7

TOUCHPAD®

MODULAR Ver 1.0

Teacher's Manual

Extended Support for Teachers

ORANGE™
www.orangeeducation.in
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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.

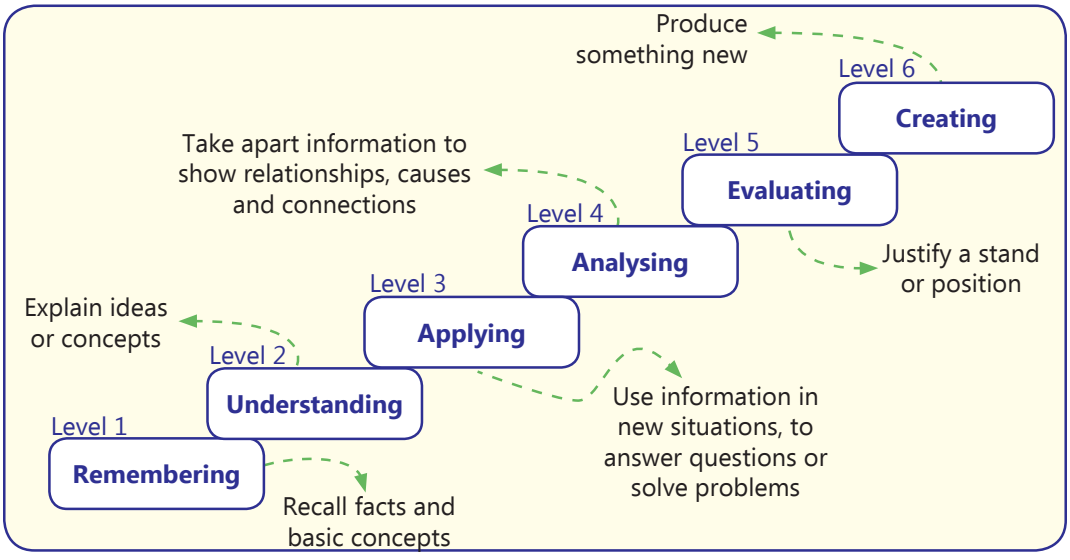
"Knowing yourself is the beginning of all wisdom."

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."

LESSON PLAN

Touchpad MODULAR Ver 1.0

Class-7

1. Types of Software

Teaching Objectives

Students will learn about

- ☞ Software
- ☞ Application Software
- ☞ System Software

Teaching Plan

Number of periods: 3

While teaching this chapter, tell the students that a computer is an electronic device that performs diverse operations with the help of instructions to process the data in order to achieve desired results.

Tell the students that a computer system is made up of hardware (physical components) and software (set of instructions that make the computer perform tasks).

Make them understand the different types of software as System Software (comprising of Operating System, Programming Software and Utility Software) and Application Software (comprising of General Purpose Software and Customised Software).

Tell the students about different types of General Purpose Software like word processors, spreadsheets, presentation software, DBMS, DTP software, image processing software and multimedia processors (refer Suggested Activity also).

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 computer?

Q. What is software?

Q. What are the different types of software?

Q. How is system software different from application software?

Q. What is the benefit of using customized software?

Q. Give examples each of:

- Utility software
- Word processor
- Operating system
- Spreadsheets

- Presentation software
- DBMS, etc.
- DTP software

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 12 and 13 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 13 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 collect pictures of interfaces of various types of application software and paste them on a chart paper in a hierarchical chart as shown on Page 9 of the course book.

2. Advanced Features of Windows 7

Teaching Objectives

Students will learn about

- ☞ Understanding Windows Explorer
- ☞ Searching of Files or Folders
- ☞ Different Views of Files and Folders
- ☞ Control Panel

Teaching Plan

Number of periods: 4

While teaching this chapter, tell the students that all the data saved on a hard disk consists of files and folders.

Introduce file as an item that contains a collection of related information, a folder as a collection of files and a sub folder as a folder within a folder.

Introduce to the students the Windows Explorer as a file manager that manages files and folders.

Demonstrate to the students the steps to open Windows Explorer.

Familiarize the students with the various components of Windows Explorer covering Toolbar, Navigation pane, File List pane, Status bar, Address bar, Search, Back and Forward.

Tell the students that Windows 7 has some default folders to organize similar files.

Demonstrate to the students the steps to:

- Open a file and a folder
- Select a file and a folder (including selecting a single file, selecting multiple files, selecting all files and deselecting a file)
- Copying a file and a folder (using Copy-Paste features)
- Moving a file and a folder (using Cut-Paste features)
- Creating a new file and a folder
- Renaming a file and a folder

- Deleting a file and a folder
- Restoring a file and a folder

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 file / folder / subfolder?
Q. Define a computer icon.
Q. What is Windows Explorer?
Q. Name the default folders of Windows 7 for organizing data.
Q. Which key is used to select multiple files?
Q. Which key is pressed to invert the selection?
Q. What is the difference between copying a file and moving a file?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 20 and 21 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 21 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 collect information about some more features of Windows 7 other than those discussed in the chapter.

