TOUCHPAD

Play Ver. 2.1

6

Teacher's Manual

Extended Support for Teachers

ORANGE
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Teacher's Time Table

Periods / Days	0	I	II	III	IV	BREAK	V	VI	VII	VIII
Monday										
Tuesday										
Wednesday										
Thursday										
Friday										
Saturday										

Development Milestones in a Child

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

Age
5 - 8 Years

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

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

Age 9 - 11 Years

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

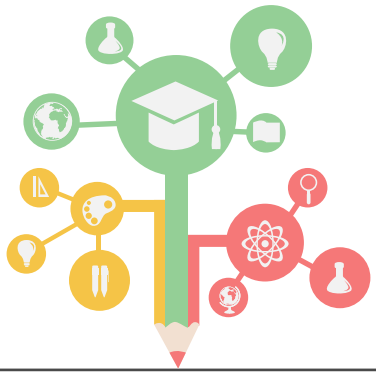
Age 11 - 20 Years

Physical	• If a girl, reaches peak of growth spurt • If a girl, motor performance gradually increases and then levels off • If a boy, reaches peak and then completes growth spurt • If a boy, motor performance increases dramatically
Cognitive	• Is now more self-conscious and self-focused • Becomes a better everyday planner and decision maker
Emotional/ Social	• May show increased gender stereotyping of attitudes and behaviour • May have a conventional moral orientation

Managing the children's learning needs according to their developmental milestones is the key to a successful teaching-learning transaction in the classroom.

"Family is the most important thing in the world."

Teaching Pedagogies



Pedagogy is often described as the approach to teaching. It is the study of teaching methods including the aims of education and the ways in which such goals can be achieved.

Lesson Plans

A lesson plan is the instructor's road map which specifies what students need to learn and how it can be done effectively during the class time. A lesson plan helps teachers in the classroom by providing a detailed outline to follow in each class.

A lesson plan addresses and integrates three key components:

- Learning objectives
- Learning activities
- Assessment to check the student's understanding

A lesson plan provides an outline of the teaching goals:

Before the class

1. Identify the learning objectives.
2. Plan the lesson in an engaging and meaningful manner.
3. Plan to assess student's understanding.
4. Plan for a lesson closure.

During the class

Present the lesson plan.

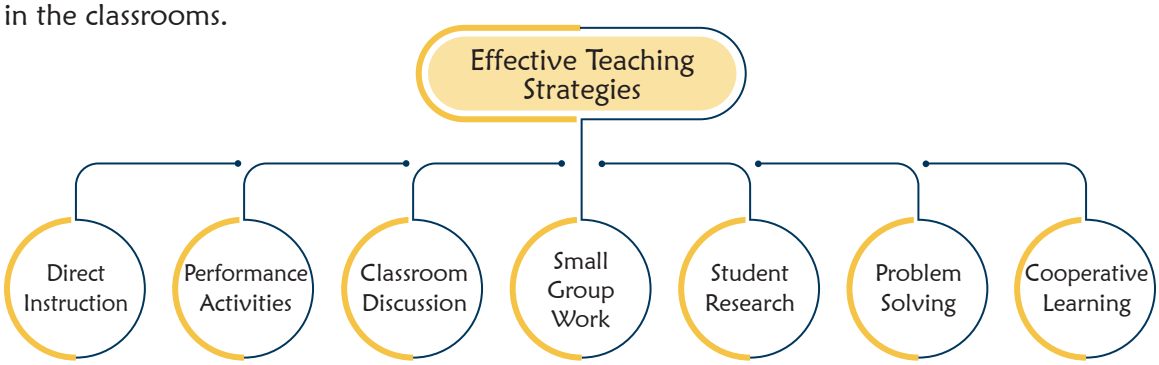
After the class

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

"Knowing yourself is the beginning of all wisdom."

