5

TOUCHPAD®

PLUS Ver. 2.1

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	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 to 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 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 needs 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.

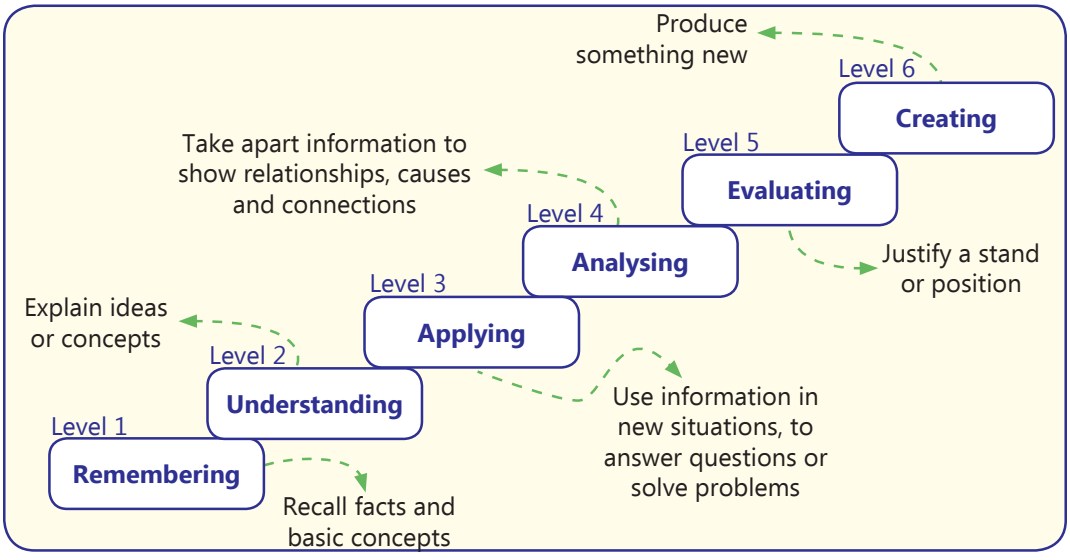
"Knowing yourself is the beginning of all wisdom."

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

Touchpad Ver 2.1

1. Evolution of Computers

Teaching Objectives

Students will learn about

- Early Counting Tools
- Abacus – First Calculating Device
- Pascaline Adding Machine
- Leibniz Step Reckoner
- Charles Babbage's Analytical Engine
- Lady Ada Lovelace's Programs
- Herman Hollerith's Tabulating Machine
- Computer Generations

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 the computer is an outcome of labour of a number of minds.

Tell the students about the early counting tools like knots tied on a rope, marks carved in clay, fingers, pebbles, etc.

Explain to the students about invention of Abacus – the first calculating device.

Share with the students the importance and usefulness of Abacus even today and is being taught in schools also.

Give a brief account of these calculating machines:

- Pascaline Adding Machine
- Leibniz Step Reckoner

Tell the students about Charles Babbage, the father of computers, and his invention of Difference Engine which was later improved by him into Analytical Engine, the first working model of a mechanical computer.

Inform the students about Lady Ada Lovelace, accredited as the first computer programmer as the programmer to the Analytical Engine of Charles Babbage.

Share with the students about Herman Hollerith who built Tabulating Machine and later his company became a part of IBM.

Explain to the students about the concept of generations of computers and need for classification on this basis.

Share with the students the characteristic features of the different generations of computers covering:

- First Generation (1940-1955) – MARK-I, ENIAC, UNIVAC.
- Second Generation (1956-1964).
- Third Generation (1965-1975).
- Fourth Generation (1976-1985).
- Fifth Generation (1986-Present).

Ask the students to solve the exercise Let's Catch Up given on page number 14.

Extension

Ask the students some oral questions based on this chapter.

Q. Name some early counting tools.
Q. What is Abacus?
Q. Who invented Adding Machine?
Q. Which is the first mechanical calculator?
Q. Which is the first mechanical computer?
Q. Who is called the Father of Computers?
Q. Why is Lady Ada Lovelace famous?
Q. How many generations of computers are there?
Q. What was the technology used in First / Second / Third / Fourth / Fifth generation of computers?
Q. Give three characteristic features of First / Second / Third / Fourth / Fifth generation of computers.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 15 and 16 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Pages 16 and 17 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 17 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to prepare a collage of different models of computers depicting its evolution over the generations.

2. Advanced Features of Word 2016

Teaching Objectives

Students will learn about

- Spelling and Grammar
- Thesaurus
- Find and Replace Text
- Page Formatting
- Column Formatting
- Paragraph Formatting
- Mail Merge

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 18 of the main course book.

While teaching this chapter, tell the students that formatting refers to the appearance of a document.

Introduce the students to Spelling and Grammar Check feature of Word.

Show to the students the representation of spelling and grammar mistakes with different colored wavy lines.

Demonstrate to the students the method of using Spelling and Grammar Check feature of Word.

Tell the students that a particular word or phrase in a document can be looked for with the help of Find feature.