3. Introduction to MS Excel 2010

Teaching Objectives

Students will learn about

- ☞ Starting MS Excel 2010
- ☞ Creating a New Workbook
- ☞ Saving a Workbook Data
- ☞ Components of MS Excel 2010
- ☞ Entering Data in a Worksheet
- ☞ Types in MS Excel

Teaching Plan

Number of periods: 5

While teaching this chapter, tell the students that MS Excel is an application software that is used to store and analyse data.

Explain to the students the features of MS Excel 2010 in detail. Demonstrate to the students the steps to start MS Excel 2010.

Familiarize the students with the various components of MS Excel 2010 window covering Title Bar, File Tab, Quick Access Toolbar, Ribbon, Formula Bar, Name Box, Worksheet Window, Worksheet

Tab, Worksheet Tab Scrolling Buttons, Status Bar, Row, Column, Row and Column Heading Buttons, Cell, Active Cell, Mouse Pointer, Workbook and Cell Range.

Tell the students that MS Excel 2010 offers various data types to be entered in a cell covering Numbers, Text, Date and Time.

Demonstrate to the students the steps to:

- Create a new workbook
- Enter data in a worksheet
- Save a workbook

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 MS Excel 2010?

Q. What are the features of MS Excel 2010?

Q. Name any five components of MS Excel 2010.

Q. Define Formula Bar / Name Box / Row / Column / Cell / Active Cell / Cell Range.

Q. State the situation when Number / Text / Date and Time data type used for.

Q. State the shortcut key to save an Excel worksheet.

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, activities 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 prepare a table in this format for their family members.

S.No.	Name	Relation with Me	Date of Birth	Age

4. Editing in MS Excel

Teaching Objectives

Students will learn about

- ☞ Selecting Cells in a Worksheet
- ☞ Using Undo and Redo Features
- ☞ Inserting Rows/Columns
- ☞ Autofil
- ☞ Copying/Moving Data
- ☞ Column Width and Row Height
- ☞ Merging Cells
- ☞ Customise Worksheet Tab

Teaching Plan

Number of periods: 4

While teaching this chapter, tell the students that MS Excel is an application software that helps us to store and analyse data.

Demonstrate the steps to start MS Excel 2010.

Show an active window of MS Excel 2010 and explain the meaning and use of the various components of MS Excel 2010 covering title bar, file tab, quick access toolbar, ribbon, formula bar, name box, worksheet window, status bar, row, column, cell, row and column headings, active cell, mouse pointer, worksheet tab and workbook.

Show to the students how to create a new workbook in Excel.

Tell the students that to enter data in a cell, simply click on the cell and enter data.

Tell the students the methods of modifying data by cut, copy and paste.

Explain to the students the steps involved in changing row height and column width – both manually and automatically.

Tell the students that Excel allows inserting blank rows and columns at the required place in the worksheet.

Demonstrate to the students how two or more cells can be merged into one and also how a cell can be split up into two or more cells (refer Suggested Activity also).

Explain some worksheet formatting features of Excel like

- Word wrap – displaying multiple lines of text in a cell
- Format numbers – applying various data types to the cells
- Cell borders – boundary around a cell or a series of cells
- Cell styles – Pre-defined cell border, colour and formatting
- Cell fills – adding colours or shades in the cells

Show to the students the steps involved in applying all of these formatting features on a worksheet.

Explain to the students that worksheet tab can be customized by changing its default name and colour.

Introduce to the students AutoFill feature of Excel as automatically filling a series of data in the worksheet and the steps involved in the same.

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 use of MS Excel software?

Q. Name any five components of an Excel window.

Q. What is the difference between Cut and Copy options?

Q. What does it mean when data in a cell is displayed as #####?

Q. Define merging of cells.

Q. Define splitting of cells.

Q. What is wrap text feature of Excel?

Q. Name any three number formats available in Excel.

Q. What is meant by border of a cell?

Q. What is the use of AutoFill feature?

Evaluation

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

In Creative Assignment, activities like In The Lab given on Page 34 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 design their class time-table in MS Excel 2010.

5. Formulas and Functions

Teaching Objectives

Students will learn about

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

Teaching Plan

Number of periods: 5

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

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

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

Tell them the order of operation followed in Excel.

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

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

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

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

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

Demonstrate the use of logical functions – MAX, MIN and AVERAGE.

Demonstrate the use of date functions – TODAY, MONTH, YEAR and DAY (Refer Suggested Activity 1 also).

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

Extension

Ask the students some oral questions based on this chapter.

Q. What are Functions in Excel?

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

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

Q. Define cell referencing.

Q. Name some important categories of Functions.

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

Q. What is the syntax of PRODUCT / INT / POWER / CONCATENATE / LEFT / UPPER / LOWER / MIN / AVERAGE function?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 45 and 46 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 46 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

6. Excel as Database

Teaching Objectives

Students will learn about

- ☞ Form in Excel
- ☞ Sorting Data
- ☞ Conditional Formatting
- ☞ Using Subtotal Command
- ☞ Using Form in Excel
- ☞ Filtering Data
- ☞ Using Data Validation
- ☞ Using Pivot Table

Teaching Plan

Number of periods: 4

While teaching this chapter, tell the students that MS Excel provides easy options for sorting data and highlighting the required information in a worksheet.

