



thinkcode

Ver. 2.0

Teacher's Manual

Extended Support for Teachers

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Periods Days	0	I	II	III	IV	BREAK	V	VI	VII	VIII
Monday										
Tuesday						B				
Wednesday						R				
Thursday						E				
Friday						A				
Saturday						K				



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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Vocabulary reaches about 10,000 words• Vocabulary increases rapidly throughout middle childhood
Emotional/Social	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none"> • Motor skills develop resulting enhanced reflexes
Cognitive	<ul style="list-style-type: none"> • Applies several memory strategies at once • Cognitive self-regulation is now improved
Language	<ul style="list-style-type: none"> • Ability to use complex grammatical constructions enhances • Conversational strategies are now more refined
Emotional/Social	<ul style="list-style-type: none"> • Self-esteem tends to rise • Peer groups emerge

Age 11 - 20 Years	
Physical	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Is now more self-conscious and self-focused • Becomes a better everyday planner and decision maker
Emotional/Social	<ul style="list-style-type: none"> • 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."

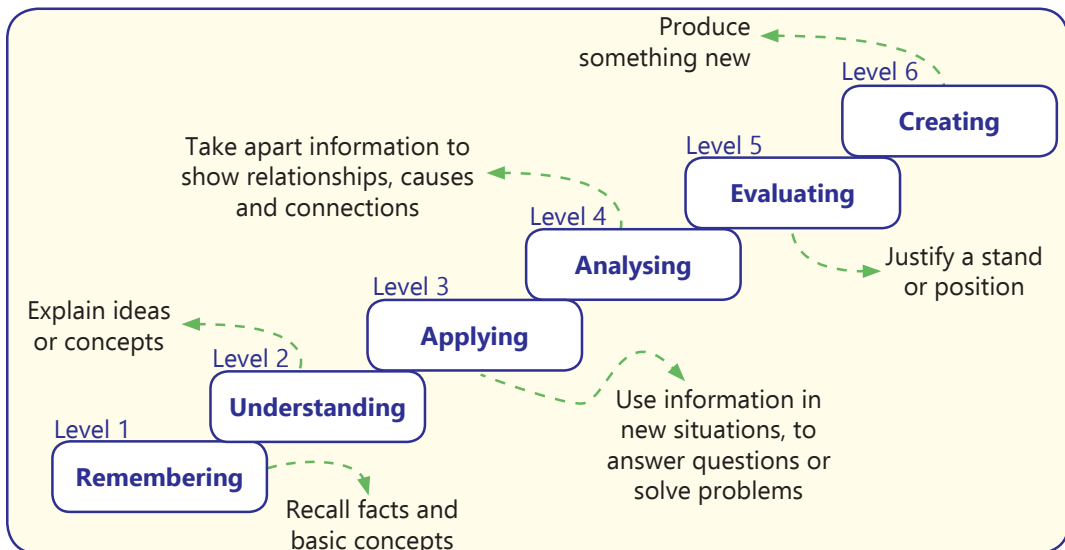
Teaching Strategies

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."

1. The Computer System

Teaching Objectives

Students will learn about

☞ How does a Computer Work?

☞ Types of Computers

Number of Periods

2

Teaching Plan

While teaching this chapter, tell the students that a computer is an electronic machine made up of various devices that help to enter data, process it and give the results.

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

Explain the meaning of the terms input and input devices.

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.

Explain the meaning of the terms output and output devices.

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

Make the students understand the meaning of the term Storage.

Explain the features and use of different types of computers covering microcomputers, minicomputers, mainframe computers and supercomputers.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. Expand IPO.

Q. Define input / output / processing.

Q. Name some input, processing and output devices.

Q. What are microcomputers?

- Q. How are minicomputers different from mainframe computers?
- Q. Define supercomputers.
- Q. Give an example of supercomputer.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 10 and 11 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 11. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 11 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to prepare a comparative table on chart paper comparing the features of different types of computers on various parameters with the help of examples and pictures/drawings..

