TOUCHPAD

Play Ver. 2.1

5

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

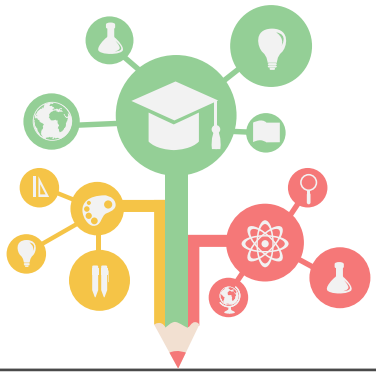
Age 11 - 20 Years

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.

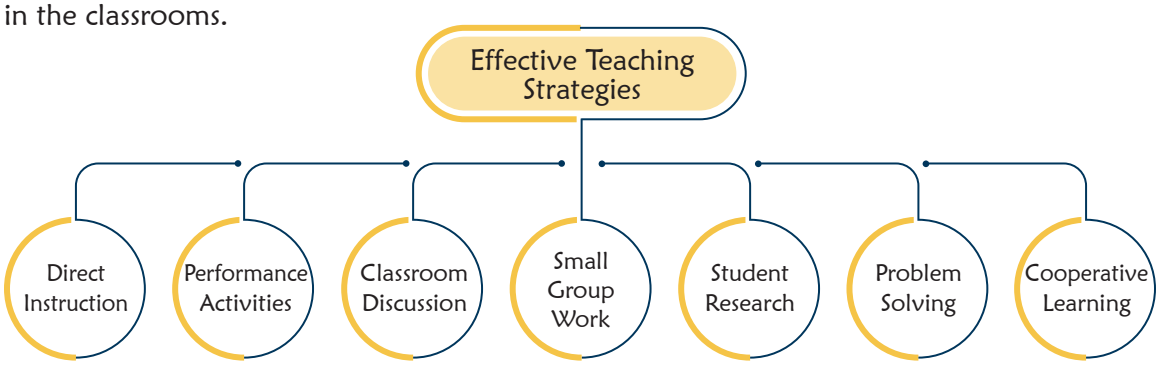
After the class

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

"Knowing yourself is the beginning of all wisdom."

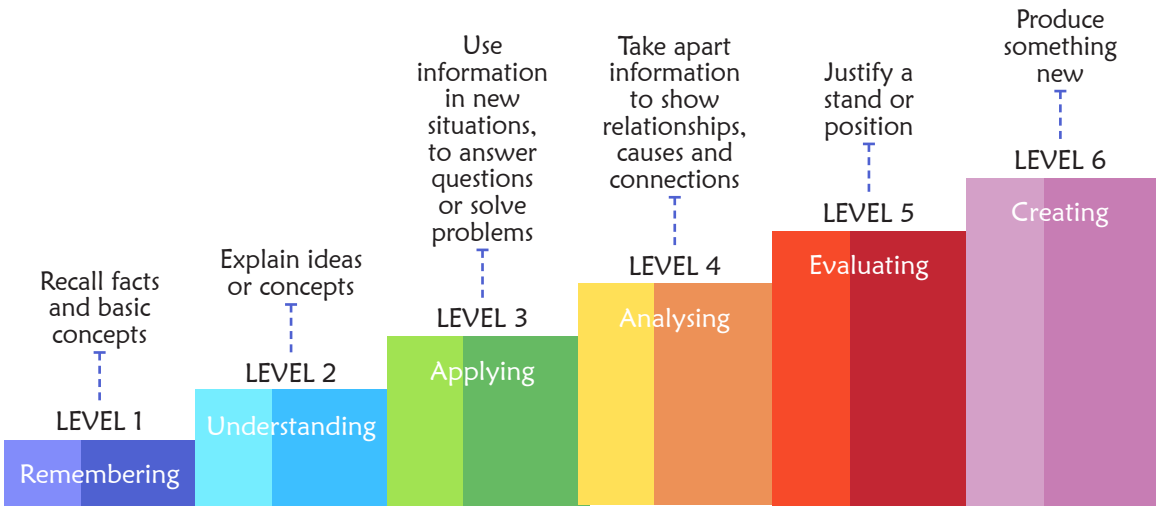
Teaching Strategies

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 5

LESSON PLAN

1 Working with Windows 10

Teaching Objectives

Students will learn about:

