8

TOUCHPAD®

MODULAR Ver 1.1

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 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.

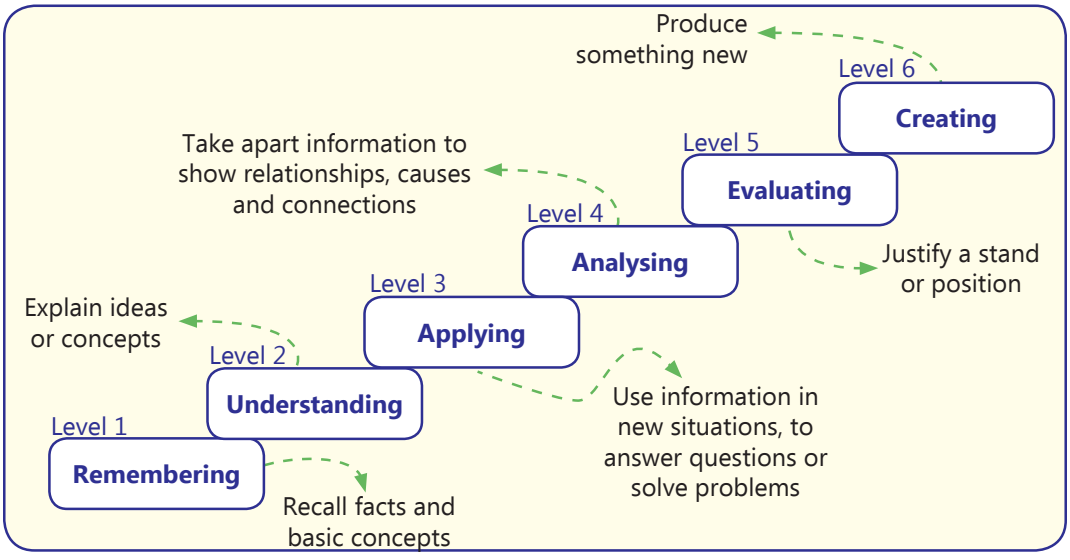
"Knowing yourself is the beginning of all wisdom."

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."

LESSON PLAN

Touchpad MODULAR Ver 1.1
Class-8

1. Computer Networking

Teaching Objectives

Students will learn about

- ☞ Computer Network
- ☞ Advantages of Computer Network
- ☞ Components Required for a Network
- ☞ Topology
- ☞ Wireless Networking Technology
- ☞ Need for Computer Network
- ☞ Network Terminology
- ☞ Types of Network
- ☞ Network Architecture
- ☞ Protocol

Teaching Plan

Number of periods: 4

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 (Refer Suggested Activity also).

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.

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

Extension

Ask the students some oral questions based on this chapter.

Q. 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 course book exercises given on Pages 13 and 14 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 14 of the main course book 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. Database Management System

Teaching Objectives

Students will learn about

- ☞ Concept of a Database
- ☞ Types of Databases
- ☞ Advantages of a Database System
- ☞ Structure of a Database

Teaching Plan

Number of periods: 5

While teaching this chapter, tell the students that data is a collection of characters and symbols which has no meaning. It is also called raw data. This data can be converted into meaningful information after analyzing and processing.

Tell the students about the concepts of a Database in detail.

Share with the students the advantages of a database system.

Explain the different types of database:

- Flat File Database
- Relational Database

Tell the students about the structure of a database and also explain the use of following terms:

- Table
- Primary key
- Query
- Report
- Form

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define database.

Q. Name the different types of databases.

Q. What is the structure of database?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 17 and 18 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 18 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

3. Introduction to MS Access 2010

Teaching Objectives

Students will learn about

- MS Access 2010
- Components of MS Access 2010
- Types of Views in MS Access
- Data Types in MS Access 2010
- Setting a Primary Key
- Features of MS Access 2010
- Creating a Database
- Adding Fields to a Table
- Rules for Writing a Field Name in MS Access

Teaching Plan

Number of periods: 5

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 MS Access 2010 as a powerful and easy to use Relational Database Management System and is a part of MS Office Suite.

Demonstrate the steps to start MS Access 2010.

Familiarize the students with the various components of MS Access 2010 window covering Quick Access Toolbar, Title Bar, Ribbon, Navigation Pane, Navigation Buttons, Work Area and Objects Tabs.

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

- Creating a blank database
- Creating a database using Templates

Show the students the method to open an existing database and close a database.

Explain different data types used in MS Access 2010 covering Text, Memo, Number, Auto Number, Date/Time, Yes/No, OLE, Hyperlink and Lookup Wizard.

Discuss with the students the use of the different types of views in MS Access 2010 as Datasheet view and Design view.

Share with the students the rules for defining field names in MS Access 2010.

Show to the students the method to exit MS Access 2010.

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define database.
Q. What is Database Management System?
Q. Expand DBMS.
Q. Name the different types of databases.
Q. What type of database is MS Access 2010?
Q. Give any two advantages of Database System.
Q. Define Table / Query / Report / Form.
Q. Name any three data types used in MS Access 2010.
Q. What does OLE stands for?
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 course book exercises given on Pages 26 and 27 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 27 of the main course book 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.

