8

TOUCHPAD®

PLUS Ver. 3.1

Teacher's Manual

Extended Support for Teachers

ORANGE™
www.orangeeducation.in
www.thetouchpad.com

Teacher's Time Table

Periods / Days	0	I	II	III	IV		V	VI	VII	VIII
Monday						B				
Tuesday						R				
Wednesday						E				
Thursday						A				
Friday						K				
Saturday										

Development Milestones in a Child

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

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

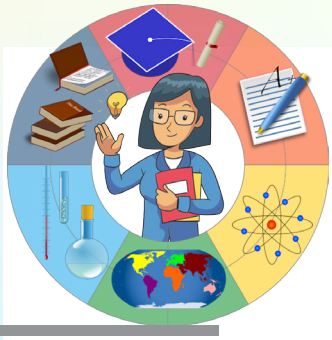
"If you cannot do great things, do small things in a great way."

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

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

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

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



Teaching Pedagogies

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

Lesson Plans

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

A lesson plan addresses and integrates three key components:

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

A lesson plan provides an outline of the teaching goals:

Before the class:

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

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During the class:

Present the lesson plan.

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After the class:

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

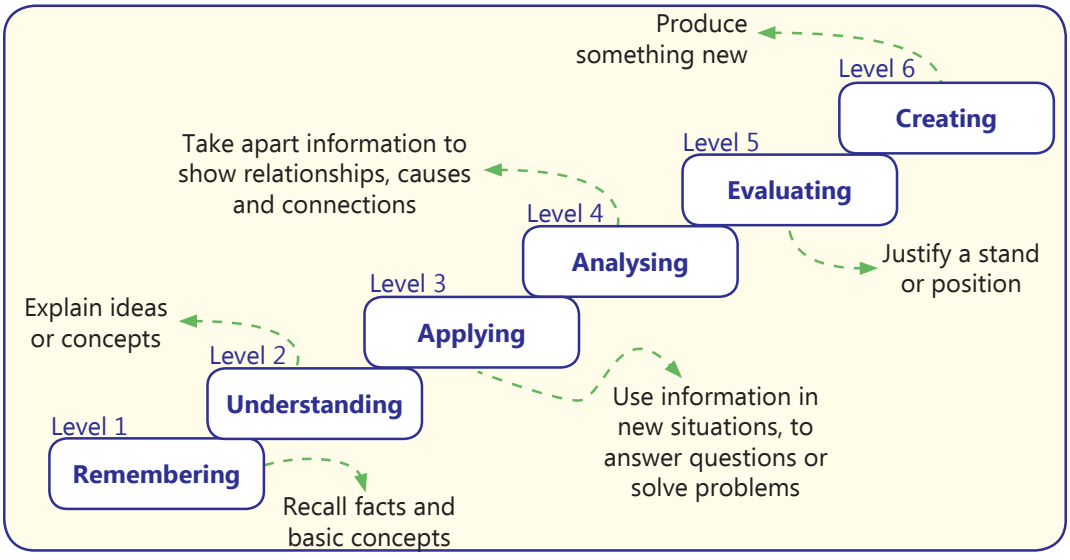
"Knowing yourself is the beginning of all wisdom."

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

Touchpad Ver 3.1

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 a Network
- Devices Required for a Network
- Topology
- Wireless Networking Technology

Number of Periods	
Theory	Practical
3	1

Teaching Plan

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.

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 17, 18 and 19 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 19 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 19 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

2. Introduction to LibreOffice Base

Teaching Objectives

Students will learn about

- Concept of a Database
- Advantages of a Database System
- LibreOffice Base
- Types of Views in LibreOffice Base
- Rules for Writing a Field Name in LibreOffice Base
- Creating a Table
- Exiting LibreOffice Base
- Types of Databases
- Terms Related to a Database
- Data Types in LibreOffice Base

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that the computerized database system was introduced in 1960s.

Introduce:

- Database as organizing data in a manner which helps to store and retrieve a large amount of data efficiently.
- Database Management System as a collection of programs required to store and retrieve data from a database.

Explain to the students the meaning of the two types of databases – Flat File Database and Relational Database.

Share with the students the advantages of a database system.

Draw on board and explain the structure of a database to the students explaining about table, fields, records, primary key, query, report and form.

Introduce LibreOffice Base as a powerful and easy to use Relational Database Management System and is a part of LibreOffice.

Demonstrate the steps to start LibreOffice Base.

Familiarize the students with the various components of MS Access 2010 window covering Title Bar, Menu Bar, Toolbar, Database Pane, Tasks Pane, Description Pane, Objects List and Preview Pane.

Explain different data types used in LibreOffice Base covering Text, Number, Integer, Decimal, Images, Yes/No, Date, Time and Others.

Demonstrate to the students the two ways of creating a database as:

- Creating a blank database

- Creating a database using Templates

Discuss with the students the use of the different types of views in LibreOffice Base as Datasheet view and Design view.

Share with the students the rules for defining field names in LibreOffice Base.

Tell the students that Tables can be created in three ways.

Demonstrate to the students the steps to create a Table:

- In Design view
- In Datasheet view
- By using Templates

Show to the students the method to exit LibreOffice Base.