- Files and Folders
- Organising Files and Folders
- Opening Files or Folders
- Copying/Moving Files or Folders
- Deleting a File or Folder
- File Explorer
- Creating a New File or Folder
- Selecting Files or Folders
- Renaming a File or Folder
- Restoring a Deleted File or Folder

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that all the data stored on a hard disk consists of files and folders.

Introduce file as an item that contains a collection of related information, a folder as a collection of files and a subfolder as a folder within a folder.

Introduce to the students the File Explorer as a file manager that manages files and folders.

Demonstrate to the students the steps to open Windows Explorer.

Familiarise the students with the various components of File Explorer covering Toolbar, Navigation pane, Address bar, Search bar, Back and Forward.

Tell the students that Windows 10 has some default folders to organize similar files.

Demonstrate to the students the steps to:

- Create a new file and a folder
- Open a file and a folder
- Select a file and a folder (including selecting a single file, selecting multiple files, selecting all files and deselecting a file)
- Copy a file and a folder (using Copy-Paste features)
- Move a file and a folder (using Cut-Paste features)

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define file, folder and subfolder.

Q. Define a computer icon.

Q. What is File Explorer?

Q. What is the default name of a folder?

Q. Which key is used to select multiple files?

Q. Which key is pressed to cut a file or folder?

Q. What is the difference between copying a file and moving a file?

Q. How is a file or folder renamed?

Q. Where does a file or folder go after being deleted?

Q. How can a deleted file or folder be restored?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 13 to 15 of the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity **IN THE LAB** given on page 15 of the main course book. It will enhance the ability of the students and will serve as Critical Thinking and Technology Literacy activity.

Suggested Activity

Ask the students to collect information about some more features of Windows 10 other than those discussed in the chapter.

2 Page Formatting and Mail Merge in Word 2016

Teaching Objectives

Students will learn about:

- Header and Footer
- Page Break and Line Break
- Indentation
- Page Orientation
- Mail Merge
- Column and Column Break
- Tabs
- Page Margin
- Page Size

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that Word 2016 is an application software that can help us to create attractive and presentable documents.

Show to the students the main course book where book name and chapter name are appearing at the bottom of each page. Tell the students that this is called Footer of a page.

Make the students understand that if the same or some other text appears on top of each page, it is called Header.

Demonstrate the steps involved in adding header and footer to a text document and tell them the various type of information can be shown as header and footer.

Explain the students about column and column break as Word 2016 document is written into single column.

Tell the students the steps involved in inserting more than one column.

Demonstrate the steps involved in inserting page break.

Let the students know that Tabs move the cursor one-half inch by default.

Tell the students that Indentation is the distance of the text from either the left or the right margin.

Explain the steps involved in indenting the text.

Tell the students that page margin is the white space all around the printed area of the paper.

Make the students understand how they can modify page margin settings for their document.

Introduce the students to the concept of orientation as the side of the paper along which the content of the document will be printed.

Show to the students the steps involved in changing the page orientation in a document.

Introduce the students to Mail Merge as the feature used to create personalised letters to be sent to many persons.

Let the students know about various steps involved in creating a mail merge.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is Header?

Q. What is Footer?

Q. Define column break.

Q. What is the function of Tabs?

Q. What is Tab stop?

Q. Define indentation.

Q. What is page margin?

Q. What do you mean by orientation?

Q. Which tab is used to add header/footer to a document?

Q. What do you mean by Mail Merge?

Q. What are the components of mail merge?

Q. How to create a mail merge?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 22 and 23 of the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity **IN THE LAB** given on page 24 of the main course book. It will enhance the ability of the students and will serve as an Initiative, and Leadership & Responsibility activity.

