TOUCHPAD

Ver. 2.2

8

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

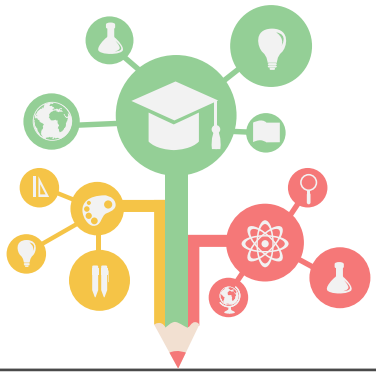
Age 11 - 20 Years

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.

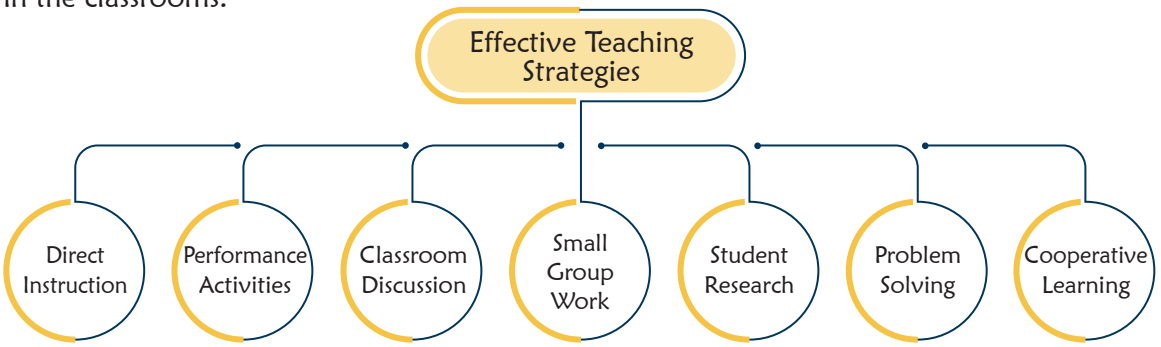
After the class

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

"Knowing yourself is the beginning of all wisdom."

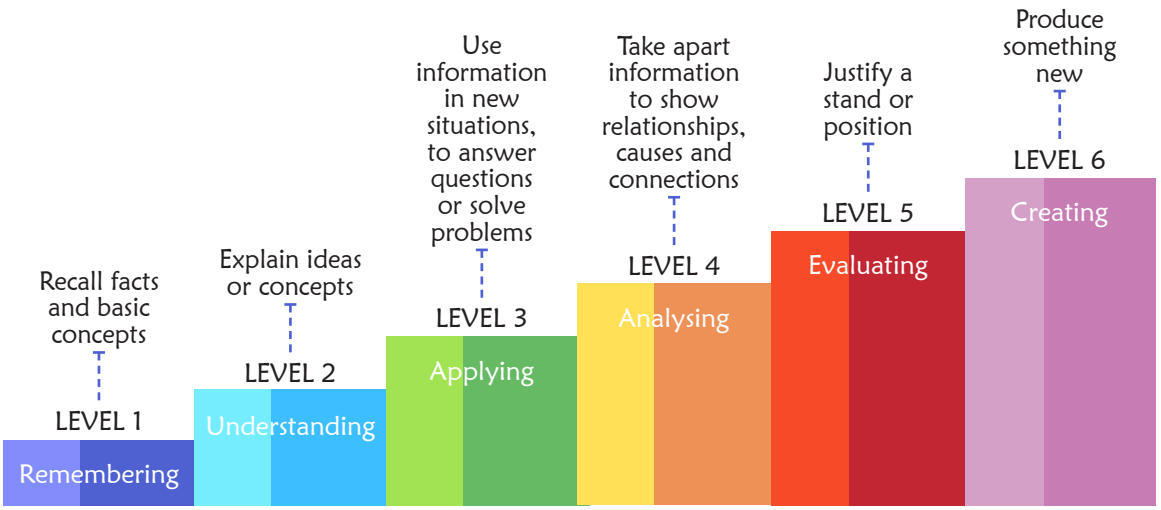
Teaching Strategies

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 8

LESSON PLAN

1 Computer Networking

Teaching Objectives

Students will learn about

- Computer Network
- Advantages of Computer Network
- Network Terminologies
- Types of Networks
- Network Architecture
- Protocol
- Need for Computer Network
- Components of Data Communication System
- Devices Required for a Network
- Topology
- Wireless Networking Technology

Number of Periods	
Theory	Practical
3	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on page 10 of the main course book.

While teaching this chapter, tell the students that the process of connecting computers and peripheral devices with each other to exchange data is called computer networking.

