6

thinkcode

Ver. 1.0

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 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.

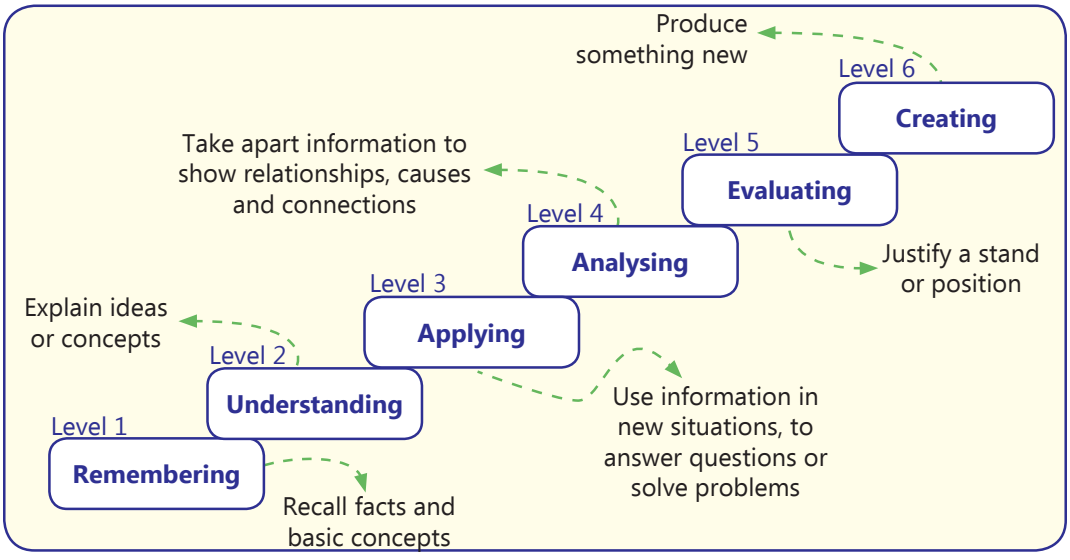
"Knowing yourself is the beginning of all wisdom."

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 6

LESSON PLAN

Thinkcode Ver 1.0

1. Computer Software

Teaching Objectives

Students will learn about

- ☞ Software
- ☞ Types of Software

Teaching Plan

Number of Periods
3

While teaching this chapter, tell the students that a computer is an electronic device that performs diverse operations with the help of instructions to process the data in order to achieve desired results.

Tell the students that a computer system is made up of hardware (physical components) and software (set of instructions that make the computer perform tasks).

Make them understand the different types of software as System Software (comprising of Operating System, Programming Software and Utility Software) and Application Software (comprising of General Purpose Software and Customised Software).

Tell the students about different types of General Purpose Software like word processors, spreadsheets, presentation software, DBMS, DTP software, image processing software and multimedia processors (refer Suggested Activity also).

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 computer?
Q. What is software?
Q. What are the different types of software?
Q. How is system software different from application software?
Q. What is the benefit of using customized software?
Q. Give examples each of:

- Utility software
- Word processor
- Presentation software
- DBMS, etc.
- Operating system
- Spreadsheets
- DTP software

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 12, 13 and 14 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Page 14. Help the students to solve these questions.

In Creative Assignment, activities like Hands On and Lab Session given on Page 14 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect pictures of interfaces of various types of application software and paste them on a chart paper in a hierarchical chart as shown on Page 10 of the course book.

2. Windows 7

Teaching Objectives

Students will learn about

- Windows 7 features
- Date and Time settings
- Mouse settings
- Components of an open window
- Control Panel
- Taskbar and Start Menu settings
- Sound settings
- Disk Cleanup

Teaching Plan

Number of Periods
4

While teaching this chapter, tell the students that Windows 7 is an operating system.

Tell the students about some unique and new features introduced in Windows 7 – Sneak, Aero Flip, Shake, Snap and Jump Lists (refer Suggested Activity also).

Explain to the students about the usefulness and settings provided in Control Panel for covering

- System and Security
- Hardware and Sound
- Programs
- Appearance
- Clock, Language and Region

Demonstrate to the students the steps needed to change date and time of the computer system.

Explain the meanings and use of Taskbar, Notification Area and Start Menu.

Show the students about various settings that can be made in Taskbar and Start Menu.

Explain to the students the various settings that can be made for mouse pointer under Buttons, Pointers and Pointer Options tabs of Mouse Properties dialog box.

