TOUCHPAD

Ver. 2.1

7

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 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

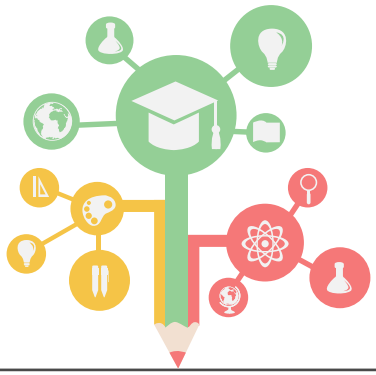
Age 11 - 20 Years

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.

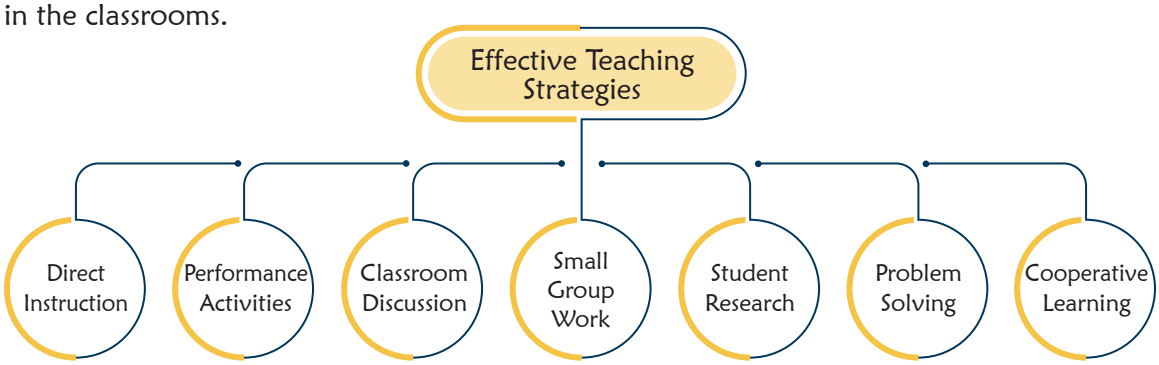
After the class

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

"Knowing yourself is the beginning of all wisdom."

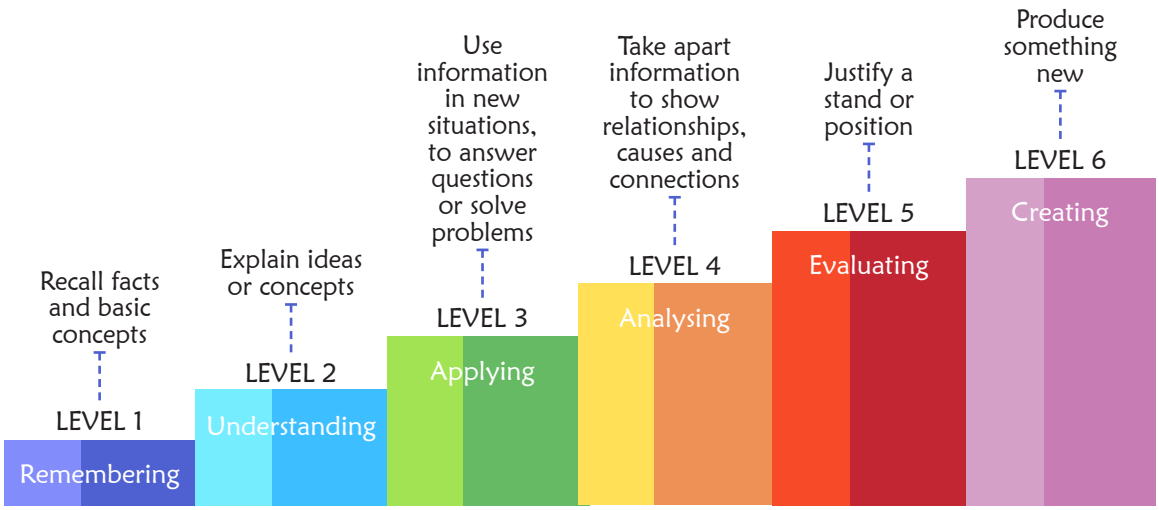
Teaching Strategies

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
- System Software
- Application Software
- Difference between System Software and Application 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, Language Processor 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, Graphics Software,DBMS, DTP software, and multimedia Software (refer Suggested Activity also).

