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# TOUCHPAD®

PLUS Ver. 3.1

# 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 | | V | VI | VII | VIII |
|---|---|---|---|---|---|---|---|---|---|---|
| Monday | | | | | | B | | | | |
| Tuesday | | | | | | R | | | | |
| Wednesday | | | | | | E | | | | |
| Thursday | | | | | | A | | | | |
| Friday | | | | | | K | | | | |
| Saturday | | | | | | | | | | |

# Development Milestones in a Child

Development milestones are a set of functional skills or age-specific tasks that most children can do at a certain age. These milestones help the teacher to identify and understand how children differ in different age groups.

| Age 5 - 8 Years | |
|---|---|
| **Physical** | • First permanent tooth erupts<br>• Shows mature throwing and catching patterns<br>• Writing is now smaller and more readable<br>• Drawings are now more detailed, organised and have a sense of depth |
| **Cognitive** | • Attention continues to improve, becomes more selective and adaptable<br>• Recall, scripted memory, and auto-biographical memory improves<br>• Counts on and counts down, engaging in simple addition and subtraction<br>• Thoughts are now more logical |
| **Language** | • Vocabulary reaches about 10,000 words<br>• Vocabulary increases rapidly throughout middle childhood |
| **Emotional/Social** | • Ability to predict and interpret emotional reactions of others enhances<br>• Relies more on language to express empathy<br>• Self-conscious emotions of pride and guilt are governed by personal responsibility<br>• Attends to facial and situational cues in interpreting another's feelings<br>• Peer interaction is now more prosocial, and physical aggression declines |

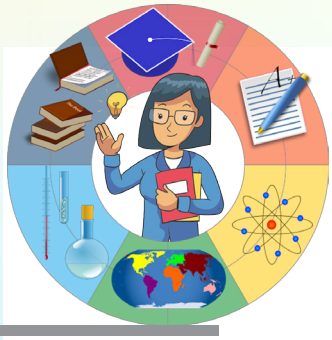
"If you cannot do great things, do small things in a great way."

| Age 9 - 11 Years | |
|---|---|
| **Physical** | • Motor skills develop resulting enhanced reflexes |
| **Cognitive** | • Applies several memory strategies at once<br>• Cognitive self-regulation is now improved |
| **Language** | • Ability to use complex grammatical constructions enhances<br>• Conversational strategies are now more refined |
| **Emotional/Social** | • Self-esteem tends to rise<br>• Peer groups emerge |

| Age 11 - 20 Years | |
|---|---|
| **Physical** | • If a girl, reaches peak of growth spurt<br>• If a girl, motor performance gradually increases and then levels off<br>• If a boy, reaches peak and then completes growth spurt<br>• If a boy, motor performance increases dramatically |
| **Cognitive** | • Is now more self-conscious and self-focused<br>• Becomes a better everyday planner and decision maker |
| **Emotional/Social** | • May show increased gender stereotyping of attitudes and behaviour<br>• 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.

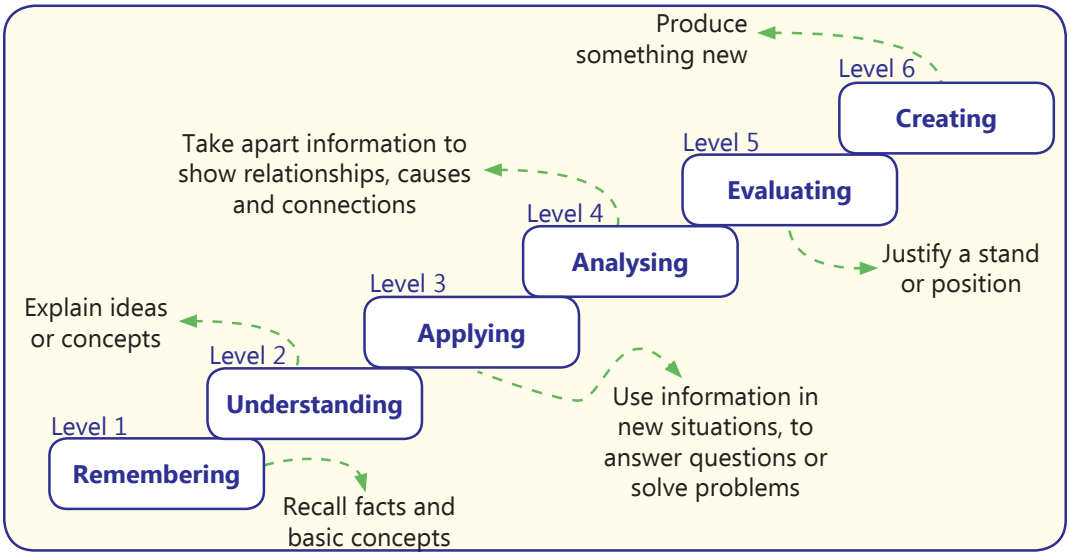
"Knowing yourself is the beginning of all wisdom."

