TOUCHPAD

Ver. 4.0

7

Teacher's Manual

Extended Support for Teachers

ORANGE
www.orangeeducation.in

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 identify and understand how children differ in different age groups.

Age
5 - 8 Years

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

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

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

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

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

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

Teaching Pedagogies

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

Lesson Plans

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

A lesson plan addresses and integrates three key components:

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

A lesson plan provides an outline of the teaching goals:

Before the class

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

During the class

Present the lesson plan.

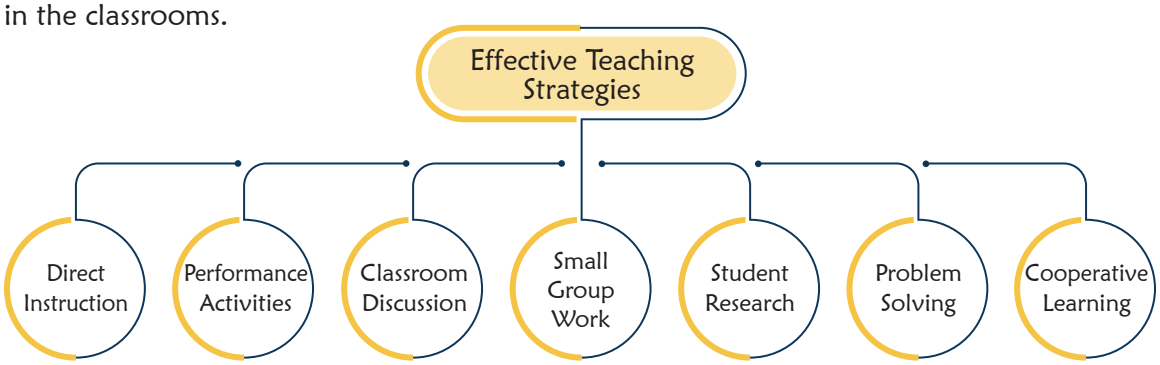
After the class

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

"Knowing yourself is the beginning of all wisdom."

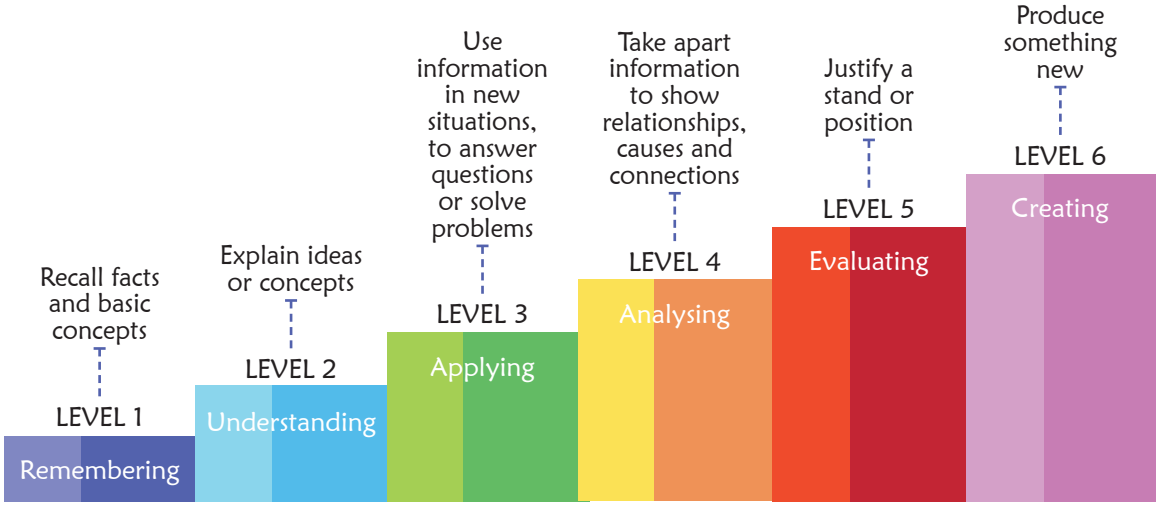
Teaching Strategies

Numerous strategies have evolved over the years to facilitate the teaching-learning process in the classrooms.



Bloom's Taxonomy

Bloom's Taxonomy was created by Dr Benjamin Bloom and several of his colleagues, to promote higher forms of thinking in education instead of rote learning. There are three domains of learning: cognitive (mental), affective (emotional), and psychomotor (physical). However, when we refer to Bloom's Taxonomy we speak of the cognitive domain. Bloom's Taxonomy is a list of cognitive skills that is used by teachers to determine the level of thinking their students have achieved. As a teacher, one should attempt to move students up the taxonomy as they progress in their knowledge.



Teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on.

> "If you have no confidence in self, you are twice defeated in the race of life."

CLASS 7

Lesson Plan

1 Types of Software

Teaching Objectives

Students will learn about

- Software
- Application Software
- System Software

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that a computer system is made up of a number of electronic devices which are connected together.

Teach them that Software is a set of instructions that makes 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 graphics software, graphics software, DBMS, DTP software, and multimedia Software (refer Suggested Activity also).

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

Ask the students to read the **Clickipedia** given on page 9.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a computer system?

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 customised software?

Q. Define the terms:

- Utility software
- Word processor
- Presentation Graphics software
- DBMS
- Operating system
- Spreadsheets
- DTP software

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 12 to 14 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 14 in the main course book. This will enhance the abilities of the students and serve as a Technology Literacy 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 10

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students that all the data in a computer can be arranged in the form of files and folders.

