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

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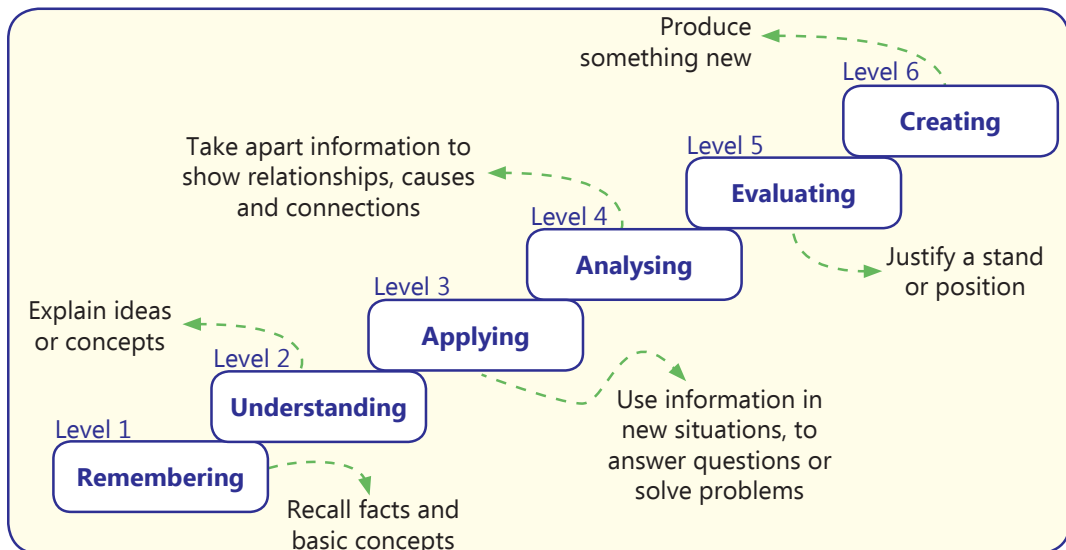
Teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on.

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

LESSON PLAN

Trackpad Ver 5.0

1. Computer – A Smart Machine

Teaching Objectives

Students will learn about

☞ Computer—A Smart Machine

☞ Types of Computers

☞ Computers and Humans

☞ 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 on page 7 to understand the recap of the topic.

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

Tell the students that the computer is a man-made machine and very much different from man.

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

- **Desktop computer** – It is kept on desk or table.
- **Laptop computer** – It can be kept on lap also and is portable.
- **Tablet computer** – It is smaller than a laptop and has a touchscreen.
- **Smartphone** – It is a mobile phone which has computer facilities.
- **Supercomputers** – They are very powerful computers designed to solve complex calculations.

Make the students aware of the places where computers are used, Like:

At home

In schools

At offices

In shops and malls

In banks

In hospitals

At airports and railway stations

In publishing

In science and defence

At police stations

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 **I Know** given on page number 9.

Ask the students to solve the exercise **Quiz Bee** given on page number 12.

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.   Can we keep all computers in our pocket?

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

Q.   Name the places where computers are used.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 14 and 15 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 16.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on pages 15 and 16 in the main course book. This will enhance the ability of the students and serve as a creativity, critical thinking and technology literacy activity.

Ask the students to carry out the Group Discussion session given on page 16 in the class only to enhance social interaction and communication skills.

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Suggested Activity

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

2. Operating a Computer

Teaching Objectives

Students will learn about

☞ How to Start a Computer?   ☞ Opening a Program

☞ How to Shut Down a Computer?

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 17 to understand the recap of the topic.

While teaching this chapter, tell the students that we need to follow proper steps to switch on and shut down a computer.

Share with the students, the steps to switch on a computer as:

(i) Switch on main power supply button.

(ii) Switch on UPS (invertor of the computer) button.

(iii) Switch on power supply button of CPU.

(iv) Switch on monitor.

Explain to the students that:

● The first screen that appears on the monitor is called desktop.

● Small pictures on the desktop are icons.

● Long bar at the bottom of the desktop is called Taskbar.

● Start button is on the left corner of the taskbar and used to open different programs.

