8

TOUCHPAD

PLUS Ver. 4.0

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	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:

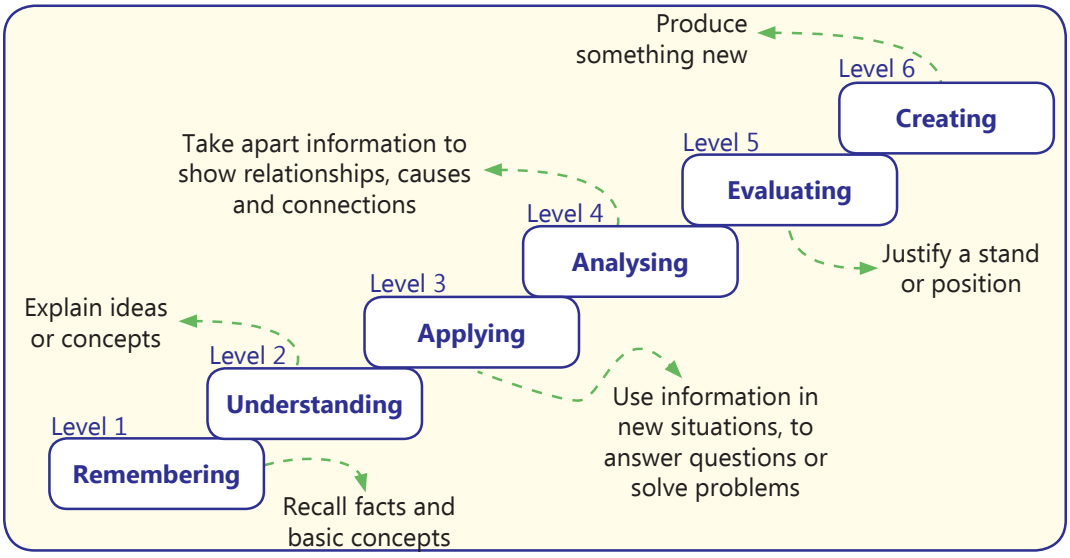
Reflect on what worked well and why. If needed, revise the lesson plan.

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.

Class 8

LESSON PLAN

PLUS Ver. 4.0

1. Computer Networking

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
3	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 11 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.

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 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, TC/IP, POP3, IMAP and SMTP.

Ask the students to solve the exercise 'Double Tap' given on pages 14, 20 and 22.

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 23 and 24 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' and 'Go Online' given on page 24 in the main course book.

Take the students to the computer lab and let them practice the activity given in the DIY In The Lab section on page 25 in the main course book. This will enhance the ability of the students and serve as a creativity and technology literacy activity.

Ask the students to complete the elements like 'Art Integration Learning' and 'Experiential Learning' given on pages 15 and 21.

Suggested Activity

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

2. Krita- Image Editing

Teaching Objectives

Students will learn about

- Opening an Image for Editing
- Understanding Krita Tools
- Tools to Edit an image
- Saving an Image
- Starting Krita
- Components of Krita
- Creating a New File

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 27 of the main course book.

While teaching this chapter, tell the students about image editing.

Introduce the students to free and open source Krita Software.

Show to the students the interface of Krita and explain various elements.

Demonstrate to the students the method of creating a new file in Krita software.

Tell the students about the various tabs available in the create new document dialog box.

Demonstrate various Krita tools available in Krita for creating and editing Images.

Explain to the students following tools:

Rectangular Selection Tool: used to select a rectangular portion of an image.

Elliptical Selection Tool: used to select an oval or circular portion of an image.

Polygonal Selection Tool: used to select a multi-side section of the image.

Freehand Selection Tool: used to select an object or section of an image by drawing a freehand border around it.

Contiguous Selection Tool: used to detect the edges of the image automatically on the basis of the color codes and do the selection quickly using the round brush tip.

Similar Color Selection Tool: used to select the areas with similar colour in an image.

Crop Tool: used to remove unwanted portion from an image.

SVG Text Tool is used to type text on the image or the blank workspace.

Smart Patch Tool: used to remove dark spots, scratches and other unwanted parts from an image.

Clone Tool: used to duplicate a part of an image.

Further tell them the steps involved in saving an image after editing.

Ask the students to solve the exercise 'Double Tap' given on page 36.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the Image editng?
Q. What is Krita?
Q. What is the process to start Krita?
Q. Name any two components of Krita.
Q. What is Resolution?
Q. What is a Layer?
Q. Which option is used to open and existing image for editing?
Q. What do you mean by cropping?
Q. What do you understand by Freehand Brush?
Q. What do you mean by Clonning an image?
Q. Which tool is used to type text?
Q. Which tool is used to remove dark spots?
Q. Which key is used to select the Crop tool?
Q. Which option is used to save an image after making the desired changes?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 38 and 39 in the main course book. Tell the students to try sections such as "Scratch Your Brain' and 'Go Online' given on page 38 and 39 in the main course book.