Suggested Activity

Ask the students to create an electronic invitation (personalised) for inviting middle school teachers to a thanks giving performance.

3 Enhancing A Presentation

Teaching Objectives

Students will learn about:

- Applying Themes
- Tables in PowerPoint
- Working with Slide Master
- Specifying Alignment
- Using Charts in PowerPoint

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that Microsoft PowerPoint is a program that allows creating interesting and exciting presentations.

Tell the students that a theme is a set of predefined layouts that can be used to add a professional touch to the presentations.

Demonstrate the steps to change a theme, change theme colours, fonts and backgrounds.

Tell the students that Alignment helps to align the text of the slide in various directions.

Explain the four types of alignment in the presentation and demonstrate the steps involved to align the text.

Tell the students that a table is an arrangement of text in the form of columns and rows.

Explain the steps involved in:

- Inserting a Table
- Entering Data in a table
- Applying Table style
- Inserting Table using Insert Table option
- Formatting Table

Teach the students to use charts in PowerPoint.

Familiarise the students with the different types of chart options available.

Show the different components of a chart.

Demonstrate the steps of:

- Creating a chart
- Formatting a chart by changing its type, layout and design.

Introduce students with Slide Master and the steps involved in using this action into a presentation.

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define slide.

Q. How to add a table in PowerPoint?

Q. How to add a chart in PowerPoint?

Q. Define themes

Q. Which group of the Insert tab contains Chart command?

Q. How to change theme font?

Q. Define chart.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 39 to 41 of the main course book as **Exercise**.

In Creative Assignment, activity like **In The Lab** given on Page 41 of the main course book will enhance the ability of the students and serve as Creativity and Collaboration activity.

Suggested Activity

Divide the class into two teams. Ask one team to prepare charts on various types of pollution. Ask the other team to prepare a PowerPoint presentation on the same topic. Make the students share the benefits enjoyed and limitations faced by each team while working on their project.

4 Introduction to Excel 2016

Teaching Objectives

Students will learn about:

- Starting Excel 2016
- Creating a New Workbook
- Saving a Workbook
- Components of Excel 2016 Window
- Entering Data in a Worksheet
- Data types in Excel 2016

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that Excel 2016 is an application software that helps to store and analyse data.

Demonstrate to the students the steps to start Excel 2016.

Familiarise the students with the various components of MS Excel 2016 window covering Title Bar, File Tab, Quick Access Toolbar, Ribbon, Formula Bar, Name Box, Worksheet Window, Worksheet Tab, Worksheet Tab Scrolling Buttons, Status Bar, Row, Column, Row and Column Heading Buttons, Cell, Active Cell, Mouse Pointer, Workbook and Cell Range.

Demonstrate to the students the steps to:

- Create a new workbook
- Save a workbook
- Enter data in a worksheet

Tell the students that Excel 2016 offers various data types to be entered in a cell covering Labels, Text/String, Date/Time, Boolean, Error, Array, or Numbers and Formulas.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is Excel 2016?
Q. How to start Excel 2016?
Q. Name any five components of Excel 2016.
Q. Define Formula Bar / Name Box / Row / Column / Cell / Active Cell / Cell Range.
Q. State the situation when Number / Text / Date and Time data type used for.
Q. State the shortcut key to save an Excel worksheet.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 46 to 48 of the main course book as **Exercise**.

In Creative Assignment, activities like **IN THE LAB** given on Page 48 of the main course book will enhance the ability of the students and serve as a Technology Literacy and Creativity activity.

Suggested Activity

Ask the students to prepare a table in this format for their family members.

S.No.	Name	Relation with Me	Date of Birth	Age

5 Editing in Excel 2016

Teaching Objectives

Students will learn about:

- Selecting Cells in a Worksheet
- Using Undo and Redo Features
- Inserting Rows/Columns
- Autofil
- Copying/Moving Data
- Column Width and Row Height
- Merging Cells
- Customise Worksheet Tab

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that MS Excel is an application software that helps us to store and analyse data.