## 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 7

# LESSON PLAN

Touchpad Ver 3.1

## 1. Number System

### Teaching Objectives

Students will learn about

- ☞ Number System
- ☞ Operations on Binary Numbers
- ☞ Number System Conversion

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 1 |

### Teaching Plan

While teaching this chapter, tell the students that a number system is simply a method of counting.

Introduce base or radix as the total number of digits used in a number system.

Inform them that there are four important types of number systems – Decimal (base 10), Binary (base 2), Octal (base 8) and Hexadecimal (base 16).

Make the students recall the method of writing expanded form of a number under Decimal number system.

Inform them that just like decimal number system:

- Add one more bullet In decimal number system, the numbers are expressed using ten digits, 0 to 9 and expanded with base 10.
- In octal number system, the numbers are expressed using eight digits, 0 to 7 and expanded with base 8.
- In hexadecimal number system, the numbers are expressed using fifteen digits, 0 to 9 and A to F, and expanded with base 16.

Show to the students the method of converting:

- Decimal number to Binary number by successive division by 2 and arranging the remainders in reverse order (Refer Suggested Activity 1 also).
- Binary number to Decimal number by multiplying digits with 2 raise to the power of place of that digit starting from 0 on the left (Refer Suggested Activity 2 also).

Share the rules of binary addition, subtraction, multiplication and division.

Show to the students the method of carrying out mathematical operations on binary numbers and verifying the results by corresponding conversions to decimal numbers.

### Extension

Ask the students some oral questions based on this chapter.

Q. What is a numbers system?

Q. What is the radix of decimal / binary / octal / hexadecimal number system?

Q. Which digits are used to express a decimal / binary / octal / hexadecimal number?

Q. What is the value of addition of binary digits 1 and 1?

Q. What is the value of subtraction of binary digits 0 and 1?

Q. Which number system is used by computers?

### Evaluation

After explaining the chapter, let the students do the exercises given on Pages 13 and 14 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler and Hands-On given on Pages 14 and 15 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 15 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

### Suggested Activity

1. Convert the last four digits of your parents' mobile numbers into binary number.
2. Ask the students to prepare a comparative chart with four columns, the first one listing the digits used in Hexadecimal number system and in the remaining three columns, their equivalent value under decimal, binary and octal number systems.

## 2. More on Calc

### Teaching Objectives

Students will learn about

- ☞ Sorting Data
- ☞ Conditional Formatting
- ☞ Printing a Worksheet
- ☞ Filtering Data
- ☞ Goal Seek

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 3 |

## Teaching Plan

While teaching this chapter, tell the students that Calc provides easy options for sorting data and highlighting the required information in a worksheet.

Introduce sorting as arranging the data in ascending or descending order.

Demonstrate to the students the various steps involved in sorting of data in an Excel worksheet.

Share with the concept and use of Goal Seek feature.

Introduce filtering as hiding unwanted data from a set of data.

Show to the students the various steps involved in applying Filters in a worksheet.

Share with the students that Filters once applied can be easily removed and tell them the method of removing filters.

Introduce Conditional Formatting as highlighting the required information.

Tell the students about basic difference between Filtering (unwanted information gets hidden) and Conditional Formatting (required information gets highlighted).

Explain the various criteria detailed under Conditional Formatting.

Demonstrate the steps involved in applying conditional formatting on a worksheet.

Make the students recall that a printout is a hard copy of the information we see on the monitor.

Show to the students the steps involved in the printing of a worksheet.

## Extension

Ask the students some oral questions based on this chapter.