Tell the students about the meaning and basics of computer network.

Share with the students the need for computer network – for resource sharing and for communication.

Discuss with the students the advantages of a computer network.

Familiarise the students with the components of data communication system covering sender, reciever, transmission medium, message and protocol.

Introduce network terms like Server (host computer) and Client (dependent on server).

Explain the different types of servers to the students covering dedicated server, print server, database server, network server and web server.

Tell the students about the components required for a network covering NIC, hub/switch, router, modem, gateway and networking cable.

Share with the students that on the basis of geographical area covered, the networks can be classified into LAN (Local Area Network), MAN (Metropolitan Area Network), WAN (Wide Area Network), PAN

(Personal Area Network) and CAN (Campus Area Network).

Introduce Topology as geometric arrangement of computers or nodes in a network.

Explain the difference between different types of topologies covering bus topology, ring topology, star topology, tree topology and mesh topology.

Tell the students that the network architecture defines the overall design of the computer network.

Share with the students the two types of network architectures as Peer-to-Peer network and Client-Server network.

Share with the students about the wireless networking technologies detailing about Wi-Fi and Bluetooth.

Introduce Protocol as a set of rules that govern the communication between the computers on a network.

Discuss briefly about the different types of protocols explaining about HTTP, HTTPS, FTP, TCP/IP, POP3, IMAP and SMTP.

Ask the students to solve the exercise **Let's Catch Up** given on pages 11, 15 and 18.

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. Define computer network.
Q. What is the need for a computer network?
Q. What are the advantages of a computer network?
Q. Define server / client.
Q. What are the different types of computer servers?
Q. What are the components required for a network?
Q. Define LAN / MAN / WAN / PAN / CAN.
Q. Define Topology.
Q. Name different types of topologies.
Q. What is meant by protocol?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 19 and 20 in the main course book as **TEST YOUR SKILLS**. Tell the students to try sections such as **TECH ZONE-LET'S SOLVE, LET'S EXPLORE** and **LET'S GET BETTER** given on pages 20 and 21 in the main course book to imbibe Critical Thinking, Information Literacy and Communication skills in them.

Take the students to the computer lab and let them practice the activity given in the **TECH PRACTICE** section on page 21 in the main course book. This will enhance the ability of the students and foster Creativity skills.

Suggested Activity

Ask the students to make models of different types of topologies using marbles and used wire pieces / straws.

2 Introduction to Adobe Photoshop 2024

Teaching Objectives

Students will learn about

- Features of Adobe Photoshop 2024
- Creating a New Document
- Opening an Image in Photoshop
- Tools in Photoshop
- Cropping Tools
- Inserting Text
- Saving a File in Photoshop
- Opening Adobe Photoshop 2024
- Adobe Photoshop 2024 Interface
- Placing an Image in an Existing Document
- Move and Selection Tools
- Painting Tools
- Transform Tool
- Closing a File and Exiting Photoshop

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 22 of the main course book.

While teaching this chapter, tell the students that Photoshop is a designing software that provides a virtual studio for artists and designers.

Introduce student with Adobe Photoshop using examples.

Explain the features of Photoshop to the students in detail.

Demonstrate to the students the steps involved in opening Photoshop 2024.

Demonstrate to the students the steps involved in creating a new document in Photoshop.

Explain all the components of Photoshop interface with proper labeled pictures.

Tell the students the steps to open an image in Photoshop.

Demonstrate to the students the steps involved in placing an image in an existing document in Photoshop.

Explain to the students the following tools of Photoshop and explain them in details with steps:

a. Move and Selection tools
   - Move tool
   - Lasso tool
   - Quick Selection tool
   - Rectangular Marquee tool
   - Polygonal Lasso tool
   - Magic Wand tool
   - Elliptical Marquee tool
   - Magnetic Lasso tool

b. Cropping tools
   - Crop tool
   - Perspective Crop tool
   - Slice tool and Slice Select tool

c. Painting tools
   - Brush tool
   - Pencil tool
   - Color Replacement tool
   - Mixer Brush tool
   - History Brush tool
   - Gradient tool
   - Paint Bucket tool

d. Inserting Text
   - Using Horizontal Type Tool
   - Using Horizontal Type Mask Tool

e. Transform Tool

Tell the students the steps to save a file and closing a file in Photoshop along with exiting Photoshop.

Ask the student to solve the exercise **Let's Catch Up** given on page 32.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the role of Adobe Photoshop?