Extension

Ask the students some oral questions based on this chapter.

Q. Define database.

Q. What is Database Management System?

Q. Expand DBMS.

Q. Name the different types of databases.

Q. What type of database is LibreOffice Base?

Q. Give any two advantages of Database System.

Q. Define Table / Query / Report / Form.

Q. Name any three data types used in LibreOffice Base.

Q. What are the rules for writing field names?

Q. What is the use of Field Name / Description in the Table design window?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 30 and 31 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 31 and 32 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 32 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a table storing information about details of their ten friends and sort the records in the table in alphabetical order.

3. More on LibreOffice Base

Teaching Objectives

Students will learn about

- ☞ Forms in LibreOffice Base
- ☞ Queries in LibreOffice Base
- ☞ Reports in LibreOffice Base

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that Base is used to create tables and maintain records in a database along with preparing Forms, Queries and Reports.

Introduce Forms as objects used to add, edit and display data from tables in a user friendly manner.

Share with the students that a Form can be displayed in three views – Form View, Design View and Layout View.

Demonstrate to the students the steps to create a Form.

Explain different types of Forms covering Multiple Items, Datasheet, Split Form and Modal Dialog.

Familiarize the students with the Navigation Bar of the Form window to view and navigate between records in a Table.

Tell the students that the appearance of the Form can be formatted using Design and Format tabs.

Introduce Query as the object that can give information which the user might not be able to find by looking at the Table directly.

Explain the different types of Queries as: Select Query, Parameter Query, Action Query and Crosstab Query.

Tell the students about the relationship between the Primary Key and the Foreign Key.

Show to the students the steps to define relationships between tables.

Demonstrate the steps to create a query.

Introduce Report as an object used to organize and present data in a user friendly format for printing purpose.

Demonstrate the steps to:

- Create a Report
- Print a Report

Extension

Ask the students some oral questions based on this chapter.

Q. Define Form / Query / Report.

Q. Name the different views in which a Form can be displayed.

Q. Name the different types of Forms in Base.

Q. Where is Navigation Bar located?

Q. Name the different types of Queries.

Q. Define Primary Key / Foreign key.

Q. Name any four parameters of Query window.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 40, 41 and 42 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 42 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 43 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Using the Table created in the previous chapter create a query to display names of friends whose name starts with A or D.

4. More on GIMP

Teaching Objectives

Students will learn about

- ☞ Components of GIMP Window
- ☞ Retouching Tools
- ☞ Correction Tools

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is used for creating and editing images in order to make them look attractive.

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

Introduce retouching tools as the tools used to add or remove features to an image.

Demonstrate the use of Retouching Tools like:

- Spot Healing Brush Tool (used to repair dark spots, scratches, etc.)
- Clone Stamp Tool (used to duplicate parts of an image)
- Pattern Stamp Tool (used to give attractive textures and backgrounds to an image)

Demonstrate the use of Correction Tools like:

- Blur Tool (used to blur parts of an image)
- Smudge Tool (used to show image as wet paint on the image has been spread by finger)
- Dodge Tool (used to improve quality of an image)

Extension

Ask the students some oral questions based on this chapter.

Q. What is GIMP used for?

Q. What are Retouching Tools?

Q. Name some important retouching tools in GIMP.

Q. What is the use of Correction tools in GIMP?

Q. Name the important correction tools of GIMP.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 50 and 51 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler and Hands-On given on Pages 51 and 52 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 52 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to arrange a scanned copy of their passport size photo and apply retouching and correction tools to beautify the image.

5. Layers and Filters in GIMP

Teaching Objectives

Students will learn about

- ☞ Working with Layers
- ☞ Merging Two Images

- ☞ Filters
- ☞ Changing the On-Screen Size of Image
- ☞ Changing the Print Size of Image

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is used for editing images for making them look interesting.

Introduce Layers as transparent sheets containing objects which are stacked on top of each other so that individual properties of an object can be edited without affecting other objects.

Explain how to create a new layer and delete an existing layer from an image.

Demonstrate how to merge two images to the students.

Introduce Filters as tools which are used to modify an image in a variety of ways. Also, show them how to apply filters to images.

Show the steps involved in:

- Changing the on-screen size of image
- Changing the print size of image

Extension

Ask the students some oral questions based on this chapter.

Q. What are layers?

Q. What is the use of Layers in GIMP?

Q. What are filters?

Q. What is the use of filters in GIMP?

Q. How can you change the on-screen size of image?

Q. How can you change the print of image in GIMP?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 60 and 61 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 62 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 62 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

6. Internet Services and Cyber Crime

Teaching Objectives

Students will learn about

- ☞ Internet Services
- ☞ Cyber Threats
- ☞ Netiquettes
- ☞ Cyber Security

Number of Periods	
Theory	Practical
2	1

Teaching Plan

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

Tell the students that internet services allow us 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
- Blogging

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 unauthorized access, damage or attack.

Share with the students the reasons for increase in 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 and carding.

Make the students understand the difference between hacking (practice of modifying computer hardware and software for legal purposes) and cracking (practice of modifying computer hardware and software for illegal purposes).