Q. Define sorting.

Q. What is the difference between sort and custom sort features?

Q. What are filters?

Q. What is Goal Seek feature?

Q. How can filters be removed in a worksheet?

Q. What do you understand by conditional formatting feature?

Q. How is conditional formatting different from filtering data?

Q. When is the conditional formatting criteria Highlight Cell Rules / Data Bars / Icon Sets used?

Q. What is a printout?

Q. What are the steps to print a worksheet?

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 22 and 23 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 23 and 24 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 24 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

## Suggested Activity

1. Ask the students to enter their height and weight along with similar information for their nine friends. Sort the data with primary criteria as heights in ascending order and secondary criteria as weights in descending order.
2. Highlight the cells where the heights are less than the height of the student or weight is more than the weight of the student preparing the worksheet.

# 3. Using Tools in Tupi 2D

## Teaching Objectives

Students will learn about

- ☞ Pencil Tool
- ☞ Polyline Tool
- ☞ Object Selection Tool
- ☞ Fill Tool
- ☞ Ink Tool
- ☞ Brushes Tool
- ☞ Node Selection Tool
- ☞ Library

| Number of Periods | |
|---|---|
| Theory | Practical |
| 3 | 3 |

## Teaching Plan

While teaching this chapter, tell the students that the various tools present in the Tools panel are quite helpful in creating drawings in Tupi 2D.

Demonstrate the use of some important drawing tools along with some of their important properties to be defined in Tupi 2D covering:

- Pencil Tool – used to draw freehand lines and curves. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.
- Ink Tool – used to draw in different colors. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.

- PolyLine 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.
- Brushes Tool – used to draw closed rectangles and squares. The properties to be defined are Stroke Color, Fill Color, Stroke Height and Stroke Style.
- Object Selection Tool – used to select parts or whole objects from the stage.
- Node Selection Tool – helps to reorder the nodes which are created while drawing the object.
- Fill Tool – used to fill colour in closed shapes. The properties to be defined are Fill Color.

Explain the use of the Library in Tupi 2D.

### 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 Pencil / Fill / Object Selection tools?

Q. What are the different properties that need to be defined for PolyLine / Brushes / Ink tools?

Q. Which key is pressed to draw a square or a circle?

Q. What is the use of Library?

### Evaluation

After explaining the chapter, let the students do the exercises given on Pages 32 and 33 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 33 and 34 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 34 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 a drawing of robot in Tupi 2D using various tools available in the Tools panel.

## 4. Animations in Tupi 2D

### Teaching Objectives

Students will learn about

- ☞ Exposure Sheet
- ☞ Frames
- ☞ Motion Tween
- ☞ Layers in Tupi 2D
- ☞ Tweening Tool
- ☞ Rotation Tween

- ☞ Scale Tween
- ☞ Opacity Tween
- ☞ Shear Tween
- ☞ Coloring Tween

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 3 |

## Teaching Plan

While teaching this chapter, tell the students that Tupi 2D is an authoring tool to create games, applications, simple animations, etc.

Tell the students about the exposure sheet and how to use it.

Tell the students about Layers and their importance in Flash.

Introduce the concept of frames in Tupi 2D and its purpose.

Make the students understand the meaning of and difference between frames and keyframes.

Explain the concept of animation using tweens.

Show the steps to create various types of tweens covering all types of Tween.

Tell the students that animation can also be done in Flash through Frame by Frame technique.

Tell the students about tweens and different types of tweens –

- Motion Tween
- Rotation Tween
- Scale Tween
- Shear Tween
- Opacity Tween
- Coloring Tween

## Extension

Ask the students some oral questions based on this chapter.

Q. What is Tupi 2D used for?

Q. What do you understand by Layers?

Q. How are layers useful?

Q. What is the difference between a frame and a keyframe?

Q. Define Tween.

Q. What is Motion Guide Tweening?

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 43 and 44 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler 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 Lab Session section on Page 45 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 animation where two cars are coming on a road from opposite directions and crash in the center.

# 5. Introduction to GIMP

### Teaching Objectives

Students will learn about

- Features of GIMP
- Components of GIMP Window
- Opening an Image for Editing
- Using Tools
- Starting GIMP
- Creating a New File
- Saving a File

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 3 |

### Teaching Plan

While teaching this chapter, tell the students that GIMP is powerful graphics software used for image creation and editing.

Demonstrate to the students the steps to start GIMP.

Familiarize the students with the components of GIMP covering Menu Bar, Toolbar, Foreground/ Background Color, Tool options, Image window, Ruler, Layer Palette and Brushes/Patterns/Fonts tab.