● Start menu has shut down button which is used to shut down the computer.

● Maximize and minimize buttons are to resize the window and Close button to close the window.

Make the students aware of the steps to shut down a computer as:

(i) Click on Start button.

(ii) Click on the power button. A submenu appears.

(iii) Click on the Shut down option. A Windows with the message Shutting down appears. After a few seconds, the computer will switch off.

(iv) Switch off UPS button.

(v) Switch off main power supply button.

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 **I Know** given on page number 20.

Ask the students to solve the exercise **Quiz Bee** given on page number 20.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the first step to switch on a computer?

Q. What is the first step to shut down a computer?

Q. What is the last step to shut down a computer?

Q. What are icons?

Q. Where is taskbar located?

Q. How is a program opened?

Q. Write the steps to open the paint program.

Q. Explain the main components of the Paint window.

Q. Which menu is used to shut down a computer?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 21, 22 and 23 in the main course book in the form of Assess Yourself. Tell them to solve the interdisciplinary and computational skills developing exercise as Coding Zone given on page 24.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on page 23 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 carry out the Group Discussion session given on page 24 in the class only to enhance social interaction and collaboration skills.

Suggested Activity

Ask the students to draw images showing the steps to switch on a computer and to shut down a computer in their computer notebook.

3. How Computer Works?

Teaching Objectives

Students will learn about

☞ IPO Cycle

☞ Computer Devices

Number of Periods	
Theory	Practical
2	**2**

Teaching Plan

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

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.

Make the students aware 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.

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 and printer are used as output devices in a computer.

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 **I Know** given on page number 28.

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

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. What are computer devices?

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 30 and 31 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on page 32.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on pages 31 and 32 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 try Video based question given on page 31 in the computer lab to enhance media literacy skills.

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.

4. Using a Mouse and a Keyboard

Teaching Objectives

Students will learn about

☞ Types of Mouse

☞ Actions of a Mouse

☞ Types of Keys on a Keyboard

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 33 to understand the recap of the topic.

While teaching this chapter, tell the students that keyboard and mouse are used to perform various functions.

Show to the students a mouse and demonstrate:

● A mouse has buttons to click and wheel to scroll.

● The mouse 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.

- **Click or Single-click** – It is used to select an item.
- **Double-click** – It is used to open the selected item.
- **Right-click** – It is used to display list of properties of the selected item.
- **Drag** – It is used to move an item from one location to another.
- **Scroll** – It is used to move up and down a page on the monitor.

Show to the students a keyboard and demonstrate:

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

Explain to the students in detail that there are some special keys:

- **Shift key** – It is 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** – They are used to type special signs like @,$, %, *, etc. and punctuation marks like ?, ! :, " ", etc.
- **Backspace key** – It is to erase letters and numbers on the left side of the cursor.
- **Spacebar** – It is to give a blank space when you type words, letters or numbers.
- **Enter key** – It is to start a new line or a paragraph.
- **Delete key** – It is to erase letters and numbers to the right of the cursor.
- **Arrow keys** – They are to move the cursor up, down, right and left.
- **Function keys** – They are 12 in number from F1 to F12 and used to perform a different function like F1 for Help, etc.
- **Caps Lock key** – It is used to type in capital letters.
- **Tab key** – It is used to move cursor several spaces forward at once.
- **Escape or Esc key** – It is used to cancel a task.

Ask the students to solve the exercise **I Know** given on page number 35.

Ask the students to solve the exercise **Quiz Bee** given on page number 37.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a mouse?

Q. What is pointer?

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

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?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 39 and 40 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on page 41.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 41 in the main course book. This will enhance the ability of the students and serve as a an information and technology literacy activity.

Ask the students to try Self Reflection given on page 38 to enhance initiative skills

Suggested Activity

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

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

5. Typing in WordPad

Teaching Objectives

Students will learn about

☞   Opening WordPad   ☞   Parts of WordPad Window

| ☞ | Typing Text | ☞ | Changing the Appearance of Text |
| ☞ | Closing the WordPad | | |

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 44 to understand the recap of the topic.