Tell them that Word can go one step ahead and can replace that particular word or phrase by another word or phrase as required by the user using the Replace feature.

Demonstrate the steps to use Find and Replace features.

Explain to the students that line spacing means the blank space between two lines in a paragraph.

Further tell them that the paragraph spacing means the blank space between two consecutive paragraphs in a document.

Activity can be created on the Orientation as Take two printouts in different orientations and display them in from of the class to demonstrate the difference between orientations.

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

Tell the students about different types of orientations.

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

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

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

Tell them the various steps involved in creating a mail merge.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the use of Spelling and Grammar check feature?

Q. Which button is pressed to skip errors and continue working during Spelling and Grammar check?

Q. What is the difference between Find and Replace features?

Q. What is the meaning of Line Spacing?

Q. What is the meaning of Paragraph Spacing?

Q. What do you mean by page orientation?

Q. What do you mean by Mail Merge?

Q. How is mail merge helpful?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 30 and 31 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Page 31 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 32 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an electronic invitation (personalized) for inviting middle school teachers to a thank you performance organized by Grade 6-8 students.

3. Formatting a Presentation

Teaching Objectives

Students will learn about

- Applying Themes
- Working with Slide Master
- Animations Slide
- Changing the Background
- Inserting SmartArt
- Transitions

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 34 of the main course book.

While teaching this chapter, tell the students that PowerPoint 2016 is used to create electronic 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 choose a theme, change theme colours, fonts and backgrounds.

Ask the students to solve the exercise Let's Catch Up given on Pages 37 and 41.

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

Show to the students how to insert SmartArt and the steps involved in adding it into a presentation.

Explain to the students that transitions are used to determine how the presentation moves from one slide to the next.

Show to the students how sound and audio files can be inserted into a presentation.

Demonstrate the steps involved in inserting a video file into a presentation. (refer Suggested Activity also).

Tell the students about the various categories of slide transitions available in MS PowerPoint.

Demonstrate the application of transitions to slides in a presentation.

Introduce animation as the feature that gives a moving effect to text and other objects on the slide.

Show to the students the steps involved in applying custom animation to various objects on a slide.

Tell the students the animation effects applied to different objects on a slide can be reordered.

Share with the students that running a presentation is called Slide Show.

Demonstrate to the students the various steps involved in running a slide show.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a theme?

Q. What do you mean by customizing a theme?

Q. Can you change background, colour, fonts, etc. of a theme?

Q. What is Slide Master?

Q. What is SmartArt?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 44 and 45 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve and Let's Explore given on Page 45 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 46 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment 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

- Excel 2016
- Features of Excel 2016
- Starting Excel
- Components of Excel 2016 Window
- Changing the Active Cell
- Creating a New Workboo
- Entering Data
- Working with Worksheet
- Saving a Workbook
- Opening a Workbook
- Closing a Workbook

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Let's Plug-In given on Page 47 of the main course book.

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

Tell the students that to enter data in a cell, simply click on the cell and enter data.

Tell the students the methods of modifying data by cut, copy and paste.

Explain to the students the steps involved in changing row height and column width – both manually and automatically.

Tell the students that Excel allows inserting blank rows and columns at the required place in the worksheet.

Demonstrate to the students how two or more cells can be merged into one and also how a cell can be split up into two or more cells (refer Suggested Activity also).

Explain some worksheet formatting features of Excel like:

- **Word wrap** – displaying multiple lines of text in a cell.
- **Format numbers** – applying various data types to the cells.
- **Cell borders** – boundary around a cell or a series of cells.
- **Cell styles** – Pre-defined cell border, colour and formatting.
- **Cell fills** – adding colours or shades in the cells.

Show to the students the steps involved in applying all of these formatting features on a worksheet.

Explain to the students that worksheet tab can be customized by changing its default name and colour.

Introduce to the students AutoFill feature of Excel as automatically filling a series of data in the worksheet and the steps involved in the same.

Familiarize the students with the various components of MS Excel 2010 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.
- Enter data in a worksheet.
  - Adding a worksheet.
  - Renaming a worksheet.
  - Removing a worksheet.
- Save a workbook.

Ask the students to solve the exercise Let's Catch Up given on page number 59.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Excel 2016?

Q. What are the features of 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 exercises given on Pages 56 and 57 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Page 57 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 58 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

5. Editing Cell Contents in Excel 2016

Teaching Objectives

Students will learn about

- ☞ Selecting Cells
- ☞ Copy and Move Data

- ☞ Entering Date and Time
- ☞ Changing Cell Contents
- ☞ Undo and Redo Commands
- ☞ Deleting Cell Contents
- ☞ Using AutoFill Feature

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Let's Plug-In given on Page 59 of the main course book.

Tell the students that to enter data in a cell, simply click on the cell and enter data.

Tell the students the methods of modifying data by cut, copy and paste.

Explain to the students the steps involved in changing row height and column width – both manually and automatically.

Tell the students that Excel allows inserting blank rows and columns at the required place in the worksheet.

Demonstrate to the students how two or more cells can be merged into one and also how a cell can be split up into two or more cells.