Demonstrate the steps to modify MS Excel 2016.

Demonstrate the steps to cut/copy and paste data.

Tell the students about the Undo and Redo features.

Demonstrate the students the steps to set column width and row height.

Tell the students how to fit column/row content automatically.

Tell the students the steps to insert rows and columns.

Teach the students how to merge cells in Excel 2016.

Explain to the students how to use Auto Fill feature.

Demonstrate to the students how to customise worksheet tab.

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

Extension

Ask the students some oral questions based on this chapter.

Q. How to select cells in a worksheet?

Q. What are the steps to modify cell content?

Q. What is the difference between Cut and Copy options?

Q. What are Undo and Redo commands?

Q. Define merging of cells.

Q. Define splitting of cells.

Q. What is the use of Auto Fill feature?

Q. How can you customise worksheet tab?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 56 and 57 of the main course book as **Exercise**.

In Creative Assignment, activities like **IN THE LAB** given on Page 58 of the main course book will enhance the ability of the students and Serve as Information Literacy and Productivity & Accountability activity.

Suggested Activity

Ask the students to design their class time-table in MS Excel 2016.

6 Internet and E-mail

Teaching Objectives

Students will learn about:

- The Internet
- How does the web works?
- World Wide Web
- Using web browser

- Using URLs
- Emoticons and Acronyms
- E-mail

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that the internet is a computer network that connects hosts and systems throughout the world.

Give a brief history of the beginning of internet as ARPANET.

Introduce the concept of World Wide Web (WWW) with reference to basic terms covering web, web servers, web pages, etc.

Explain to the students the process of how the web works.

Introduce web browser as software application designed to find hypertext documents on the web.

Show to the students the steps involved in the process of launching the web browser.

Tell the students about Uniform Resource Locator or URL (unique internet address) and their use while navigating on internet.

Make the students recall E-mail as the process of exchanging messages electronically through communications network by using a computer.

Share with the students the advantages and features of e-mail.

Explain the components of an e-mail address to the students.

Demonstrate in detail the steps involved in:

- Creating an e-mail account
- Logging in to an e-mail account
- Sending an e-mail (with reference to fields like To, Cc, Bcc and Subject)
- Reading a received e-mail
- Logout from the e-mail account (tell them the importance of this step)

Introduce the terms emoticons (representation of facial expressions) and acronyms (word formed from initial letters of a multi-word name).

Write some commonly used emoticons and acronyms on the class board to elaborate the concept.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is World Wide Web?
Q. Define web server.
Q. How the web works?
Q. Expand URL.
Q. Define an e-mail.
Q. What do you understand by emoticons?
Q. What is an acronym?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 72 to 74 of the main course book as **Exercise**.

In Creative Assignment, activity like **IN THE LAB** given on Page 74 of the main course book will enhance the ability of the students and serve as Media Literacy and Flexibility activity.

Suggested Activity

Ask the students to create an e-mail account. Send a birthday invitation to ten friends and/or relatives.

7 Data Processing

Teaching Objectives

Students will learn about:

- Data and Information
- Sorting Data
- Representing Information
- Decoding

Number of Periods	
Theory	Practical
2	0

Teaching Plan

While teaching this chapter, teach the students how to interpret the data and process the information.

Introduce Data and Information to the students in details with the help of proper examples for better understanding.

Tell the students how to sort data and demonstrate the same with proper examples which are easy to understand.

Tell the students about how to represent information with the help of tables, pictures, maps and pictograms.

Let them know how to sort data by giving some examples which will improve their understanding of the topic.

Explain the meaning of Decoding to the students and ask them to use the reference given in the book to understand the concept.

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

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is data?

Q. What is information?

Q. How can you represent information?

Q. What is sorting?

Q. How can you sort data?

Q. What is a decoding?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 78 and 79 in the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity given in the **IN THE LAB** section on page 79 in the main course book. This will enhance the ability of the students and foster Critical Thinking and Technology Literacy skills.