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 exercises given on Pages 74 and 75 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 75 and 76 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 76 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

7. More on HTML

Teaching Objectives

Students will learn about

- ☞ Inserting Images
- ☞ Linking Web Pages
- ☞ Creating Marquee
- ☞ Frames

Number of Periods	
Theory	Practical
2	3

Teaching Plan

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, ALIGN, BORDER and ALT.

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

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

Explain the use of <MARQUEE> tag and its attributes as BEHAVIOUR, DIRECTION and SCROLLAMOUNT.

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.

Demonstrate the use of <A> tag and its attributes to hyperlink web pages (See Suggested Activity also).

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

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

Tell the students that the <FRAME> tag can take FRAMEBORDER, NORESIZE and SRC as attributes.

Demonstrate the use of <FRAMESET> and <FRAME> tags to create frames on a web page.

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. What is the use of MARQUEE tag?

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 89 and 90 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 91 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Pages 91 and 92 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

8. Google Apps

Teaching Objectives

Students will learn about

- ☞ Google
- ☞ Apps of Google

Number of Periods	
Theory	Practical
4	3

Teaching Plan

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?
- How does it work?
- 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 and Protecting Data in Google Sheets
- 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
- How to Create YouTube Account
- Uploading a Video on YouTube

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 108 and 109 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 109 and 110 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 110 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

9. 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	3

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.

- Machine learning

Explain to the students the philosophers' views on artificial intelligence laying significance on:

- Weak AI Hypothesis
- Strong AI Hypothesis

Tell the students that computers have made technological advancements into robotics industry.

Introduce the terms robots and robotics to the students.

Share with the students the various uses to which robotics can be put to.

Explain the different types of robots as industrial robots and service robots.

Tell the students about androids as robot designed to execute highly sophisticated instructions.

Introduce mechatronics as a new fields arising out of combination of mechanics and electronics.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App?

Q. Define the following:

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

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 123 and 124 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on pages 124 and 125 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 125 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

10. Conditional and Looping Statements in Python

Teaching Objectives

Students will learn about

- ☞ Conditional Statements
- ☞ The While Statement
- ☞ Functions
- ☞ The For Statement
- ☞ Jump Statements

Number of Periods	
Theory	Practical
3	3

Teaching Plan

While teaching this chapter, tell the students that Python is an object-oriented programming language.

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

Explain that Python offers three decision making statements:

- if statement
- if...else statement
- Nested if statement
- if...elif...else statement

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

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

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

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

Share with the students that the jump statements offered by Python are:

- The break statement (used to terminate the loop).
- The continue statement (used to force the next iteration of the loop and skip the current iteration).

Demonstrate the use of the jump statements in Python.

Explain the functions in Python and their purpose.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Python?

Q. What is the use of conditional statements?

Q. Name the conditional statements used in Python.

Q. What are looping statements used for?

Q. What is the use of Jump statements in Python?

Q. Name the jump statements used in Python.

Q. What are functions?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 141, 142 and 143 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Pages 143 and 144 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 144 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Write a program in Python to:

- Input 10 numbers and check which of these numbers are even or odd.
- Input age of a person and check whether he or she is a minor or not.

11. AI and Robotics

Teaching Objectives

Students will learn about

- ☞ What is Artificial Intelligence?
- ☞ What can Artificial Intelligence do Today?
- ☞ Implementing Artificial Intelligence

- ☞ Philosophers Views on Artificial Intelligence
- ☞ Robots and Robotics
- ☞ Some Popular Robots Around the World
- ☞ Mechatronics
- ☞ Uses of Robotics
- ☞ Androids

Number of Periods	
Theory	Practical
3	1

Teaching Plan

While teaching this chapter, tell the students that human brain has the ability for reasoning, problem solving and learning.

Explain the students in detail about the concept of artificial intelligence.

Share with the students the various fields in which artificial intelligence is being successfully implemented covering:

- Robotics vehicles
- Speech recognition
- Game playing
- Autonomous planning and scheduling
- Logistics planning
- Robotics
- Machine translation
- Machine vision
- Natural language processing
- Machine learning

Explain to the students the philosophers' views on artificial intelligence laying significance on:

- Weak AI Hypothesis
- Strong AI Hypothesis

Tell the students that computers have made technological advancements into robotics industry.

Introduce the terms robots and robotics to the students.

Share with the students the various uses to which robotics can be put to.

Explain the different types of robots as industrial robots and service robots.

Tell the students about androids as robot designed to execute highly sophisticated instructions.

Introduce mechatronics as a new fields arising out of combination of mechanics and electronics.

Extension

Ask the students some oral questions based on this chapter.

Q. What is AI?

Q. Who is the father of AI?

Q. Name some fields where AI is being implemented.

Q. What is Weak AI Hypothesis?

Q. What is Strong AI Hypothesis?

Q. What is a robot?

Q. What is robotics?

Q. State two uses of robotics.

Q. Define android.

Q. What is mechatronics?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 152, 153 and 154 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler and Hands-On given on Pages 154 and 155 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Lab Session section on Page 155 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.