Q. What are the features of Photoshop?

Q. What is the use of Move tool?

Q. What is the use of Selection tool?

Q. What is the use of Cropping tool?

Q. What is the use of Inserting text tool?

Q. What is the use of transform tool?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 43 to 45 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Page 45 in the main course book to imbibe Critical Thinking and Information Literacy skills in them.

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

Suggested Activity

Ask the students to crop two images and make them one using proper Photoshop tools taught in this chapter.

3 More on Adobe Photoshop 2024

Teaching Objectives

Students will learn about

- Layers in Photoshop
- Retouching Tools
- Shape Tools
- Image Menu
- Painting Tools in Photoshop
- Drawing Tools
- Navigation Tools
- Layer as a Smart Object

Number of Periods	
Theory	Practical
2	2

Teaching Plan

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

While teaching this chapter, revise the features and tools of Photoshop 2024 for the students taught in the earlier chapter.

Demonstrate to the students the Layers in Photoshop 2024 and explain the step involved in creating a new layer.

Explain all the components of Photoshop interface with proper labeled pictures.

Tell the students the steps to open an image in Photoshop.

Demonstrate to the students the steps involved in placing an image in an existing document in Photoshop.

Explain to the students the following tools of Photoshop and explain them in details with steps:

a. Painting tools
   - Eye Dropper tool
   - Color Sampler tool
   - Ruler tool
   - Note tool
   - Eraser tool
   - Background Eraser tool
   - Magic Eraser tool

b. Retouching tools
   - Spot Healing Brush tool
   - Healing Brush tool
   - Patch tool
   - Content Aware Move tool
   - Red Eye tool
   - Clone Stamp tool
   - Pattern Stamp tool
   - Blur, Sharpen and Smudge tool
   - Dodge, Burn and Sponge tool

c. Drawing tools
   - Pen tool

d. Shape tools
   - Custom Shapes

e. Navigation Tools

- Hand tool
- Rotate View tool
- Zoom tool

Explain to the students about the image menu options along with the description of each.

Teach the students about Layers as a smart object with steps involved in it.

Ask the student to solve the exercise **Let's Catch Up** given on page 59.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the use of Painting tool?

Q. What is the use of Retouching tool?

Q. What is the use of Navigation tool?

Q. What is the use of Drawing tool?

Q. What is the use of Shapes tool?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 62 and 63 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Pages 63 and 64 in the main course book to imbibe Critical Thinking and Information Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 64 in the main course book. This will enhance the ability of the students and serve as a Creativity activity.

Suggested Activity

Ask the students to download and edit an image and make them one using proper tools.

4 Computer Safety and Security

Teaching Objectives

Students will learn about

- How to Keep your Computer Physically Fit?
- How to Backup your Important Files?
- Malware
- Firewall
- Protecting your Computer from Illegal Access
- Other Maintenance Techniques
- Antivirus

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 66 of the main course book.

While teaching this chapter, tell the students that computer safety refers to the protection of computer-based resources against unauthorised 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 horse, spyware, zombie, ransomware, rootkit and backdoor.

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

Ask the student to solve the exercise **Let's Catch Up** given on pages 68 and 73.

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 74 and 75 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve**, **Let's Explore** and **Let's Get Better** given on Pages 75 and 76 in the main course book to imbibe Critical Thinking, Information Literacy and Communication skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 76 in the main course book. This will enhance the ability of the students and serve as Information Literacy activity.

Suggested Activity

Ask the students to prepare a detailed project on any anti-virus software on an A4 sheet.

5 Google Apps

Teaching Objectives

Students will learn about

- Google
- Apps of Google

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 77 of the main course book.

While teaching this chapter, brief the students about Google and mobile apps.

Introduce Google to the students along with the history.

Explain the Google Apps to the students in detail like Gmail, Google Drive, Google Maps, Google Docs, Google Sheets, Google Slides and YouTube.

Explain the following components of Google Drive to the students along with the steps involved in:

- What can you store in Google Drive?
- How much can you store in Google Drive?
- Using Google Drive.
- Features of Google Drive.

Demonstrate the features of Google Maps to the students along with the steps involved in it.

Demonstrate the opening/ importing an existing word document for editing in Google Docs to the students along with the steps involved in it.

Explain the following components of Google Sheets to the students along with the steps involved in:

- Features of Google Sheets
- Creating and Saving a New Google Sheet
- Sharing a File
- Protecting Data

Explain the following components of Google Slides to the students along with the steps involved in:

- Features of Google Slides
- Creating a New Presentation

Explain the following components of YouTube to the students along with the steps involved in:

- Features of YouTube
- Using YouTube
- Uploading a Video on YouTube

Ask the student to solve the exercise **Let's Catch Up** given on page 88.