Suggested Activity

Ask the students to practise to find out more types of methods to represent information.

8 Creating Shapes in Scratch

Teaching Objectives

Students will learn about:

- Pen Blocks
- Drawing Polygons in Scratch
- Drawing a Line in Scratch
- Drawing a Circle in Scratch

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Tell the students about pen block and explain its use with using appropriate examples. Also, show the steps involved in creating programs using pen blocks.

Show the steps involved in drawing a line in Scratch.

Tell the steps involved in drawing polygons in Scratch.

Explain the steps involved in drawing a square in Scratch.

Show the steps involved in drawing a circle in Scratch.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is a pen block?

Q. How can you draw a line in Scratch?

Q. How can you draw a polygon in Scratch?

Q. How can you draw a square in Scratch?

Q. How can you draw a circle in Scratch?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 84 to 86 of the main course book as **Exercise**.

In Creative Assignment, activity like **IN THE LAB** given on Page 86 of the main course book will enhance the ability of the students and serve as Critical Thinking and Creativity activity.

Suggested Activity

Ask the students to draw a triangle and circle together in a program.

9 Creating a Game in Scratch

Teaching Objectives

Students will learn about:

- Block Shapes in Scratch
- Variables
- Use of Loop Blocks
- Sensing Blocks
- Conditional Blocks
- Creating a Game

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that the blocks in Scratch are in different shapes and colours and are used for various purpose like creating shapes and scenes.

Tell the students that there are six block shapes in scratch.

Explain then about all the Block shapes:

- Hat Blocks
- Boolean Blocks
- C Blocks
- Stack Blocks
- Reporter Blocks
- CAP Blocks

Introduce Sensing blocks as the Blocks which sense the input from the keyboard or the mouse at the time of execution of a script.

Tell the students about some sensing blocks and their functions and demonstrate the steps to add sensing blocks.

Tell the students about the types of variables and demonstrate the steps involved in creating variables in Scratch.

Introduce Conditional blocks to the students and explain the types of it.

Demonstrate them how to create a game in Scratch.

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define hat block.

Q. How to add sensing blocks to the script

Q. Which blocks perform the main commands?

Q. What do you mean by C blocks?

Q. Define stack blocks.

Q. What are different types of Variables?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 95 to 97 of the main course book as **Exercise**.

In Creative Assignment, activity like **Hands-On** and **IN THE LAB** given on Pages 97 and 98 of the main course book will enhance the ability of the students and serve as Communication, Social Interaction, Technology Literacy and Creativity activity.

Suggested Activity

Ask the students to draw a triangle and circle together in a program.

10 Robotics

Teaching Objectives

Students will learn about:

- What Are Robots?
- Latest Robots
- Fields Where Robots Are Used

Number of Periods	
Theory	Practical
3	0

Teaching Plan

Let the students know that robots are automatically operated machines that work in place of humans. Explain that Robotics is a branch of engineering and science that deals with the design, construction and functioning of robots.

Make the students aware of the fields where robots are used like security and surveillance, manufacturing, customer service, cooking, healthcare, space exploration, entertainment and underwater research.

Make the students aware of latest robots like T-HR3, Sophia, Digit, RoboThespian, Nao, Z-Machines, Moley Robotic Kitchen, Paro, Root, Zenbo and Dash & Dot.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What are robots?
Q. Define Robotics.
Q. Name some fields where robots are used.
Q. Which was the first robot to join the assembly line in 1961?
Q. Which robot can recognise people from the database of their previous visits?
Q. What is Sophia?
Q. What is RoboThespian?
Q. What does the robot Nao do?
Q. What is Paro, a talking robot used for?
Q. What is Zenbo?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 103 and 104 in the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity given in the **IN THE LAB** section on page 105 in the main course book. This will enhance the ability of the students and foster Information Literacy and Technology Literacy skills.

Suggested Activity

Ask the students to gather more information about the latest robots and the areas of their use.