Explain some worksheet formatting features of Excel like:

- **Cell borders** – boundary around a cell or a series of cells.
- **Cell styles** – Pre-defined cell border, colour and formatting.
- **Cell fills** – adding colours or shades in the cells.

Show to the students the steps involved in applying all of these formatting features on a worksheet.

Explain to the students that worksheet tab can be customized by changing its default name and colour.

Introduce to the students AutoFill feature of Excel as automatically filling a series of data in the worksheet and the steps involved in the same.

Ask the students to solve the exercise Let's Catch Up given on page number 61.

Extension

Ask the students some oral questions based on this chapter.

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

Q. Define merging of cells.

Q. Define splitting of cells.

Q. Name any three number formats available in Excel.

Q. What is meant by border of a cell?

Q. What is the use of AutoFill feature?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 69 and 70 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Pages 70 and 71 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 71 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

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

6. Internet and E-mail

Teaching Objectives

Students will learn about

- Internet
- Requirements to Connect to Internet
- Types of Internet Connection
- Using Web Browser
- Using URLs
- E-mail

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 75 of the main course book.

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

Introduce the concept of World Wide Web (WWW) with reference to basic terms covering web, web servers, posting/uploading, 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 disadvantages 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
- Signing in to an e-mail account
- Sending an e-mail (with reference to fields like To, Cc, Bcc and Subject)

- Attaching files to an e-mail
- Reading a received e-mail
- Signing out from the e-mail account (tell them the importance of this step)

Ask the students to solve the exercise Let's Catch Up given on page number 78.

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.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 84 and 85 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Pages 85 and 86 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 86 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an e-mail account. Tell them to design a birthday invitation card in Adobe Photoshop and send this card as an attachment to ten friends and/or relatives.

7. Data Processing

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
1	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in Let's Plug-In given on Page 87 of the main course book.

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 proper charts and tables. is a puzzle. Also, tell them how solve by giving some examples which will improve their understanding of the topic.

Explain the meaning of Decoding to the students and ask them 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.

Ask the students to solve the exercise Let's Catch Up given on page number 90.

Extension

Ask the students some oral questions based on this chapter.

Q. What is data?

Q. What is information?

Q, What is sorting?

Q. How can you sort data?

Q. How can you represent information?

Q. What is a decoding?

Evaluation

After explaining the chapter, let the students do the exercises given on Page 91 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone - Let's Solve given on Page 92 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 92 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to practice to find out more types of picture puzzles.

8. Conditional Blocks in Scratch

Teaching Objectives

Students will learn about

- Blocks Shapes in Scratch
- Sensing Blocks
- Variables
- Conditional Blocks
- Creating a Game

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 94 of the main course book.

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

Tell the students that Scratch allows changing the appearance of the selected sprite.

Show the students the shapes of blocks:

- Hat Blocks
- Boolean Blocks
- C Blocks
- Stack Blocks
- Reporter Blocks
- Cap Blocks

Explain the Sensing block to the students and the steps involve in the use of this block.

Tell the students what are variable using appropriate examples along with-

- Types of variables
- Creating variables

Explain the Conditional Blocks to the students and the steps involved in this in detail.

Demonstrate ho can one create a game in Scratch using appropriate blocks.

Ask the students to solve the exercise Let's Catch Up given on page number 97.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Scratch?

Q. Define:

- Hat Blocks - Stack Blocks - Boolean Blocks
- Reporter Blocks - C Blocks - Cap Blocks

Q. What is a sensing block?

Q. What is a variable?

Q. What are conditional blocks?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 103 and 104 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone– Let's Solve, Let's Explore and Let's Get Better given on Page 104 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 105 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to develop the story of Rabbit and Tortoise in Scratch.

9. Concept of Smart Living

Teaching Objectives

Students will learn about

- 1950-1960
- 1961-1970
- 1971-2000
- 2000-2010
- 2010-Present

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 97 of the main course book.

While teaching this chapter, make sure that the students are well aware about AI and related topics taught in previous classes.

Start the chapter with an introduction of variety of gadgets used in our homes to make the life easier.

Explain the meaning and purpose of Smart Homes to the students. Also, tell them how these devices are beneficial like:

- Power Saver
- Increased energy Efficient
- Protect Home and its Belongings
- Interactive Home
- One Point Access
- Flexibility
- Remote Control
- Climate Control
- Protection

Share the devices which are used in smart homes to the students:

- Smart Hubs
- Video Doorbells
- Smart Cameras
- Smart Smoke Detectors
- Smart Lighting
- Smart Speakers

Relate all these to their daily life routine.

Extension

Ask the students some oral questions based on this chapter.

Q. What are smart devices?

Q. What is the concept of smart home?

Q. What are the benefits of smart home?

Q. Define the following:

- Smart Hubs
- Video Doorbells
- Smart Cameras
- Smart Smoke Detectors
- Smart Lighting
- Smart Speakers

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 110 and 111 in the main course book as Test Your Skills. Tell the students to try sections under Fun Zone - Let's Solve and Let's Explore given on Page 111 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Tech Practice section on Page 112 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to search more smart devices in Google and make a list of them.