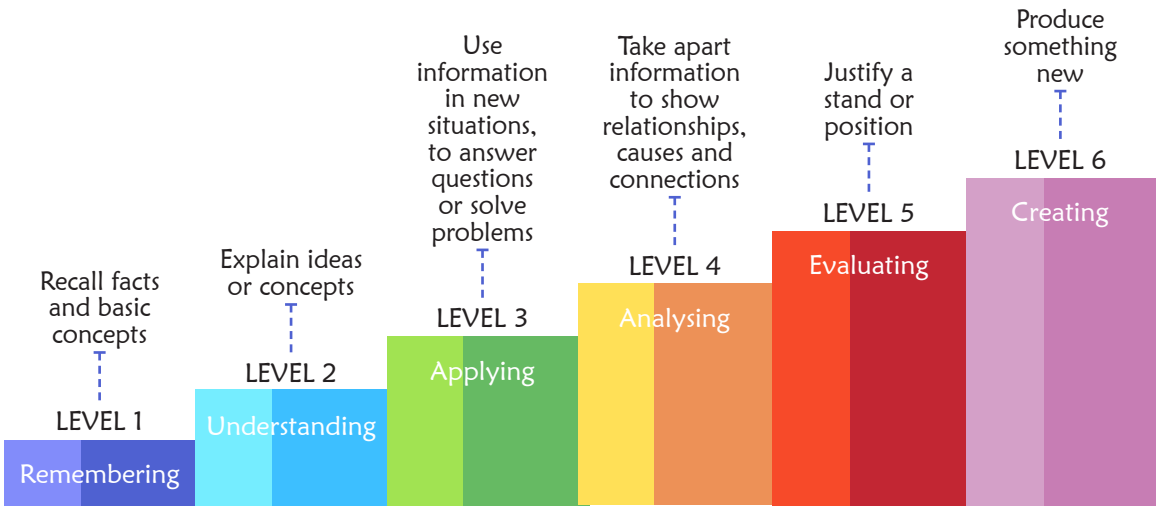
Teaching Strategies

Numerous strategies have evolved over the years to facilitate the teaching-learning process in the classrooms.



Bloom's Taxonomy

Bloom's Taxonomy was created by Dr Benjamin Bloom and several of his colleagues, to promote higher forms of thinking in education instead of rote learning. There are three domains of learning: cognitive (mental), affective (emotional), and psychomotor (physical). However, when we refer to Bloom's Taxonomy we speak of the cognitive domain. Bloom's Taxonomy is a list of cognitive skills that is used by teachers to determine the level of thinking their students have achieved. As a teacher, one should attempt to move students up the taxonomy as they progress in their knowledge.



Teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on.

> "If you have no confidence in self, you are twice defeated in the race of life."

CLASS 6

LESSON PLAN

1 Windows 10

Teaching Objectives

Students will learn about:

- Windows Media Player
- Using Pictures Folder
- Using Removable Storage Devices
- Features of Windows 10

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that Windows 10 is an operating system.

Tell the students about Windows Media Player and how to use it.

Explain the students about using the removable storage devices along with the steps involved in using a pen drive.

Share with the students about the pictures folder and steps involved in using it.

Introduce the students with the features of Window 10:

- Sneak
- Snap
- Jump List

Also share the steps involved in using these features easily.

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 windows Media Player?

Q. Give a few examples of removable storage devices.

Q. What is preview pane?

Q. what is Layout group?

Q. What are the steps to use Picture folder?

Q. What is Show/Hide?

Q. What is Windows 10?

Q. What is the use of these features of Windows 10?

- Sneak
- Snap
- Jump list

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 11 and 12 of the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity **IN THE LAB** given on page 12 of the main course book. It will enhance the ability of the students and will serve as an Information Literacy 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 10.

2 Advanced Features of Powerpoint 2016

Teaching Objectives

Students will learn about:

- Slide Transition
- Media Clips
- Importing Data from Other Applications
- Animation
- Adding Action Buttons

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that PowerPoint 2016 is used to create electronic presentations.

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 steps to add transition in PowerPoint.

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 animation to various objects on a slide.

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

Explain to the students that media files such as video and audio enhance the understanding of a presentation.

Demonstrate the steps involved in adding a video file and adding sound.

Tell the students that Action buttons help other people using our presentation in navigating from one slide to another.

Share the steps involved in adding action buttons with the students.

Explain to the students that PowerPoint 2016 allows to import and use the files or objects created in Microsoft office applications.

Demonstrate the steps involved to import data.