Demonstrate the various ways in which sound settings of the speakers attached to the computer can be controlled.

Open a window of MS Word and explain the various components of the window covering title bar, control buttons, ribbon, work area, scroll bars, status bar and border.

Tell the students about the importance of Disk Cleanup utility and steps to run this utility on the computer system.

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 an operating system?

Q. What is Windows 7?

Q. What is the use of these features of Windows 7?

- Sneak
- Aero flip
- Jump list

Q. What is Control Panel?

Q. What is the difference between Taskbar and Notification Area?

Q. Can we change date and time of the computer system?

Q. What are the various tabs in Mouse Properties dialog box?

Q. Name some components of an open window.

Q. What is the use of Disk Cleanup utility?

Evaluation

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

In Creative Assignment, activities like Hands On and Lab Session given on Page 27 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect information from the Internet about earlier versions of Windows like Windows XP and Windows Vista. Tell them to make a comparative table about the various features available in these earlier versions and Windows 7.

3. More on MS PowerPoint 2010

Teaching Objectives

Students will learn about

- ☞ Applying Themes
- ☞ Adding Video
- ☞ Custom Animation
- ☞ Adding Sound
- ☞ Slide Transition
- ☞ Running a Slide Show

Teaching Plan

Number of Periods
3

While teaching this chapter, tell the students that MS PowerPoint 2010 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.

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).

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

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.

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 theme?

Q. What do you mean by customizing a theme?

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

Q. What type of audio files can be inserted into a presentation?

Q. Can we add video files on a slide?

Q. Define transition.

Q. How many transitions can be applied to a slide?

Q. What happens if more than one slide transitions are added to a slide?

Q. What is meant by animation in MS PowerPoint?

Q. Can we reorder the animations applied to different objects on a slide?

Q. What is a Slide Show?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 37 and 38 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Pages 38 and 39. Help the students to solve these questions.

In Creative Assignment, activities like Hands On and Lab Session given on Page 39 will enhance the ability of the students and serve as Subject Enrichment activities.

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. More on MS Word 2010

Teaching Objectives

Students will learn about

- Find and Replace
- Page Margin
- Watermark
- Inserting mathematical equations
- Mail Merge
- Line Spacing and Paragraph Spacing
- Page Orientation
- Header and Footer
- Inserting SmartArt

Teaching Plan

Number of Periods
4

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

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 MS 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 the term watermark as the faded text or image behind the main text of the document.

Demonstrate the steps involved in inserting text and image as watermarks in your document.

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 them 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.

Make the students that mathematical equations can be easily inserted in a document.

Show to the students the steps involved in inserting mathematical equations.

Make the students understand the steps involved in inserting a SmartArt in Word are same as those discussed in inserting a SmartArt in PowerPoint.

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

Tell them the various steps involved in creating a mail merge (refer Suggested Activity also).

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 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 are page margins?
Q. Define a watermark.
Q. What is the difference between header and footer in a document?
Q. Which tab is used to add header/footer to a document?
Q. What do you mean by Mail Merge?
Q. How is mail merge helpful?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 50 and 51 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Pages 51 and 52. Help the students to solve these questions.

In Creative Assignment, activities like Hands On and Lab Session given on Page 52 will enhance the ability of the students and serve as Subject Enrichment activities.

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.

5. Learning MS Excel 2010

Teaching Objectives

Students will learn about

- ☞ Starting MS Excel 2010
- ☞ Creating a New Workbook
- ☞ Modifying data
- ☞ Components of MS Excel 2010
- ☞ Entering data in a Worksheet
- ☞ Column Width and Row Height

- ☞ Inserting Rows/Columns
- ☞ Formatting Spreadsheets
- ☞ AutoFill
- ☞ Merging Cells
- ☞ Customise Worksheet Tab

Teaching Plan

Number of Periods
4

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 start MS Excel 2010.

Show an active window of MS Excel 2010 and explain the meaning and use of the various components of MS Excel 2010 covering title bar, file tab, quick access toolbar, ribbon, formula bar, name box, worksheet window, status bar, row, column, cell, row and column headings, active cell, mouse pointer, worksheet tab and workbook.

Show to the students how to create a new workbook in Excel.

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.

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 the use of MS Excel software?

Q. Name any five components of an Excel window.

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

Q. What does it mean when data in a cell is displayed as #####?

Q. Define merging of cells.

Q. Define splitting of cells.
Q. What is wrap text feature of Excel?
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 course book exercises given on Pages 64 and 65 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Pages 65 and 66. Help the students to solve these questions.