2. Hardware and Software

Teaching Objectives

Students will learn about

- ☞ Hardware
- ☞ Software

Number of Periods

2

Teaching Plan

While teaching this chapter, tell the students that a computer system consists of two components – hardware and software.

Tell the students that the parts of the computer that can be touched are called hardware.

Share some examples of hardware with the students.

Introduce the students to the various categories of hardware such as Input devices, Processing device, Output devices and Storage devices.

Tell the students about the functioning of various input devices such as keyboard, mouse, scanner, microphone, touchscreen and webcam.

Tell the students about the processing device and how it works with the help of the block diagram shown in the main course book on page 13.

Explain the various parts of the processing device such as the ALU, CU and the MU.

Explain the various uses of the output devices and their working such as Monitor, Printer, Speaker, Headphones and a Projector.



Demonstrate the uses of various storage devices such as CD and DVD, Pen drive, Memory and Hard disk.

Make the students understand that the software refers to step-by-step instructions for the computer. Share some examples of software with the students.

Introduce the students to the two broad categories of software as System software and Application software.

Tell the students the importance of system software for the functioning of the computer system.

Tell the students about some commonly used system software / operating system and their versions.

Explain the importance of application software to the students.

Share with students some examples of application software (covering Paint, Windows Media Player, MS Word, MS PowerPoint and Adobe Photoshop) and the purposes for which these software are mainly used.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. Define hardware.
- Q. Name some hardware devices.
- Q. What do you understand by input devices?
- Q. Name the different types of output devices.
- Q. What is a processing device?
- Q. Give examples of some commonly used output devices.
- Q. What is control unit?
- Q. What do you understand by software?
- Q. Name the different types of software.
- Q. What is system software?
- Q. Give examples of some commonly used operating systems.
- Q. What is application software?
- Q. Name some application software and their use.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 17 and 18 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 18. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 19 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect information about some more application software and the purpose for which they are used.

3. Windows 10

Teaching Objectives

Students will learn about

- ☞ Features of Windows 10
- ☞ Task View

- ☞ Windows 10 Desktop
- ☞ Control Buttons

Number of Periods

3

Teaching Plan

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 the about the useful features of Windows 10.

Show the students three main components of Windows 10 desktop : Taskbar, Icons and Desktop background.

Make the students aware about the concept of desktop.

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

Introduce the students to the taskbar and its components covering Start button, Opened program icons and Notification Area.

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

Tell the students about Control buttons and Taskview.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- 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 10?
- Q. What is desktop?
- Q. Define icons.



- Q. What is taskbar?
- Q. Can the position of the taskbar be changed?
- Q. What are Control Buttons?
- Q. What is Taskview?
- Q. What are the steps to change the desktop background?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 25 and 26 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 27. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 27 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to change desktop background and the position of taskbar.

4. Using Shapes in Paint

Teaching Objectives

Students will learn about

- ☞ Shapes Group
- ☞ Polygon Shape
- ☞ Foreground and Background Colour

Number of Periods

4

Teaching Plan

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

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

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

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

Show to the students the steps involved in use of Curve shape.

Explain to the students that Polygon shape is used to draw a polygon or a closed figure.

Demonstrate to the students the steps involved in use of Polygon shape.

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

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What is Paint?
- Q. What is the use of Rounded Rectangle shape?
- Q. What is Curve Shape used for?
- Q. When is Polygon shape used?
- Q. What is the foreground colour?
- Q. What is background colour?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 32 and 33 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 33. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 34 of the main course book will enhance the ability of the students and serve as a Subject Enrichment 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.