Share with the students the features of GIMP.

Show to the students the steps involved in creating a new file and the various settings to be made while creating a file.

Tell the students the process to:

- Save a file.
- Open an image for editing

Show the Photoshop toolbar to the students and share with them the various tools present on it.

Tell the students that GIMP has some tools hidden under a main tool.

Explain to the students the steps involved in the use of:

- Rectangle Select Tool
- Ellipse Select Tool

- Free Select Tool
- Fuzzy Select Tool
- Crop Tool
- Paintbrush Tool
- Zoom Tool
- Text Tool
- Gradient Fill Tool

## Extension

Ask the students some oral questions based on this chapter.

Q. What is GIMP?

Q. Name the various components of GIMP interface.

Q. State the features of GIMP.

Q. What does RGB and CMYK color modes stand for?

Q. Name some important tools of GIMP toolbar.

Q. State the use of Rectangular Marquee Tool / Lasso Tool / Crop Tool / Eraser tool / Rectangle Tool / etc.

Q. What are the different gradient types available in Gradient Tool?

Q. What is the difference between Rectangle Tool and Rectangular Marquee Tool?

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 54 and 55 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 55 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 55 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 draw a similar drawing in Adobe Photoshop CS6 using various tools from the toolbar.

# 6. Internet and E-mail

## Teaching Objectives

Students will learn about

- ☞ The Internet
- ☞ How the Web Works?
- ☞ Using URLs
- ☞ Emoticons, Acronyms and Netiquettes
- ☞ World Wide Web
- ☞ Using Web Browser
- ☞ 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 end 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, 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)

Introduce the terms emoticons (representation of facial expressions), acronyms (word formed from initial letters of a multi-word name) and netiquettes (set of rules to be followed for internet communication).

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

## 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?

Q. What are netiquettes?

Q. State any three netiquettes.

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 67, 68 and 69 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 69 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 69 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 GIMP and send this card as an attachment to ten friends and/or relatives.

# 7. Computer Safety and Security

## Teaching Objectives

Students will learn about

- ☞ Keeping your Computer Physically Fit
- ☞ Taking Backup of your Important Files
- ☞ Malware
- ☞ Firewall
- ☞ Protecting your Computer from Illegal Access
- ☞ Other Maintenance Techniques
- ☞ Antivirus

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 1 |

## Teaching Plan

While teaching this chapter, tell the students that computer safety refers to the protection of computer-based resources against unauthorized use or physical damage.

Tell the students the method of physically cleaning computer parts like keyboard, mouse and monitor.

Share with the students the method to protect the computer from illegal access by reference to terms like authentication (verifying user's identity) and covering:

- Password protection
- Biometric authentication including face recognition, iris biometrics, retina biometrics and voice recognition
- Encryption (converting data into cypher text)

Explain the need, importance and process of backing up important files using external hard disk drives and online backup services.

Share with the students some information about some other maintenance techniques like deleting files, defragmenting hard disk drive and disk cleanup.

Introduce malware as programs designed to damage or carry out unwanted actions on a computer system.

Explain to the students information about different types of malware like virus, worms, Trojan horses, spyware, zombie, ransomware, rootkits and backdoors.

Explain the importance of antivirus and firewall in maintain computer safety and security.

## Extension

Ask the students some oral questions based on this chapter.

Q. Define authentication.

Q. Where is elastic graph matching technique used?

Q. What is the difference between encryption and decryption?

Q. What is malware?

Q. Define virus / worm / rootkit / backdoor / ransomware.

Q. What is an anti-virus?

Q. Name some commonly used anti-virus software.

### Evaluation

After explaining the chapter, let the students do the exercises given on Pages 77 and 78 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 78 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 78 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 detailed project on any anti-virus software on an A3 sheet.

## 8. HTML– An Introduction

### Teaching Objectives

Students will learn about

- ☞ Introducing HTML
- ☞ Rules for Writing HTML Codes
- ☞ Creating and Saving an HTML Document
- ☞ Designing a Web Page
- ☞ HTML Tags and Attributes
- ☞ HTML Document Structure
- ☞ Basic HTML Tags
- ☞ Editing an Existing HTML Document

| Number of Periods | |
|---|---|
| Theory | Practical |
| 3 | 3 |

### Teaching Plan

While teaching this chapter, tell the students that websites consist of millions of pages called web pages which contain text, graphics, audios, videos and links to other pages.