Extension

Ask the students some oral questions based on this chapter.

Q. What are Google Apps?
Q. What is Gmail?
Q. What is Google Drive?
Q. What is Google Maps?
Q. What is Google Docs?
Q. What is Google Sheets?
Q. What is Google Slides?
Q. What is YouTube?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 92 and 93 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Page 94 in the main course book to imbibe Critical Thinking and Technology Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 94 in the main course book. This will enhance the ability of the students and serve as a Information Literacy and Technology Literacy activity.

Suggested Activity

Ask the students to create a document in Google Docs and a presentation in Google Slides on 'Environment Day'.

6 Latest Technological Developments

Teaching Objectives

Students will learn about

- Artificial Intelligence
- Machine Learning
- Internet Of Things (IoT)
- Augmented Reality and Virtual Reality
- Blockchain
- Robotics
- Data Science
- Edge Computing
- 3D Printing

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 94 of the main course book.

Demonstrate Artificial Intelligence to the students along with the main areas of AI.

Tell the students that Robotics is a branch of engineering that uses technologies such as Artificial Intelligence and Machine Learning.

Familiarise the students with some popular robots.

Explain the following to the students along with the examples in detail:

- Data Science
- Edge Computing
- Internet of Things (IOT)
- Blockchain
- Machine Learning
- Augmented Reality and Virtual Reality
- 3D Printing

Ask the student to solve the exercise **Let's Catch Up** given on pages 102 and 106.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an Artificial Intelligence?

Q. What is an Augmented Reality?

Q. What is an Virtual Reality?

Q. What is an Internet of Things?

Q. What is an 3D Printing?

Q. What is Blockchain?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 107 to 109 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Page 109 in the main course book to imbibe Critical Thinking and Media Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 109 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to try any digital assistant like Alexa or Siri and ask "What is Virtual Reality?".

7 Images, Links and Frames in HTML5

Teaching Objectives

Students will learn about

- Inserting Images
- Adding Audio & Video
- Creating Forms in HTML
- Linking Web Pages
- Frames

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 110 of the main course book.

While teaching this chapter, tell the students that HTML allows inserting images and frames on web pages as well as interlinking them.

Tell the students that HTML supports JPEG, GIF and PNG image formats.

Tell the students that <IMG> tag is used to insert images and it takes the attributes as SRC, WIDTH, HEIGHT and ALT.

Demonstrate to the students the use of <IMG> tag and its attributes.

Explain some commonly used CSS properties associated with the <img> tag.

Introduce Marquee as the moving objects on a web page to get special attention of the users.

Make the students understand that a hyperlink is an underlined text or an image which when clicked takes the user to some other location.

Share with the students that <A> is used to create links and the attributes that this tag can take are – HREF and TARGET.

Demonstrate the use of <A> tag and its attributes to hyperlink web pages.

Tell the students that HTML5 <audio> and <video> tags allows to add media (audio and video) to a website.

Explain the students how to add audio and video in an HTML document.

Introduce Frames as a feature to display more than one web page on a single screen of the web browser.

Tell the students about <IFRAME> and its attributes covering SRC, HEIGHT, WIDTH and NAME.

Explain to the students how to create a form using <FORM> tag, <INPUT> tag, <TEXTAREA> tag and <SELECT> tag.

Ask the student to solve the exercise **Let's Catch Up** given on page 128.

Extension

Ask the students some oral questions based on this chapter.

Q. Which tag is used to insert images on a web page?

Q. State the use of SRC / WIDTH / ALT attribute of IMG tag.

Q. Which image formats are supported by HTML?

Q. Which tag is used to link web pages?

Q. Name the attributes that can be taken by FRAME tag.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 129 and 130 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Page 131 in the main course book to imbibe Information Literacy and Communication skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 131 in the main course book. This will enhance the ability of the students and serve as a Creativity activity.

Suggested Activity

Ask the students to create an e-shopping web site listing categories of items on home page and details of items on separate category pages.

8 Algorithmic Intelligence

Teaching Objectives

Students will learn about

- Multiple Conditions in a Program
- Loops in a Program

Number of Periods	
Theory	Practical
1	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on page 133 of the main course book.

Begin with introduction of multiple conditions in a program based on algorithmic intelligence.

Let them know that the conditional statements are used in a program to instruct the computer to make a decision.

Make the students aware of multiple conditions like If... And/Or... followed by Then... Else.

Make the students understand that a loop is used to execute instructions or a block of code multiple times, without writing it repeatedly.