Explain the purpose of WordPad to the students in detail.

Demonstrate the steps to open WordPad easily to the students.

Explain the parts of WordPad window to the students in detail.

Tell the students about how to type text in WordPad and which key plays an important role in the same.

Show the students how we can change the appearance of the text along with the commands and their operations.

Tell the students how to close WordPad in easy steps.

Ask the students to solve the exercise **I Know** given on page number 46.

Ask the students to solve the exercise **Quiz Bee** given on page number 48.

Extension

Ask the students some oral questions based on this chapter.

Q.   What is WordPad?

Q.   How can we open WordPad?

Q.   Define the parts WordPad window.

Q.   Explain the steps about how to type in WordPad.

Q.   How can we change the appearance of text?

Q.   Write the steps to close WordPad.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 48 and 49 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on page 50.

Take the students to the computer lab and let them practise the activity given in the Lab Activity section on page 50 in the main course book. This will enhance the ability of the students and serve as a an interdisciplinary and technology literacy activity.

Ask the students to try Self Reflection given on page 48 to enhance initiative skills.

Suggested Activity

Ask the students to search about some more examples of online storage service providers.

6. More on Paint & Paint 3D

Teaching Objectives

Students will learn about

☞ Paint

☞ Opening an Existing Drawing

☞ Paint 3D

☞ Components of Paint 3D

☞ Saving a Drawing

☞ Closing Paint

☞ Opening Paint 3D

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 51 to understand the recap of the topic.

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.

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

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

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

Let the students know how to save a drawing. Also explain the steps of saving a drawing.

Make the students aware of how to open an existing drawing and explain the steps for the same.

Explain to the the students the steps of closing Paint.

Tell the students about Paint 3D and the steps involved in starting Paint 3D.

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

- 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 is used to draw and paint in paint 3D.
- 2D Shapes Tool is used to draw 2D shapes or drawings.
- 3D Shapes Tool is used to draw 3D shapes or drawings.

Make the students aware of how to use Brushes tool.

Let the students know how to colour the drawing by explaining the steps.

Show to the students the steps involved in saving and opening a drawing.

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 Paint?

Q.   What is the use of Airbrush tool?

Q.   What is the use of Text tool?

Q.   What is the use of Magnifier tool?

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

Q.   What is Paint 3D?

Q.   Define Brushes tool.

Q.   what is a 2D shapes tool?

Q.   What is a 3D shapes tool?

Q.   Define canvas in Paint 3D.

Q.   What are Brushes options in Paint 3D?

Evaluation

After explaining the chapter, let the students do the exercises given on page 61 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on page 63.

Take the students to the computer lab and let them practise the activity given in the Fun Activity and Lab Activity section on pages 62 and 63 in the main course book. This will enhance the ability of the students and serve as a creativity, critical thinking, art integration, interdisciplinary and 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. More on Tux Paint

Teaching Objectives

Students will learn about

☞   Opening Tux Paint

☞   Using Fill Tool

☞   Using Text Tool

☞   Saving a Drawing

☞   Opening a Saved Drawing

☞   Using Paint tool

☞   Using Magic Tool

☞   Using Eraser Tool

☞   Quitting Tux Paint

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 65 to understand the recap of the topic.

While teaching this chapter, tell the students that Tux Paint has a lot of tools, animations and effects to enhance your creativity in drawing.

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

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

Let the students know how to use the Paint tool.

Make the students aware of using Fill tool.

Explain to the students that the Magic tool is used to give special effects to our drawing. Magic tool when selected displays various magical effects on the drawing canvas.

Let the students know how to use text tool.

Make the students aware of using the Eraser tool properly.

Explain to the students how to save a drawing in Tux Paint program.

Let the students know how to quit Tux Paint.

Make the students aware of opening a saved drawing.

Ask the students to solve the exercise **I Know** given on page number 70.

Ask the students to solve the exercise **Quiz Bee** given on page number 67 and 69.

Extension

Ask the students some oral questions based on this chapter.