Introduce Hypertext Markup Language (HTML) as language that describes the structure of a web page.

Make the students understand the meaning of the terms like hypertext and markup language.

Tell the students about the tools needed for working with HTML.

Make the students aware about the different types of HTML editors – WYSIWYG editor and Text editor.

Familiarise the students with basic HTML terms like tags, container tags, empty tags, block level tags, text level tags and attributes.

Tell the students about the concept of nesting of tags.

Share with the students the general rules followed for writing HTML codes.

Show to the students a HTML document and make them understand and identify the various sections and structure of the HTML document.

Demonstrate to the students the steps involved in:

- Creating a HTML document
- Saving a HTML document
- Previewing a web page.

Tell the students about the meaning and use of basic HTML tags covering <HTML>, <HEAD>, <TITLE> and <BODY> tags alone with their attributes.

Tell the students about some more HTML tags like Heading, Paragraph, Line Break, Horizontal Ruler (and its attributes), Bold, Italic, Underline, Superscript and Subscript tags.

Share with the students about the use of <FONT> tag and its attributes.

Demonstrate to the students the steps involved in designing a web page using the various HTML tags discussed.

Show the students the method of editing an existing HTML document.

## Extension

Ask the students some oral questions based on this chapter.

Q. What is HTML?

Q. Define hypertext and Markup language.

Q. Name the different types of HTML editors.

Q. What are tags and attributes?

Q. State the rules followed while writing HTML codes.

Q. Name the text editor most commonly used to write HTML codes.

Q. State the use of <HTML> / <HEAD> / <BODY> / <TITLE> tags.

Q. What is the difference between container tags and empty tags?

Q. What attributes can be taken by the <FONT> tag?

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 92 and 93 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 93 and 94 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 94 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 a similar web page in HTML.

### Basics of writing chemical formulas

The valency is used to write chemical formulas. The valency is written at the top write corner of the chemical symbol of the element. For example, valency of Sodium is 1 and is denoted as:

$$Na^{1+}$$

A chemical reaction is denoted as:

$$C + O_2 \rightarrow CO_2$$

$$H_2O + SO_2 \rightarrow H_2SO_4$$

# 9. Lists and Tables in HTML

### Teaching Objectives

Students will learn about

- ☞ Creating Lists
- ☞ Creating Tables

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 3 |

### Teaching Plan

While teaching this chapter, tell the students that HTML tags are used to create a web page.

Introduce list as collection of related items.

Tell the students that there are three types of lists – Ordered List (Numbered List), Unordered List (Bulleted List) and Definition List (Description List).

Explain the use of <OL> tag to create ordered lists, <UL> tag to create unordered lists and <DL> tag to create definition lists. (See Suggested Activity 1 also).

Explain the use of <TABLE> tag and its child tags covering <TR>, <TD>, <TH> and <Caption>.

Explain the use of different attributes of <TABLE> tag covering BORDER, BORDERCOLOR, FRAMES, BGCOLOR, BACKGROUND, HEIGHT, WIDTH, CELLSPACING and CELLPADDING.

Discuss the use of different attributes of <TD> tag explaining about ALIGN, BGCOLOR, WIDTH, ROWSPAN, COLSPAN and VALIGN attributes.

Tell the students that all the attributes except ROWSPAN and COLSPAN are taken up by <TR> tag also.

Demonstrate the code to create a table and its data in HTML.

### Extension

Ask the students some oral questions based on this chapter.

Q. Define List / Table.

Q. How many types of Lists can be created in HTML?

Q. Name the different types of Lists that can be created in HTML.

Q. What is an Ordered / Unordered / Definition List?

Q. Name the attributes of <OL> tag.

Q. Name the tags used to create Definition List.

Q. Name the tags that can used to create different kinds of tables.

Q. What are the attributes of <TABLE> / <TD> tag?

### Evaluation

After explaining the chapter, let the students do the exercises given on Pages 105 and 106 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 106 and 107 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 107 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:

- List of favourite games of 10 friends.
- Table of car names and their models.

## 10. Conditional and Looping Statements in BASIC-256

### Teaching Objectives

Students will learn about

- ☞ Conditional Statements
- ☞ Looping
- ☞ For...Next Statement
- ☞ Sample Programs using For...Next Statement
- ☞ While...End...While Statement
- ☞ Sample Programs using While...End...While Statement
- ☞ Infinite Loop

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 3 |

## Teaching Plan

While teaching this chapter, tell the students that Basic-256 as a software used to develop applications and software.