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 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 transition 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 the use of Media clips in PowerPoint 2016?
Q. How do action Buttons in PowerPoint 2016 help us?
Q. How can data be imported in PowerPoint 2016?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 19 and 20 of the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity **IN THE LAB** given on page 21 of the main course book. It will enhance the ability of the students and will serve as an Initiative and Productivity & Accountability activity.

Suggested Activity

Ask the students to add a video file on the topic 'Covid19' in PowerPoint 2016 and show it to the class next day.

3 Formulas and Functions

Teaching Objectives

Students will learn about:

- Using Formulas to Perform Calculation
- Different Ways to Enter Formulas
- Cell Referencing in Formulas and its Types
- Order of Operation
- Understanding Cell Range
- Functions

Number of Periods	
Theory	Practical
3	2

Teaching Plan

While teaching this chapter, tell the students that MS Excel has some built-in formulas called functions.

Share with the students the basic elements and rules of writing a formula in Excel.

Show to them the different methods of copying and pasting a formula.

Tell them the order of operation followed in Excel.

Introduce cell referencing as use of cell address while writing a formula.

Make them understand the different types of cell referencing and the difference between the three – Relative, Absolute and Mixed.

Tell the students about rules for using functions and different categories of functions in Excel.

Demonstrate the use of mathematical functions – SUM, PRODUCT, MOD, SQRT, INT, POWER, COUNT, ROUND, ABS.

Demonstrate the use of text functions – CONCATENATE, LEFT, RIGHT, LEN, UPPER and LOWER.

Demonstrate the use of statistical functions – MAX, MIN, AVERAGE.

Demonstrate the use of date functions – TODAY, MONTH, YEAR, DAY, NOW, HOUR AND MINUTE.

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 are functions in Excel?

Q. Name the different elements of a formula in Excel.

Q. What is the order of operation followed in Excel?

Q. Define cell referencing.

Q. Name some important categories of functions.

Q. State the purpose of SUM / SQRT / MOD / COUNT / LEN / RIGHT / TODAY / MAX Function.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 33 and 34 of the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity **IN THE LAB** given on page 34 of the main course book. It will enhance the ability of the students and will serve as a Technology Literacy and Productivity & Accountability activity.

Suggested Activity

1. Ask the students to enter their last marksheet in Excel and calculate total marks scored, average marks scored, maximum and minimum marks amongst all the marks and the number of subjects using various functions used in Excel.
2. From the previous marksheets of Grade 1 to 6, collect data about your attendance in various Grades. Plot a Line Chart in Excel from the data.

4 Introduction to GIMP

Teaching Objectives

Students will learn about:

- Features of GIMP
- Components of GIMP Window
- Opening an Image for Editing
- 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 a free and open-source graphics editor software used for image retouching and editing, free-form drawing, cropping, converting between different image formats and more.

Demonstrate to the students the steps to start GIMP.

Familiarise the students with the components of GIMP covering Menu Bar, Toolbar, Foreground/ Background Color, Tool options, Image window, Ruler, Layers 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:

- Open an image for editing
- Save a file

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 the menu bar contain?

Q. Which is used to set the order visibility of the objects?

Q. What is the purpose of Portrait/Landscape button?

Q. What do you mean by template?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 39 and 40 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in the **Hands-On** and **IN THE LAB** section on Page 40 in the main course book. This will enhance the ability of the students and serve as Social Interaction, Collaboration, Information Literacy and Initiative activity.

Suggested Activity

Ask the students to draw a similar drawing in Adobe Photoshop CS6 using various tools from the toolbar.

5 Services on Internet

Teaching Objectives

Students will learn about:

- Internet Services
- Cyber Security
- Cyber Crime

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that internet is used for a wide variety of services including communication, shopping, banking, etc.

Tell the students that internet services allows to perform different types of operations over the internet.

Explain how internet plays an important role in communication through e-mails, video conferences, voice-over-internet protocol, chat, social network, newsgroup and blogs.

Demonstrate the steps to use:

- VoIP services
- Chatting
- Social Networking

Share with the students how internet is used to:

- Send greetings in the form of e-greetings
- Send and receive money through e-banking
- Store data and information through cloud storage

Introduce Cyber Security as the process of protecting computer resources such as networks, devices, programs and data from unauthorised access, damage or attack.

Share with the students the various types of cyber-crimes.