Explain to the students that a loop is a sequence of instructions when repeated for a fixed number of times or until the condition is true.

Also let them know that there are two types of loops. They are Counting loops and Conditional loops.

Ask the student to solve the exercise **Let's Catch Up** given on pages 135 and 137.

Extension

Ask the students some oral questions based on this chapter.

Q. What are conditional statements used for?

Q. What is the result of the computer's decision for a condition?

Q. What is the result of 'If... And' condition in a program based on algorithmic intelligence?

Q. What is the result of 'If... Or' condition in a program based on algorithmic intelligence?

Q. What is a loop?

Q. What is a loop used for?

Q. What is infinite loop?

Q. How many types of loops are there in a program? Name them.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 138 to 140 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** given on Page 140 in the main course book to imbibe Critical Thinking skill in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 140 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to write any if-then-else conditional statements.

9 Loops in Python

Teaching Objectives

Students will learn about

- The for Statement
- Jump Statements
- The while Statement
- Some More Programs

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 141 of the main course book.

While teaching this chapter revise Python for the students and repeat the features of Python from the earlier class.

While teaching this chapter, tell the students about Python has some looping statements.

Demonstrate to the students the steps involved in using these statements using programs and syntax are:

a. FOR statement
   - using the range() function

b. WHILE statement
   - infinite loop
   - while loop using else statement

c. JUMP statement
   - break statement
   - continue statement

Demonstrate to the students some more programs and syntax.

Ask the student to solve the exercise **Let's Catch Up** given on page 149.

Extension

Ask the students some oral questions based on this chapter.

Q. What are looping statement?

Q. What is the function of FOR statement?

Q. What is the function of WHILE statement?

Q. What is the function of JUMP statement?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 150 and 151 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Pages 151 and 152 in the main course book to imbibe Critical Thinking and Media Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 152 in the main course book. This will enhance the ability of the students and serve as a Critical Thinking activity.

Suggested Activity

Ask the students to make a list of series where you can apply the FOR and JUMP statements.

10 Functions and String in Python

Teaching Objectives

Students will learn about

- Functions
- String
- Some More Programs

Number of Periods	
Theory	Practical
3	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 153 of the main course book.

Define the meaning of functions in python to the students along with:

- Features
- Components

Explain the types of Functions in Python to the students:

- Built-in
- User-defined

Tell the students about creating a function and define the ways for:

- Defining a function
- Naming a function
- Supply Parameters
- Body of the function

Also, tell the students about how to call a function.

Tell the meaning of string to the students and define the following:

- Creating a single-line Strings
- Creating Multiline Strings
- Using Escape Sequences with Strings
- Traversing a String
- String Operators
- String Built-in Functions

Ask the students to solve the exercise **Let's Catch Up** given on page 159.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a function?

Q. What are the components of a function?

Q. What are the types of a function?

Q. Explain the following:

a. Defining a function
b. Calling a function
c. Naming a function
d. Creating a function

Q. What is a String?

Q. Explain the following:

a. Defining a string
b. Traversing a string

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 163 and 164 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Pages 164 and 165 in the main course book to imbibe Critical Thinking and Media Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 165 in the main course book. This will enhance the ability of the students and serve as a Critical Thinking and Information Literacy activity.

Suggested Activity

Ask the students create a program in Python using functions.

11 Domains of AI

Teaching Objectives

Students will learn about

- Natural Language Processing (NLP)
- Computer Vision (CV)
- Big Data
- Advantages of Artificial Intelligence

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in **Let's Plug-in** given on Page 166 of the main course book.

Define the following to the students along with proper examples:

- Natural Language Processing (NLP)
- Computer Vision (CV)
- Data

Explain the advantages of Artificial Intelligence along with:

- Process Automation
- Accuracy
- Take Decisions Rationally
- Quick Decision Making
- Quicker Data Analysis
- Ability to Complete Dangerous Tasks

Ask the students to solve the exercise **Let's Catch Up** given on page 169.

Extension

Ask the students some oral questions based on this chapter.

Q. What is NLP?

Q. What is Data?

Q. Explain Computer Vision.

Q. What is AI?

Q. Explain the advantages of AI.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 172 and 173 in the main course book as **Test Your Skills**. Tell the students to try sections under **Tech Zone**– **Let's Solve** and **Let's Explore** given on Page 173 in the main course book to imbibe Critical Thinking and Media Literacy skills in them.

Take the students to the computer lab and let them practice the activity given in the **Tech Practice** section on Page 174 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy and Information Literacy activity.

Suggested Activity

Ask the students to mention the use of AI in real world.