Demonstrate to the students the use of these functions.

Introduce conditional statements as the statements used to change the default flow of a program.

Explain that Python offers two decision making statements:

- IF-THEN statement
- IF-THEN-ELSE statement

Explain the situation when these statements are used and demonstrate the use of each statement.

Introduce looping statement as the statement that allows repeating a set of instructions a given number of times.

Share with the students the use and syntax of the 'for-next' loop.

Tell the students that jump statements are used to transfer the control of the program outside the loop even if all the values of the sequence have not been taken.

Demonstrate the use of the While-End statement.

## Extension

Ask the students some oral questions based on this chapter.

Q. What is BASIC-256?

Q. What is the use of conditional statements?

Q. Name the conditional statements used in BASIC-256.

Q. What are looping statements used for?

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 114, 115 and 116 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 116 and 117 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 117 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

## Suggested Activity

Write a program in BASIC-256 to:

- Input 5 numbers and check which of these numbers are prime or composite.

- Input age of a person and check whether he or she is a senior citizen or not.
- Calculate the average marks of three students in four subjects each and arrange the averages in ascending order.

# 11. Introduction to Python

## Teaching Objectives

Students will learn about

- ☞ Python
- ☞ Installing Python IDLE
- ☞ Input and Output
- ☞ Data Types
- ☞ Operators
- ☞ Sample Programs
- ☞ Features of Python
- ☞ Programming in Python
- ☞ Variables in Python
- ☞ Comments in Python
- ☞ Precedence of Operators

| Number of Periods | |
|---|---|
| Theory | Practical |
| 4 | 3 |

## Teaching Plan

While teaching this chapter, tell the students about Python as a high level programming language and its uses.

Share with the students the important features of Python.

Demonstrate the steps to start Python IDLE.

Familiarize the students with the interface of Python IDLE.

Tell the students the basic commands of IDLE like creating a new file, saving a file, opening an existing file, executing a programming file, closing a file and exiting IDLE.

Introduce variables as memory location used to store data.

Share with the students the rules of naming variable in Python.

Tell the students about important terms like character set, keywords and data types (covering number, string, list, tuple, dictionary and none).

Explain the operators used in Python stating the common arithmetic operators (+, -, *, /, //, %, **), relational operators (= =, !=, >, <, >=, <=) and logical operators (&, |).

Demonstrate to the students the use of these operators and commands in simple Python programs.

Explain the use and importance of comments in Python.

Tell the students the purpose and syntax of:

- The input() statement
- The print() statement

Encourage the students to write simple programs in Python.

### Extension

Ask the students some oral questions based on this chapter.

Q. What is Python?

Q. Expand IDLE.

Q. What is the use of arithmetic / logical / relational operators?

Q. Define keywords / variables / data types.

Q. What is the use of input() / print() statement?

### Evaluation

After explaining the chapter, let the students do the exercises given on Pages 131, 132 and 133 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 133 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 133 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 programs in Python to calculate:

- Volume of cube
- Volume of cuboid
- Radius of circle when the area of the circle is given

## 12. AI for SDGs

### Teaching Objectives

Students will learn about

☞ Sustainable Development Goals

| Number of Periods | |
|---|---|
| Theory | Practical |
| 2 | 1 |

### Teaching Plan

Start the chapter by giving an introduction of SDGs to the students with the help of using real time examples.

Tell the students about Sustainable Development Goals and answer these queries regarding it:

What are SDGs?

How they are introduced?

Why they are introduced?

Who introduced SDGs?

Briefly explain all the SDGs in detail along with their motives and purpose:

## Extension

Ask the students some oral questions based on this chapter.

Q. What are SDGs?

Q. How they are introduced?

Q. Why they are introduced?

Q. Who introduced SDGs?

Q. Define the following:

a) Goal 1 Goal 2 Goal 3 Goal 4 Goal 5 Goal 6
Goal 7 Goal 8 Goal 9 Goal 10 Goal 11 Goal 12
Goal 13 Goal 14 Goal 15 Goal 16

## Evaluation

After explaining the chapter, let the students do the exercises given on Pages 139 and 140 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 140 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 141 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 research more about SDGs and ask them to create a poster on SDGs.