5. Let's Learn Paint 3D

Teaching Objectives

Students will learn about

- ☞ Paint 3D
- ☞ Paint 3D Window
- ☞ Creating 3D Shapes
- ☞ Changing Colour in a Shape
- ☞ Saving the Drawing
- ☞ Closing Paint 3D
- ☞ Starting Paint 3D
- ☞ Creating 2D Shapes
- ☞ Selecting a Shape
- ☞ Adding Text
- ☞ Opening a Saved Drawing



Teaching Plan

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:

- Title bar displays the name of the program and the name of your drawing on the top-left corner.
- Menu displays options such as New, Open, Insert, Save and Save As.
- 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 opens a panel on the right side of the drawing area and displays brush options, and colour palette. It has options Brushes Option and Color Palette.
- 2D Shapes Tool replaces brushes option and displays a 2D shapes library with options like line and curve and 2D shapes to select from.
- 3D Shapes Tool replaces the Brushes options and displays options like Open 3D library, 3D Doodle, 3D Objects and 3D Models to select from.

Show the step involved in creating 2D and shapes with example.

Demonstrate the step involved in creating 2D and 3D text with example.

Explain the steps involved in selecting a shape and changing colour in a shape.

Show to the students the steps involved in saving and opening a drawing. Also show the steps to close Paint 3D.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What can Paint 3D be used for in computers?
- Q. State the use of Shapes / Text / Brushes Tool.
- Q. How to add 3D shape and text?
- Q. How to save a drawing?
- Q. How to open a saved drawing?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 42 and 43 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 44. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 44 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to draw a bus using shape tool and also add 3D text in the drawing.

6. Using Word 2016

Teaching Objectives

Students will learn about:

- | | |
|----------------------------------|------------------------------|
| ☞ Features of Word 2016 | ☞ Starting Word 2016 |
| ☞ Components of Word 2016 Window | ☞ Typing and Editing in word |

Number of Periods

3

Teaching Plan

While teaching this chapter, tell the students that Microsoft Word is word processing software in the category of application software.

Make the students aware of the various uses of Word 2016.

Demonstrate to the students the steps involved in starting Word 2016.

Show the students the various components of Word 2016 window covering Title Bar, Quick Access Toolbar, Ribbon, Rulers, Horizontal and Vertical Scroll Bars, Text / Document Area and Status Bar.

Share with 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.

Demonstrate to the students the different ways in which text can be deleted according to the requirement of the user.

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.

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.

Demonstrate to the students the steps involved in:

- | | |
|----------------------------|-----------------------|
| • Creating a new Word file | • Typing text |
| • Selecting the text | • Deleting the text |
| • Cutting/Copying Text | • Inserting the text |
| • Saving a document | • Undo/Redo |
| • Opening a saved document | • Printing a document |
| • Closing Word | |



Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What is Word 2016?
- Q. What are the various uses of Word 2016?
- Q. Name some important components of Word 2016 window.
- Q. Which company developed Word 2016?
- Q. What are the shortcut keys to open / save / print a document?
- Q. What are the various ways in which the user can exit from Word 2016?
- Q. What is editing?
- 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?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 55, 56 and 57 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 57. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 57 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a Word document on Myself. The students should take a printout of the document and paste it in their computer notebook / practical file.

7. Formatting in Word 2016

Teaching Objectives

Students will learn about

- | | |
|--------------------------------------|--------------------------------|
| ✎ Changing Font and Font Size | ✎ Changing Font Color |
| ✎ Highlighting text | ✎ Bold, italic and underline |
| ✎ Applying text effects | ✎ Aligning the text |
| ✎ Changing case | ✎ Adding bullets and numbering |
| ✎ Line spacing and paragraph spacing | ✎ Printing a document |

Teaching Plan

While teaching this chapter, tell the students that formatting the text means changing the appearance and arrangement of the text.

Share with the students the default font and font size in a Word 2016 document.

Demonstrate to the students the method of changing font and font size.

Tell the students the steps involved in changing color of the selected text in the document.

Introduce highlighting feature of Word as marking important text and placing a colored rectangle over it.

Show to the students the steps involved in highlighting text.

Share with the students about the Bold, Italic and Underline features and the method of applying these features to the text.