In Creative Assignment, activity like Lab Session given on Page 66 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 MS Excel 2010.

6. Introduction to Flash CS6

Teaching Objectives

Students will learn about

- ☞ Starting Flash CS6
- ☞ Tools panel
- ☞ Saving a Flash file
- ☞ Exiting Flash
- ☞ The Flash workspace
- ☞ Creating a new Flash document
- ☞ Opening a Flash file

Teaching Plan

Number of Periods
2

While teaching this chapter, tell the students that Flash is an application used in multimedia graphic programs.

Show to the students the steps to be taken to start Adobe Flash CS6.

Start Flash on a computer and familiarize the students with the Flash workspace and its various components covering:

- Menu bar – various options are categorized under menus.
- Stage – the white rectangular area of the workspace.
- Pasteboard – the grey area around the stage.
- Timeline panel – used to control images and sounds.
- Properties panel – used to define properties of various objects and controls.
- Tools panel – used to draw, paint, select and modify artwork and view of stage.

Introduce to the students the concepts of frame (single step of animation), layers (a way to organize elements of a movie) and Options area (at the bottom of the tools panel used to

modify tool controls).

Discuss with the students the names of the various tools in the Tools panel and tell them that the name of the tool can be seen by placing the mouse pointer over the tool (refer Suggested Activity also).

Demonstrate the steps to create a new Flash document.

Show to the students the steps involved in saving a file in Flash CS6.

Tell the students that an existing file of Flash can be opened just like any other software as File → Open.

Show to the students the various ways in which Flash software can be closed after saving the work done.

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 Adobe Flash CS6 used for?

Q. What are the various components of the Flash workspace?

Q. Define stage.

Q. What are the various panels in Flash?

Q. What is the use of the Tools panel?

Q. What is the file type selected from New Document dialog box?

Q. What is the extension added to Flash CS6 files?

Q. What is the shortcut to reach Open dialog box?

Q. State any two methods of exiting Flash.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 75 and 76 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Pages 76 and 77. Help the students to solve these questions.

In Creative Assignment, activities like Hands On and Lab Session given on Page 77 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to draw a labeled diagram of the Flash Tools panel in your computer practical file or notebook.

7. Using Tools in Flash CS6

Teaching Objectives

Students will learn about

- ☞ Selection tool
- ☞ Pencil tool
- ☞ Line tool
- ☞ Pen tool

- ☞ Rectangle tool
- ☞ PolyStar tool
- ☞ Paint Bucket tool
- ☞ View tools
- ☞ Oval tool
- ☞ Eraser tool
- ☞ Text tool
- ☞ Colour tools

Teaching Plan

Number of Periods
2

While teaching this chapter, tell the students that the various tools present in the Tools panel are quite helpful in creating drawings in Flash.

Demonstrate the use of some important drawing tools along with some of their important properties to be defined in Flash CS6 covering:

- Line Tool – used to draw straight line also mention Selection Tool between two points. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.
- Pencil Tool – used to draw freehand lines and curves. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.
- Pen Tool – used to draw straight lines or smooth flowing curves. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.
- Rectangle Tool – used to draw closed rectangles and squares. The properties to be defined are Stroke Color, Fill Color, Stroke Height and Stroke Style.
- Oval Tool – used to draw closed circular shapes. The properties to be defined are Stroke Color, Fill Color, Stroke Height and Stroke Style.
- PolyStar Tool – used to draw closed shapes like triangles and those having five or more sides. The properties to be defined are Style and Number of Sides.
- Eraser Tool – used to remove unwanted parts or whole objects from the stage. The application of different properties of eraser (Faucet and Drag modes) and different types of modes (Normal, Fills, Behind, Selected Fills and Inside) need to be shown to the students.
- Paint Bucket Tool – used to fill colour in closed shapes. The properties to be defined are Fill Color.
- Text Tool – used to place text blocks on stage. The properties to be defined are Family, Style, Size, Color and Spacing.

Explain the use of the View tools in Flash CS6 covering:

- Hand Tool – used to move to different parts of the stage without changing the view of the stage.
- Zoom Tool – used to adjust magnification of the stage.

Show to the students the functions of Colour tools in Flash covering:

- Stroke Color – used to change colour of the boundary of a shape.
- Fill Color – used to change the inside shape color.

(refer Suggested Activity also).

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 the use of Tools panel?