Introduce file explorer as a file manager of Windows operating system

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

Demonstrate to the students the steps to open File Explorer.

Tell the students about the different views of files and folders.

Demonstrate the following views to the students:

- Extra Large Icons View
- Large Icons View
- Medium Icons View
- Small Icons View
- List View
- Details View
- Tiles View
- Content View

Teach them how to search the files or folders using File Explorer and Wildcard Characters.

Explain the students that the Control Panel is used to control and modify many features of Windows 10 on the computer.

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

Ask the students to read the **Tech Funda** given on page 22.

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 organising 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?

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 22 to 24 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 24 in the main course book. This will enhance the abilities of the students and serve as a Technology Literacy 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 Excel 2019

Teaching Objectives

Students will learn about

- Starting Excel 2019
- Creating a New Workbook
- Saving a Workbook
- Components of Excel 2019
- Entering Data in a Worksheet
- Data Types in Excel 2019

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that Excel 2019 is an application software that is used to store and analyse data.

Demonstrate to the students the steps to start Excel 2019.

Familiarise the students with the various components of Excel 2019 window covering Title Bar, File Tab, Quick Access Toolbar, Ribbon, Formula Bar, Name Box, Worksheet Window, Worksheet Tab, Status Bar, Row, Column, Row and Column Heading, Cell, Active Cell, Mouse Pointer, Scrolling buttons, and Workbook.

Demonstrate to the students the steps to:

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

Tell the students that Excel 2019 has three data types to be entered in a spreadsheet which are Labels, Values or Numbers and Formula.

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

Ask the students to read the **Clickipedia** given on page 26.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Excel 2019?

Q. What are the features of Excel 2019?

Q. Name any five components of Excel 2019.

Q. Define the terms:

- Formula Bar
- Name Box
- Row
- Column
- Cell
- Active Cell

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

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

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 30 to 32 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 32 in the main course book. This will enhance the abilities of the students and serve as a Technology Literacy 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 Excel 2019

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

Number of Periods	
Theory	Practical
2	3

Teaching Plan

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

Tell the students about selecting cells in a worksheet.

Demonstrate to the students the steps to modify cell content.

Tell the students that copying and moving data are essential operations for managing information within a worksheet.

Demonstrate the steps to cut, copy and paste data.

Explain to the students the features of undo and redo.

Demonstrate to the students the steps to insert rows and columns in a 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 to the students that worksheet tab can be customised 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. What is the difference between Cut and Copy options?

Q. What is undo and redo?

Q. Define merging of cells.

Q. Define splitting of cells.

Q. How to set column width and row height?

Q. How to insert rows and columns?

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 39 and 40 of the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 41 of the main course book will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to design their class time-table in MS Excel 2019.

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

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that Excel 2019 allows to perform calculations by using formulas.

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

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 ROUND and ABS.

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

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

Demonstrate the use of date and time functions – TODAY, MONTH, YEAR, DAY, NOW, HOUR and MINUTE.

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 52 to 54 of the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 54 of the main course book will enhance the ability of the students and serve as a Technology Literacy 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

Number of Periods	
Theory	Practical
3	2

Teaching Plan

While teaching this chapter, tell the students that Excel 2019 is used to store data which allows to use an Excel workbook as a database.

Tell the students that form is a window used to display or enter a record in an Excel 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.

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.

Demonstrate to the students the steps to use data validation.

Tell the students that the Subtotal command allows to calculate group-wise sum. Also tell the steps to use subtotal command.

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. How is conditional formatting different from filtering data?

Q. What is a data validation?

Q. What is the use of subtotal command?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 69 to 71 of the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 71 of the main course book will enhance the ability of the students and serve as a Technology Literacy 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

- Creating a Chart
- Types of Charts in MS Excel 2019
- Components of a Chart
- Formatting a Chart

Number of Periods	
Theory	Practical
2	2

Teaching Plan

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

Show the different components of an Excel chart.

Familiarise 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.

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

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 77 to 79 of the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 79 of the main course book will enhance the ability of the students and serve as a Technology Literacy 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 Services on Internet

Teaching Objectives

Students will learn about

- Internet Services
- Cyber Security
- Cyber Crime

Number of Periods	
Theory	Practical
3	0

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 unauthorised 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.

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?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 91 to 93 of the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 93 of the main course book will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

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

9 Conditional Statements in Python

Teaching Objectives

Students will learn about

- Decision Making Statements
- The if...else Statement
- The if...elif...else Ladder
- The if Statement
- Nested if Statement

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Let's Plug-In given on Page 112 of the main course book.

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

Explain to the students about the Decision Making Statements and the options available in Python.

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

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

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

Ask the student to solve the exercise **Let's Catch Up** given on page number 116.

Extension

Ask the students some oral questions based on this chapter.

Q. What are the names of decision making statements.

Q. What is the function of if statement?

Q. What is the function of if...else statement?

Q. What is the function of nested if statement?

Q. What is the function of if...elif...else statement?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 102 to 105 in the main course book as **Exercise**.

In Creative Assignment, activities like **In the Lab** given on Page 105 of the main course book will enhance the ability of the students and serve as a Technology Literacy activity.

Suggested Activity

Ask the students to make a program in Python to create a food menu using looping decision making statements.