Tell the students that Word has some in-built text styles which can be applied to the selected text.

Demonstrate to the students the method of:

- Applying text effects
- Changing text alignment
- Applying borders
- Applying artistic borders
- Applying shading

Introduce Change Case feature as changing text to upper, lower and other common capitalizations.

Show the students how to change case of the selected text.

Introduce bullets as small symbol used to mark items in a list.

Show to the students the method of adding bullets or numbers to the items in a list.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. Define formatting a text.
- Q. What is the default font / font size of text in a Word 2016 document?
- Q. What do you mean by highlighting text?
- Q. What is the difference between bold and italic format of the text?
- Q. What are text effects?
- Q. Define text alignment.
- Q. What are the different types of text alignment options?



- Q. Why is shading added to text?
- Q. What does Change Case option do?
- Q. What are bullets?
- Q. When are bullets or numbers added to text?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 66, 67 and 68 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 68. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 68 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect write a paragraph on My Favourite Sport in Word 2016 applying various formatting features to make the paragraph attractive.

8. The Internet—An Introduction

Teaching Objectives

Students will learn about:

- ☞ Uses of Internet
- ☞ Advantages and Disadvantages of the Internet
- ☞ Internet terms
- ☞ Using URLs
- ☞ Best Practices Related to Online Safety

Number of Periods

2

Teaching Plan

While teaching this chapter, tell the students that a computer network is a connection between two or more computers.

Introduce Internet as a network in which millions of computers are connected to each other to share information and in an abbreviation of International Network.

Explain to the students the various uses of internet.

Tell the students about the advantages and disadvantages of the Internet.

Introduce the students to common internet terms like Website (collection of related web pages), Web Page (electronic page on a website), Home Page (main or first page of website), World Wide Web (largest collection of websites) , Web Browser (software to open websites) and Search Engine (application to look for information).

Familiarize the students with the most common web browser, Microsoft Edge and its components covering Address bar and URL.

Make the students aware of practices related to online safety.

Ensure that the scope of For The Teacher 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 computer network?
- Q. What is internet?
- Q. What are the uses of internet?
- Q. What are advantages/disadvantages of the Internet?
- Q. Define Website / Web Page / Home Page / World Wide Web / Web Browser / Search Engine.
- Q. What does WWW stand for?
- Q. Which is the most common Web Browser?
- Q. Define URL / Address Bar.
- Q. What is the use of antivirus?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 76, 77 and 78 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 78. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 78 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to paste a picture of Microsoft Edge in their computer notebook / practical file and label its components and tools discussed in the chapter.

9. Stepwise Thinking and Scratch

Teaching Objectives

Students will learn about

- | | |
|-------------------------|---------------------------------|
| ▪ Stepwise Thinking | ▪ Scratch |
| ▪ Starting Scratch | ▪ Components of Scratch Desktop |
| ▪ Blocks | ▪ Adding a Sprite |
| ▪ Changing the Backdrop | ▪ Creating a new Project |



- ☞ Changing Appearance of the Sprite
- ☞ Opening a Project

- ☞ Saving a Project
- ☞ Exiting Scratch

Number of Periods

4

Teaching Plan

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

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

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

Demonstrate to the students the steps to start Scratch 3.0.

Make the students understand the features of Scratch.

Familiarize the students with the various components of Scratch window covering Title bar, Menu bar, Sprite, Stage, Blocks Palette, Scripts Area, Coding Area, Blocks Menu, Backdrop, Tabs, Green Flag and Stop button.

Introduce Motion Blocks for changing placement, direction, rotation and movement of sprites.

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.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What is stepwise thinking?
- Q. What is programming?
- Q. What is Scratch?
- Q. What are the features of Scratch?
- Q. Name the various components of Scratch window.
- Q. Define Sprite / Stage / Scripts Area / Green Flag / 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 course book exercises given on Pages 90 and 91 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 91. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 92 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