Introduce cyber-crime as a criminal activity in which computers are used to do crimes.

Explain the different types of cyber-crimes covering data diddling, phreaking, cloning, carding, hacking and cracking.

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. Name some internet services.
Q. Define Video Conferencing / VoIP.
Q. What are the advantages and disadvantages of VoIP?
Q. Define chatting / social networking / blogging.

Q. What is meant by cloud storage?
Q. Name some cloud storage services.
Q. Define Cyber Security / Cyber Crime.
Q. What are the different types of cyber-crimes?
Q. Differentiate between hackers and crackers.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 53 and 54 of the main course book as **Exercise**.

In Creative Assignment, activities like **IN THE LAB** given on Page 54 of the main course book will enhance the ability of the students and serve as Media Literacy and Communication activity.

Suggested Activity

Ask the students to collect information about different types of major cyber-crimes committed in last one year.

6 App Development

Teaching Objectives

Students will learn about:

- What is an App?
- Types of Mobile Apps
- Downloading and Installing the App
- Defining the Android and iOS
- Categories of Apps
- Developing an App

Number of Periods	
Theory	Practical
2	1

Teaching Plan

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

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

- Gaming Apps
- Productivity Apps
- Entertainment Apps
- Utility Apps
- Educational Apps
- Social Networking Apps
- Communication 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.

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 App?

Q. Define the following:

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

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 68 to 70 in the main course book as **Exercise**.

In Creative Assignment, activities like **IN THE LAB** given on Page 70 of the main course book will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to develop an App for reciting tables with your help.

7 Introduction to HTML5 and CSS3

Teaching Objectives

Students will learn about:

- HTML
- Rules for Writing HTML5 Codes
- Creating and Saving an HTML document
- Editing an Existing HTML Document
- Tags and Attributes
- HTML5 Document Structure
- Introducing CSS3

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that website is a collection of web pages which contain text, graphics, audios, videos and links to other pages.

Introduce Hypertext Markup Language (HTML) as markup language that describes the structure of a web page. Make the students understand the meaning of the terms like hypertext and markup language.

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 HTML5 codes.

Show to the students a HTML5 document and make them understand and identify the various sections and structure of the HTML5 document.

Demonstrate to the students the steps involved in:

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

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

Introduce the concept of CCS3 to the students. Also, tell the ways to use the CSS styles in the html document.

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

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 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 is CSS?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 80 to 82 in the main course book as **Exercise**.

In Creative Assignment, activities like **IN THE LAB** given on Page 82 of the main course book will enhance the ability of the students and serve as a Critical Thinking activity.

Suggested Activity

Ask the students to develop a similar web page in HTML.

8 Algorithmic Intelligence

Teaching Objectives

Students will learn about:

- Algorithm
- Flowcharts
- Solving Problems Using Algorithms and Flowcharts
- Mind Maps

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students people have to solve various problems by using different strategies.

Also give an introduction of problem solving techniques, algorithm, flowchart, etc.

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 going to market to purchase a pen or involving mathematical problems.

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.

Make the students learn the rules for drawing a flowchart.

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

Make the students aware of mind maps.

Let the students know how to draw a mind map.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is an algorithm?

Q. What is a flowchart?

Q. What are the rules to draw flowcharts.

Q. What is mind map?

Q. How will you draw a mind map for computer?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 89 to 91 in the main course book as **Exercise**.

Take the students to the computer lab and let them practise the activity given in the **IN THE LAB** section on page 91 in the main course book. This will enhance the ability of the students and foster Creativity and Technology Literacy skills.

Suggested Activity

Ask the students to find some questions which can be solved using algorithm and flowchart.

9 Introduction to Programming Python

Teaching Objectives

Students will learn about:

- Computer Languages
- Python
- Installing Python
- Input and Output
- Data Types
- Operators
- Some More Programs
- Language Translator
- Features of Python
- Programming in Python
- Variables in Python
- Comments in Python
- Precedence of Operators

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students about how humans communicate and their language. Also give an introduction of problem solving techniques, algorithm, flowchart, etc.

- **Program** – a set of instructions given to CPU in a pre-defined sequence to complete a task.
- **Computer languages** – 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 categorised 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**, **FORTRAN**, **PASCAL**, etc.), fourth generation languages (examples: **SQL, Perl, Python** etc.) and natural language or fifth generation languages (involving artificial intelligence).