4. Working with Tables in MS Access

Teaching Objectives

Students will learn about

- ☞ Creating a New Table
- ☞ Handling Records in a Table
- ☞ Handling Columns in a Table

Teaching Plan

Number of periods: 3

While teaching this chapter, tell the students that MS Access 2010 allows us to add maximum of 256 columns and unlimited rows in a table.

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 all the steps involved in creating the table in Access to the students.

Explain how to handle columns in a table by sharing the steps involved in:

- Adding a new column
- Deleting a column
- Hiding/Unhiding a column
- Moving a column
- Freezing/Unfreezing a column
- Renaming a column
- Setting column properties

Tell the students how to handle records in a table by sharing the steps involved in:

- Adding a record
- Editing a record
- Deleting a record

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define a table.

Q. Write the different types of ways for creating a table.

Q. What is a column?

Q. What is a record?

Q. what actions can be performed on a column?

Q. What functions can be performed on a record?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 34 and 35 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 35 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a table for the data regarding all the classmates. Add height, weight and age of every student.

5. Advanced Features of MS Access

Teaching Objectives

Students will learn about

- ☞ Performing Calculation
- ☞ Sorting Records
- ☞ Importing Data from Other Applications
- ☞ Searching Records
- ☞ Applying Filters in a Table
- ☞ Exporting Data from MS Access

Teaching Plan

Number of periods: 3

While teaching this chapter, tell the students that you can perform calculation in MS Access by using the Totals command.

Tell the students about performing calculations and the steps involved in doing so.

Show the students how to search records with the steps involved in doing so.

Explain the process of sorting of records and steps involved to students.

Tell the students how to apply filters in a table with complete steps in the following:

- Removing filter
- Using custom filter

Demonstrate to the students the steps to import data from other applications.

Show all the steps involved in exporting data from MS Access.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is the purpose of performing calculations?

Q. How to search records in Access?

Q. How to sort records in MS Access?

Q. How to apply filters in a table?

Q. Explain how to import data from other applications.

Q. Demonstrate how to export data from MS Access.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 42 and 43 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 43 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to import data from word document to MS Access.

6. Queries in MS Access

Teaching Objectives

Students will learn about

- ☞ What is a Query?
- ☞ Setting up Relationship
- ☞ Types of Queries
- ☞ Creating a Query

Teaching Plan

Number of periods: 3

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

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, Crosstab Query and SQL.

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.

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

Extension

Ask the students some oral questions based on this chapter.

Q. Define Query.

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

Q. Name the different types of Forms in MS Access.

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 course book exercises given on Pages 50 and 51 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 51 of the main course book 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.

7. Forms in MS Access

Teaching Objectives

Students will learn about

- ☞ Forms
- ☞ Creating a Form Using Design
- ☞ Viewing the Records
- ☞ Creating a Form using Wizard
- ☞ Types of Forms
- ☞ Formatting a Form

Teaching Plan

Number of periods: 2

While teaching this chapter, tell the students that MS Access 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.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is a form in MS Access?Q. How to create a form using wizard?

Q. How to create a form using design?

Q. Write the types of forms.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 57 and 58 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 58 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a form where the students can fill their basic details.

8. Reports in MS Access

Teaching Objectives

Students will learn about

- ☞ Understanding the Structure of the Report
- ☞ Creating a Report
- ☞ Formatting a Report

Teaching Plan

Number of periods: 3

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

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
- Formatting a Report

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is a report in MS Access?

Q. How to create a report?

Q. How to format a report?

Q. Write the structure of a report.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 64 and 65 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 65 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a report of all the students performance in previous year.

9. Introduction to Python

Teaching Objectives

Students will learn about

- Features of Python
- Variables in Python
- Keywords
- Operators
- The Input( ) Statement
- Creating Simple Python Programs
- How to use Python IDLE
- Character Set
- Data Types
- Comments in Python
- The Print( ) Statement

Teaching Plan

Number of periods: 4

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

Share with the students the important features of Python.

Demonstrate the steps to start Python IDLE.

Familiarize the students with the interface of Python IDLE.

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

Introduce variables as memory location used to store data.

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

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

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

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

Explain the use and importance of comments in Python.

Tell the students the purpose and syntax of:

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

Encourage the students to write simple programs in Python.

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

Ask the students some oral questions based on this chapter.

Q. What is Python?

Q. Expand IDLE.

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

Q. Define keywords / variables / data types.

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

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 75 and 76 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 76 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to develop programs in Python to calculate:

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

10. Artificial Intelligence and Robotics

Teaching Objectives

Students will learn about

- ☞ What is Artificial Intelligence?
- ☞ Implementing Artificial Intelligence
- ☞ Robots and Robotics
- ☞ Some Popular Robots Around the World
- ☞ Mechatronics
- ☞ What can Artificial Intelligence do Today?
- ☞ Philosophers Views on Artificial Intelligence
- ☞ Uses of Robotics
- ☞ Androids

Teaching Plan

Number of periods: 2

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

Make the students aware about the birth of the concept of artificial intelligence.

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

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

- Weak AI Hypothesis
- Strong AI Hypothesis

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is 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?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 84 and 85 of the main course book as Exercise.

In Creative Assignment, activity like In The Lab given on Page 85 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.