Take the students to the computer lab and let them practice the activity given in the DIY In The Lab section on page 39 in the main course book. This will enhance the ability of the students and serve as a creativity and information literacy activity.

Ask the students to complete the elements like 'Experiential Learning' given on page 36 at home & show it to him/her the next day.

Suggested Activity

Ask the students to open an image in Krita and use various tools to manipulate, retouch, crop, resize and add colours to the image. Finally ask them to save the image as 'My first editing in Krita'.

3. Trending Technologies

Teaching Objectives

Students will learn about

- ☞ Artificial Intelligence
- ☞ Machine Learning
- ☞ Robotics
- ☞ Data Science

- ☞ Internet of Things (IoT)
- ☞ Augmented Reality and Virtual Reality
- ☞ Edge Computing
- ☞ 3D Printing

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 41 of the main course book.

Begin with introduction of trending technologies as newer technologies evolving every day across the globe.

Let them know about the artificial intelligence and explain to them that AI is a part of almost everything we use today such as smartphones, cars and banks.

Make the students aware of Robotics.

Make the students understand the robotic process automation.

Explain some robots to the students.

Let them know about machine learning.

Explain to the students that data science is a field of study that combines domain expertise, programming skills and knowledge of mathematics and statistics to extract meaningful insights from data.

Make the students aware of Internet of Things (IoT).

Let them know that Edge computing is a subsection of cloud computing.

Explain the terms Augmented Reality and Virtual Reality to the students.

Also make the students aware of the process of 3D Printing.

Ask the students to solve the exercise 'Double Tap' given on page 44.

Extension

Ask the students some oral questions based on this chapter.

Q. What is AI?

Q. Name some devices where AI is used.

Q. Define Robotics.

Q. What is Machine Learning?

Q. Define Data Science.

Q. Define Internet of Things (IoT).

Q. What is Edge computing?

Q. Differentiate between Augmented Reality and Virtual Reality.

Q. What is 3D printing?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 48 and 49 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' and 'Go Online' given on pages 49 and 50 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 50 in the main course book. This will enhance the ability of the students and serve as a flexibility and technology literacy activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 35 in the computer lab.

Suggested Activity

Ask the students to find some more popular robots and their details other than the ones in the book.

4. Images, Links and Frames in HTML5

Teaching Objectives

Students will learn about

- ☞ Inserting Images
- ☞ Adding Audio & Video
- ☞ 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 'Take Off' given on page 53 of the main course book.

While teaching this chapter, tell the students that HTML5 allows inserting images and frames on web pages as well as interlinking them.

Tell the students that HTML5 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, ALIGN, BORDER and ALT.

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

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 – LINK, ALINK and VLINK.

Let the students know that the HTML5 <audio> and <video> tags allow us to add media to a website.

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

Explain the use of <IFRAME> tag to create and define frames on a web page.

Tell the students that the <IFRAME> tag can take SRC, Height, Width and Name as attributes.

Demonstrate the use of <IFRAME> tags to create frames on a web page.

Ask the students to solve the exercise 'Double Tap' given on pages 54 and 64.

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 / ALIGN /ALT attribute of IMG tag.

Q. Which image formats are supported by HTML?

Q. HTML5 allows us to create two types of linking. Name them.

Q. Which tag is used to link web pages?

Q. What allows us to display links as buttons?

Q. Which tags in HTML5 allow us to add media to a website?

Q. Which file formats are currently supported to embed audio in HTML5?

Q. Which file formats are currently supported to embed video in HTML5?

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

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 68, 69 and 70 in the main course book. Tell the students to try sections such as "Scratch Your Brain' and 'Go Online' given on page 69 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 70 in the main course book. This will enhance the ability of the students and serve as an information and technology literacy activity.

Ask the students to complete the elements like 'Art Integration Learning' given on page 55 and 'Interdisciplinary Learning' given on page 66 in the computer lab.

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.

5. Forms in HTML5

Teaching Objectives

Students will learn about

- What Is a Form in HTML5?
- The <INPUT> Tag
- The <TEXTAREA> Tag
- The <FORM> Tag
- The <SELECT> Tag

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 72 of the main course book.

Begin with introduction of HTML5 form as an interface of a web page that enables the user to enter data that is to be sent to the server for further processing.

Let them know about the <FORM> tag and its attributes.

Make the students aware of the <INPUT> tag and its attributes.

Make the students understand that radio buttons are are used when the user has to make a selection among multiple choices or options.