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

- **Assembler** – used to translate assembly language into machine language.

- **Compiler** – used to convert entire source program into machine language before executing it.
- **Interpreter** – used to convert source program one line at a time into machine language before executing it.

Tell the students that Python is a popular high-level programming language and it is a powerful language used for general-purpose programming.

Introduce the students with Python and its features.

Share with the students the features of Python briefly that it is:

- Easy to code
- Object-oriented
- Interpreted language
- Open-source language
- Integrated and Extensible language
- Dynamically Typed language

Demonstrate the students the steps to install Python.

Tell the students that Programming in Python have two basic modes:

- Script Mode
- Interactive Mode

Share with the students the working in Script mode and demonstrate the steps involved in the four step process, i.e.,

- Creating a new file
- Saving Python program
- Writing a program
- Running a Python program

Explain to the students the Input and Output functions in a Python program with syntax and pictures.

Tell the students the Variables in Python along with the declaring and initialising a variable with syntax.

Explain to the students the Data Types and Comments in Python with syntax.

Show the students the proper use of Single Line and Multiple-line comment in Python.

Explain to the students about Operators in Python and its types along with the syntax and description of that are:

- Arithmetic Operators
- Logical Operators
- Assignment Operators
- Relational Operators

Tell the students about the Precedence of Operators with the help of sample programs in Python.

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 are computer languages?

Q. What is Low-Level language?

Q. What is High-Level language?

Q. Give examples of each:

a. Machine Language
b. Assembly Language
c. Third Generation Language
d. Fourth Generation Language
e. Fifth Generation Language

Q. What are advantages of HLL?
Q. What are disadvantages of HLL?
Q. What is a language translator?
Q. What is an assembler?
Q. What is the difference between a compiler and an interpreter?
Q. Explain the working of language translators.
Q. What is Python?
Q. What are features of Python?
Q. What are the steps to install Python?
Q. What are the two modes of programming in Python?
Q. What is the purpose of input() function?
Q. What is the purpose of print() function?
Q. What are variables in Python?
Q. What are comments in Python?
Q. What are operators in Python?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 108 to 110 of the main course book as **Exercise**.

In Creative Assignment, activity like **IN THE LAB** given on Page 110 of the main course book will enhance the ability of the students and serve as Productivity & Accountability and Information Literacy activity.

Suggested Activity

Ask the students to collect more information about the computer languages and translators.

10 Introduction to AI

Teaching Objectives

Students will learn about:

- What is Intelligence
- Difference between Human and Machine Intelligence
- Uses of AI
- Types of Intelligence
- What is AI?

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that Artificial intelligence imparts cognitive ability to machines, meaning it can make machines perform tasks in ways that are intelligent.

Define the meaning of Intelligence to the students.

Explain the types of Intelligence along with the qualities of the same to the students:

- Naturalistic Intelligence
- Logical-Mathematical Intelligence
- Interpersonal Intelligence
- Intrapersonal Intelligence
- Spatial Intelligence
- Musical Intelligence
- Existential Intelligence
- Bodily-Kinesthetic Intelligence
- Linguistic Intelligence

Make the students do some activities for exploring Intelligence.

Explain the difference between human and machine intelligence to the students.

Introduce to the students about AI and its uses.

Extension

Ask the students some oral questions based on this chapter.

Q. Define Intelligence.

Q. Define the qualities of these:

- Visual-Spatial Intelligence
- Logical-Mathematical Intelligence
- Musical Intelligence
- Existential Intelligence
- Naturalistic Intelligence
- Verbal-Linguistic Intelligence
- Bodily-Kinesthetic Intelligence
- Interpersonal Intelligence
- Intrapersonal Intelligence

Q. What is AI?

Q. What are the uses of AI?

Q. What is the difference between human and machine intelligence?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 115 to 117 in the main course book as **Exercise**.

In Creative Assignment, activity like **IN THE LAB** given on Page 117 of the main course book will enhance the ability of the students and serve as Creativity and Leadership & Responsibility activity

Suggested Activity

Make a presentation showing different types of intelligence and their qualities.