Introduce sorting as arranging the data in ascending or descending order.

Demonstrate to the students the various steps involved in sorting of data in an Excel worksheet.

Share with the concept and use of Custom Sort feature (Refer Suggested Activity 1 also).

Introduce filtering as hiding unwanted data from a set of data.

Show to the students the various steps involved in applying Filters in a worksheet.

Share with the students that Filters once applied can be easily removed and tell them the method of removing filters.

Introduce Conditional Formatting as highlighting the required information.

Tell the students about basic difference between Filtering (unwanted information gets hidden) and Conditional Formatting (required information gets highlighted).

Explain the various criteria detailed under Conditional Formatting.

Demonstrate the steps involved in applying conditional formatting on a worksheet (Refer Suggested Activity 2 also).

Make the students recall that a printout is a hard copy of the information we see on the monitor.

Show to the students the steps involved in the printing of a worksheet.

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 sorting.

Q. What is the difference between sort and custom sort features?

Q. What are filters?

Q. How can filters be removed in a worksheet?

Q. What do you understand by conditional formatting feature?

Q. How is conditional formatting different from filtering data?

Q. When is the conditional formatting criteria Highlight Cell Rules / Data Bars / Icon Sets used?

Q. What is a printout?

Q. What are the steps to print a worksheet?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 58 and 59 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 59 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

1. Ask the students to enter their height and weight along with similar information for their nine friends. Sort the data with primary criteria as heights in ascending order and secondary criteria as weights in descending order.
2. Highlight the cells where the heights are less than the height of the student or weight is more than the weight of the student preparing the worksheet.

7. Charts in Excel

Teaching Objectives

Students will learn about

- ☞ Components of a Chart
- ☞ Creating a Chart
- ☞ Types of Charts in MS Excel
- ☞ Formatting a Chart

Teaching Plan

Number of periods: ?

Before starting the chapter, ask the students to solve the question in Let's Plug-In given on Page 17 of the main course book.

While teaching this chapter, tell the students that Excel 2016 has chart is an effective way to display data in pictorial form.

Show the different components of an Excel chart.

Familiarize the students with the different types of chart options available.

Explain each chart type to the students with examples:

- Line chart
- Pie chart
- Bar chart
- Area chart
- Scatter chart

Demonstrate the steps of:

- Creating a chart.
- Modifying a chart by changing its type, layout and design.

Ask the student to solve the exercise Let's Catch Up given on page number 19.

Extension

Ask the students some oral questions based on this chapter.

Q. Define charts in Excel.

Q. What is a legend?

Q. What are gridlines in a chart?

Q. When is a Line / Column / Pie / Bar / Area chart used?

Q. In Excel, can we change the type of an existing chart?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 65 and 66 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 66 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

From the previous mark sheets of Grade 1 to 6, collect data about your attendance in various Grades. Plot a Line Chart in Excel from the data.

8. Conditional and Looping Statements in Basic-256

Teaching Objectives

Students will learn about

- ☞ Components of a Chart
- ☞ Creating a Chart
- ☞ Types of Charts in MS Excel
- ☞ Formatting a Chart

Teaching Plan

Number of periods: ?

While teaching this chapter, tell the students that Basic-256 as a software used to develop applications and software.

Demonstrate to the students the use of these functions.

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

Explain that Python offers two decision making statements:

= IF-THEN statement

= IF-THEN-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-next' 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.

Demonstrate the use of the While-End statement.

Extension

Ask the students some oral questions based on this chapter.

Q. What is BASIC-256?

Q. What is the use of conditional statements?

Q. Name the conditional statements used in BASIC-256.

Q. What are looping statements used for?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 73, 74 and 75 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 75 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Write a program in BASIC-256 to:

= Input 5 numbers and check which of these numbers are prime or composite.

= Input age of a person and check whether he or she is a senior citizen or not.

= Calculate the average marks of three students in four subjects each and arrange the averages in ascending order.

9. Services on Internet

Teaching Objectives

Students will learn about

- ☞ Internet Services
- ☞ Cyber Crime
- ☞ Cyber Security
- ☞ Hacking and Cracking

Teaching Plan

Number of periods: 3

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).

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

Extension

Ask the students some oral questions based on this chapter.

Q. Name some internet services.

Q. Define Video Conferencing / VoIP.
Q. What are the advantages and disadvantages of VoIP?
Q. Define chatting / social networking / blogging.
Q. What is meant by cloud storage?
Q. Name some cloud storage services.
Q. Define Cyber Security / Cyber Crime.
Q. What are the different types of cyber-crimes?
Q. Differentiate between hackers and crackers.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 83 and 84 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 84 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 collect information about different types of major cyber-crimes committed in last one year.