Explain to the students how password field is added in the form under the <INPUT> tag.

Let them know about the <SELECT> tag, explaining that it is used to add a drop-down list in the form.

Explain to the students that the <TEXTAREA> tag is used to create a multi-line text box that can accept log text values.

Make the students aware of ROWS and COLS attributes of the<TEXTAREA> tag.

Ask the students to solve the exercise 'Double Tap' given on page 73.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a form in HTML5??

Q. What is the <FORM> tag used for?

Q. Name the attributes of the<FORM> tag.

Q. Define the <INPUT> tag.

Q. What is the use of the Radio attribute of the <INPUT> tag?

Q. What is the use of the <SELECT> tag?

Q. Define the <TEXTAREA> tag.

Q. Which attributes of the <TEXTAREA> can specify the number of rows and columns we want in text area?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 82 and 83 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' and 'Go Online' given on pages 83 and 84 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 84 in the main course book. This will enhance the ability of the students and serve as a critical thinking and technology literacy activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 78 and 'Experiential Learning' given on page 82 in the computer lab.

Suggested Activity

Ask the students to create a registration form for participation in Annual Sports Event of the school. Ask them to invent and add the necessary details at their own.

6. Algorithmic Intelligence

Teaching Objectives

- ☞ 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 'Take Off' given on page 89 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 students to solve the exercise 'Double Tap' given on page 90.

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 124 and 125 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' given on pages 125 and 126 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 126 in the main course book. This will enhance the ability of the students and serve as a creativity and critical thinking activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 122 and 'Experiential Learning' given on page on page 123 at home and show it to him/her the next day.

Suggested Activity

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

7. Loops in Python

Teaching Objectives

Students will learn about

- ☞ The FOR Statement
- ☞ Infinite Loop
- ☞ Some More Programs
- ☞ The WHILE Statements
- ☞ Jump Statements

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 97 of the main course book.

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

Begin with the introduction of the iterative or looping statements as the statements that are used to repeat a set of instructions.

Let the students know that Python provides two types of looping statements - for and while.

Explain to the students that the for statement executes a simple or compound state for a fixed number of times.

Make the students aware of the fact that the while statement executes a set of statements repeatedly until the logical expression evaluates to true.

Let the students know that an infinite loop is one in which if the condition given in a loop never becomes false, then the loop will never terminate and run indefinitely.

Explain to the students that jumping statements in Python are used in a situation when the control of the program needs to be transferred out of the looping body, even if all the values of the iterations of the loop have not been completed.

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

a. FOR statement
   - using the range() statement

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

c. JUMP statement
   - break statement
   - continue statement

Ask the students to solve the exercise 'Double Tap' given on page number 101 and 103.

Extension

Ask the students some oral questions based on this chapter.

Q. What are looping statement?

Q. How many types of looping statements does Python provide? Name them.

Q. What is the function of FOR statement?

Q. What is range() function?

Q. What is the function of WHILE statement?

Q. What is an infinite loop?

Q. What is the function of JUMP statement?

Q. What is a break statement in Python?

Q. What is the continue statement in Python?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 105, 106 and 107 in the main course book. Tell the students to try sections under Fun Zone– Let's Solve and Let's Explore given on pages 107 and 108 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 108 in the main course book. This will enhance the ability of the students and serve as a critical thinking and technology literacy activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 102 in the computer lab.

Suggested Activity

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

8. Functions and String in Python

Teaching Objectives

Students will learn about

- ☞ Functions
- ☞ Some More Programs
- ☞ String

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 110 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, explain to the students about how to call a function.

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

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

Ask the students to solve the exercise 'Double Tap' given on pages 113 and 117.

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. Multi-line strings

b. Traversing a string

Q. Name the string built-in functions included in Python.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 119 and 120 in the main course book. Tell the students to try sections such as "Scratch Your Brain' and 'Go Online' given on pages 120 and 121 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 121 in the main course book. This will enhance the ability of the students and serve as a technology literacy activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 113 and 117 in the computer lab.

Suggested Activity

Ask the students to create a program in Python using functions.

9. List in Python

Teaching Objectives

Students will learn about

- Creating a List
- Traversing a List
- List Methods
- Python Functions
- Changing the List Element
- Slicing the List
- Adding an Element to the List
- Operations on a List

Number of Periods	
Theory	Practical
1	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 124 of the main course book.

Begin with introduction of list as a sequence of multiple values.

Let them know about how to create a list in Python.

Make the students aware of a nested list.

Make the students understand how to change the list elements.

Explain to the students that traversing means accessing or visiting the elements of a list.

Let them know about slicing the list.

Explain to the students that Python provides various built-in list methods.