Q. What is the use of Pen / Pencil / Text / Eraser tools?

Q. What are the different properties that need to be defined for Line / PolyStar / Rectangle / Oval tools?
Q. Which key is pressed to draw a square or a circle?
Q. Under which tool is the Oval / PolyStar tool hidden?
Q. Name three modes in which Eraser tool is used.
Q. What is the use of View tools?
Q. Name the two Colour tools in Flash.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 85 and 86 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Page 86. Help the students to solve these questions.

In Creative Assignment, activity like Lab Session given on Page 86 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a drawing of robot in Flash CS6 using various tools available in the Tools panel.

8. Mobile App Development

Teaching Objectives

Students will learn about

- What are Apps?
- Features of Mobile Apps
- Categories of Apps
- Removing an App
- iOS and Android
- Types of Mobile Apps
- Installing an App from Google Play Store
- Developing an App

Teaching Plan

Number of Periods
4

While teaching this chapter, brief the students about smartphones and technology.

Tell the students that an App is a software program primarily developed for hand-held smart devices

such as mobile and tablet.

Explain to the students the difference between the Android and iOS in detail.

Demonstrate the types of Mobile Apps to the students with example, that are:

- Native Apps
- Web Apps
- Hybrid Apps

Ask the students to solve the exercise Quiz Bee given on page number 83.

Explain the following categories of Apps to the students along with the examples:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Explain to the students the steps involved in downloading and installing the Apps.

Explain to the students the steps involved in developing an App.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App?

Q. Define the following:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 99 and 100 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Page 100. Help the students to solve these questions.

In Creative Assignment, activity like Lab Session given on Page 100 will enhance the ability of the students and serve as Subject Enrichment activities.

Suggested Activity

Ask the students to develop an App for adding grocery list and with your voice.

9. Computer Programming

Teaching Objectives

Students will learn about

- ☞ Computer Program
- ☞ Language Translator
- ☞ Flowcharts
- ☞ Computer Languages
- ☞ Algorithm

Teaching Plan

While teaching this chapter, tell the students that computer needs a special

Number of Periods
3

language through which we can communicate with it.

Ask the students to learn some important computer terms like:

- Program – a set of instructions given to CPU in a pre-defined sequence to complete a task.
- Computer language – means by which data and instructions are transmitted to the computer.
- Syntax – the grammar of a computer language.
- Programming – process of writing a program.
- Programmers – people who write computer programs.

Tell the students that computer languages are categorized as low-level languages (machine dependent) and high level languages (machine independent).

Share with the students that low level languages are further classified as machine language (first generation language made up of 0s and 1s) and assembly language (second generation language made up of alphanumeric symbols).

Make the students learn that the high level languages are further classified as third generation languages (examples: BASIC, COBOL, FORTRAN, PASCAL, etc.), fourth generation languages (examples: Visual Basic, Oracle, SQL, JAVA, C++, etc.) and natural language or fifth generation languages (involving artificial intelligence).

Tell the students the advantages and disadvantages of high level languages over low level languages.

Introduce the concept of language translators as software that convert a high level language into a machine language covering:

- Assembler – used to translate assembly language into machine language.
- Compiler – used to convert source program at once into machine language before executing it.
- Interpreter – used to convert source program one line at a time into machine language before executing it.

Introduce algorithms as set of steps in a sequential and ordered manner to solve any problem or to complete a task.

Encourage the students to write algorithms involving some basic tasks like getting ready for school or involving mathematical problems like addition and subtraction of numbers (refer Suggested Activity also).

Introduce flowcharts as diagrammatic representation of an algorithm.

Explain the shapes and usage of flowchart symbols covering Start / Stop box, Process box, Decision box, Input / Output box, Flow lines and Connectors.

Make the students learn the rules for drawing a flowchart.

Encourage the students to draw flowcharts for the algorithms written earlier.

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 program?

Q. Who is a programmer?

Q. What do you mean by computer language?

Q. What is the meaning of syntax?

Q. What are the categories of computer languages?

Q. Define compiler / interpreter/ assembler.

Q. What is the purpose of developing algorithms and flowcharts?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 112 and 113 as Exercise. After solving the course book exercises, tell the students to solve Brain Teaser activity given on Page 114. Help the students to solve these questions.

In Creative Assignment, activity like Lab Session given on Page 114 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to write algorithms and draw corresponding flowcharts to:

- Calculate area of circle, $A = \pi r^2$
- Calculate Volume of cube, $V_{cube} = (\text{side})^3$
- Calculate Volume of cuboid, $V_{cuboid} = \text{length} \times \text{breadth} \times \text{height}$