Q.   What are the main components of the Tux Paint window?

Q. What is the Magic tool?

Q. What does the Magic tool display on the drawing canvas when selected?

Q. Why do we use Eraser tool?

Q. What happens when Save tool in the Toolbox is clicked?

Q. When do we generally quit the Tux Paint?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 73 and 74 in the main course book in the form of Assess Yourself. Tell them to solve the computational 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 Lab Activity section on page 75 in the main course book. This will enhance the ability of the students and serve as a an interdisciplinary and technology literacy activity.

Ask the students to try Self Reflection given on page 73 to enhance initiative skills and Video based question given on page 74 in the computer lab to enhance media literacy skills.

Suggested Activity

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

8. More About Scratchjr

Teaching Objectives

Students will learn about

☞ ScratchJr Programming Language

☞ Components of ScratchJr Window

☞ Blocks of ScratchJr

Number of Periods	
Theory	Practical
1	2

Teaching Plan

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

Begin with the introduction of ScratchJr as an interesting programming language for young learners.

Make the students understand various components of ScratchJr window like , Presentation mode, Stage, Background, Green flag, Undo and Redo buttons, Save, Block categories, Block Palette and Programming area.

Explain to the students that blocks are like puzzle-piece shapes that are used to create code in ScratchJr.

Let the students know that Motion Blocks are used to move the characters on the stage.

Make the students aware of changing the background of the stage in ScratchJr.

Explain to the students that Looks Blocks are used to control acharacter's appearance.

Let the students know about Control blocks, Sound Blocks, Events Blocks and End Block.

Make the students aware of how to create a project in ScratchJr.

Ask the students to solve the exercise **I Know** given on page number 81.

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 ScratchJr?

Q.   What does ScratchJr programming language encourage?

Q.   Name some components of ScratchJr window.

Q.   What are blocks of ScratchJr?

Q.   Define script.

Q.   What are the various categories of blocks? in ScratchJr?

Q.   What are Control Blocks used for?

Q.   What is the colour of the Events Blocks?

Q.   What is the End Block used for?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 83 and 84 in the main course book in the form of Assess Yourself. Tell them to solve the computational 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 Lab Activity section on page 84 in the main course book. This will enhance the ability of the students and serve as an interdisciplinary and technology literacy activity.

Suggested Activity

Ask the students to create a project in ScratchJr according to their choices.

9. Importance of AI

Teaching Objectives

Students will learn about

☞ Real-life Applications of Artificial Intelligence

<table>
<tr><td colspan="2">**Number of Periods**</td></tr>
<tr><td>Theory</td><td>Practical</td></tr>
<tr><td>**2**</td><td>**0**</td></tr>
</table>

Teaching Plan

Before starting the chapter, ask the students to read the comic given on page 85 to understand the recap of the topic.

Begin with the introduction of Artificial Intelligence as a medium to change the way we live our lives and get things done.

Make the students aware of how AI is not just limited to computers or space technologies but it also plays an important role in industries that are directly related to common people like entertainment, banking, automobile and the healthcare system.

Let the students know that AI is used to diagnose patients based on X-rays or medical scans in healthcare system.

Make the students understand that a large volume of data is processed to make important decisions with the help of robotic process automation in business.

Explain to the students how AI is used to grade homework and tests in education.

Let them know how AI models are used to detect exoplanets or planets outside our solar system.

Make the students aware that with the processed data, AI can predict price patterns and alert people when to buy tickets.

Ask the students to solve the exercise **I Know** given on page number 87.

Ask the students to solve the exercise **Quiz Bee** given on page number 88.

Extension

Ask the students some oral questions based on this chapter.

Q. How is Artificial Intelligence changing the way we live our lives?

Q. How is AI used in healthcare sector?

Q. How does AI help in the business sector?

Q. How is AI used in Education sector?

Q. What is the role of AI in space technology?

Q. How can AI contribute in tourism industry?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 89 and 90 in the main course book in the form of Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on page 90.

Take the students to the computer lab and let them practise the activity given in the Fun Activity section on page 90 in the main course book. This will enhance the ability of the students and serve as a critical thinking activity.

Suggested Activity

Ask the students to find about more real-life applications of artificial intelligence which have upgraded methodology of our work in different sectors.