Make the students aware of adding an an element to a list.

Let them know that Python also provides various built-in list functions.

Explain to the students various list operations like joining lists, repeating lists, slicing lists and comparing list.

Ask the students to solve the exercise 'Double Tap' given on page 125 and 130.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a list in Python?
Q. For what does Python use lists?
Q. What is a nested list?
Q. How are lists mutable?
Q. What do you mean by traversing a list?
Q. What is indexing?
Q. What does list slicing refer to?
Q. Name some built-in list methods provided by Python.
Q. Name some built-in list Python list functions.
Q. Name various list operations provided by Python.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 132, 133 and 134 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' and 'Go Online' given on pages 134 and 135 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 135 in the main course book. This will enhance the ability of the students and serve as a technology literacy activity.

Ask the students to complete the elements like 'Interdisciplinary Learning' given on page 128 at home and show it to him/her the next day.

Suggested Activity

Ask the students to create a list of synonyms and antonyms in Python.

10. Domains of AI

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 142 of the main course book.

Begin with introduction of AI as the part of computer science concerned with designing intelligent computer systems, i.e. systems that exhibit characteristics we associate with intelligence in human behaviour.

Let them know that there are different approaches or domains to achieve artificial intelligence.

Explain the following to the students along with proper examples:

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

Make the students aware of applications of Natural Language Processing.

Make the students aware of the usage of big data in AI.

Let the students know about the applications of computer vision.

Ask the students to solve the exercise 'Double Tap' given on page number 144.

Extension

Ask the students some oral questions based on this chapter.

Q. Define AI.

Q. Name the different approaches or domains to achieve artificial intelligence.

Q. What is NLP?

Q. Name any one application of Natural Language Processing.

Q. What is Big Data?

Q. Name the biggest data provider of consumer habits, likes and dislikes, activities and personal preferences which were otherwise not possible.

Q. Explain Computer Vision.

Q. Name any one application of computer vision.

Q. Why is computer vision used in drones?

Q. What is the use of computer vision in healthcare industry?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 145 and 146 in the main course book. Tell the students to try sections such as "Scratch Your Brain', 'Go Online' and 'A Better Me' given on pages 146 and 147 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 147 in the main course book. This will enhance the ability of the students and serve as a critical thinking and technology literacy activity.

Ask the students to complete the elements like 'Experiential Learning' given on page 143 at home and share the experience with him/her the next day.

11. Future of AI

Teaching Objectives

- Automated Transportation
- Traffic Management
- Smart Highway
- AI in Education
- AI in Military and Cybersecurity
- Safety and Security
- Smart Homes and Cities
- Healthcare Industries
- AI in Finance

Number of Periods	
Theory	Practical
1	1

Teaching Plan

Before starting the chapter, ask the students to solve the question in 'Take Off' given on page 149 of the main course book.

Begin with introduction of the influence of AI while evolving from machine intelligence to artificial general intelligence in three stages.

Let them know about automated transportation.

Make the students aware of safety and security under AI.

Make the students understand how AI can revolutionise the way traffic can be controlled and managed in cities.

Explain to the students that AI enabled homes will let us turn on our lights, play favourite music or change our room temperature at the tap of our smartphones.

Let them know how smart highways are used for monitoring the condition of the road, traffic levels and the speed of the vehicles.

Make the students aware of Google's DeepMind which has already beaten doctors in detecting fatal diseases like breast cancer in its early detection.

Let them know that AI has a great role to play in modern education system.

Explain to the students that AI has great potential to boost an individual's economic status.

Also make them understand that AI is also playing an important role in military and cybersecurity.

Ask the students to solve the exercise 'Double Tap' given on page 150 and 152.

Extension

Ask the students some oral questions based on this chapter.

Q. When was testing for a self-driving car begun by Google?

Q. How can CCTV based monitoring using AI help in building surveillance systems?

Q. How can congestion on the road be reduced using AI?

Q. What is the concept of smart cities?

Q. What do you mean by a smart highway?

Q. What is the function of Google's DeepMind?

Q What is the use of AI algorithms in finance?

Q. How is AI enhancing the security of a nation?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 154 and 155 in the main course book. Tell the students to try sections such as 'Scratch Your Brain' and 'Go Online' given on pages 155 and 156 in the main course book.

Take the students to the computer lab and let them practise the activity given in the DIY In The Lab section on page 156 in the main course book. This will enhance the ability of the students and serve as a flexibility and critical thinking activity.

Ask the students to complete the elements like 'Experiential Learning' given on page 154 at home and show it to him/her the next day.

Suggested Activity

Ask the students to explore more prospects of AI in future. Ask them to find how AI can help in sports.