Explain the Difference Between System and Application Software.

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 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 customized 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 13 to 15 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 15 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 10 of the course book.

2 Advanced Features of Windows 10

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
1	1

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 organizes 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 your 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 16.

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 10 for organising data.

Q. Which key is used to select multiple files?

Q. Which key is pressed to invert the selection?

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter. Also, ask them to solve Worksheet 1 given on page no. 25.

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 Information Literacy activity.

Suggested Activity

Ask the students to collect information about some more features of Windows 10 other than those discussed in the chapter.

3 Introduction to Excel 2016

Teaching Objectives

Students will learn about

- Starting Excel 2016
- Components of Excel 2016 Window
- Creating a New Workbook
- Entering Data in a Worksheet
- Saving a Workbook
- Data Types in Excel 2016

Number of Periods	
Theory	Practical
1	1

Teaching Plan

While teaching this chapter, tell the students that Excel 2016 is an application software that is used to store and analyse data.

Demonstrate to the students the steps to start Excel 2016 .

Familiarize the students with the various components of Excel 2016 window covering Title Bar, File Tab, Quick Access Toolbar, Ribbon, Formula Bar, Name Box, Worksheet Window, Status Bar, Row, Column, Row and Column Heading Buttons, Cell, Active Cell, Mouse Pointer, Worksheet Tab, Worksheet Tab Scrolling buttons, Workbook and Ribbon.

Demonstrate to the students the steps to:

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

Tell the students that Excel 2016 has data types to be entered in a spreadsheet which are Text/String, Number, Date/Time,Boolean,Error,Array.

tell the Student Each data type has its own formatting and functions for manipulation and analysis within Excel like (Lables and Formula).

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 Excel 2016?

Q. What are the features of Excel 2016?

Q. Name any five components of Excel 2016.

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 and 31 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 31 in the main course book. This will enhance the abilities of the students and serve as a Technology Literacy and Creativity 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 2016

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
2	1

Teaching Plan

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

Demonstrate the Operation in MS Excel 2016.

Show an active window of MS Excel 2016 and explain the meaning and use of the various components of MS Excel 2016 covering:

- Selecting Cells in a Workshhet,
- Copying/Moving Data,
- Using Undo/Redo Features ,
- Column Width and Row Height
- Inserting Rows/Columns
- Merging Cells
- AutoFill
- Customize Worksheet Tab

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.

Tell the student Uses of Undo and Redo Features.

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).

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.

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

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. Define merging of cells.

Q. Define splitting of cells.

Q. What is the use of AutoFill feature?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 38 and 39 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 40 of the main course book will enhance the ability of the students and serve as a Information Literacy and Productivity & Accountabillity activity.

Suggested Activity

Ask the students to design their class time-table in MS Excel 2016.

5 Formulas and Functions

Teaching Objectives

Students will learn about

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

Number of Periods	
Theory	Practical
3	1

Teaching Plan

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.

Explain the Using Formulas to Perform Calculation.

Tell them the order of operation followed in Excel.

Tell the students Different ways to Enter Formulas.

Introduce cell referencing as use of cell Range.

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

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

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

Demonstrate the use of date functions – TODAY, MONTH, YEAR and DAY (Refer Suggested Activity 1 also) Now, Hour, 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 51 and 52 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 52 of the main course book will enhance the ability of the students and serve as a Technology Literacy and Productivity & Accountability 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
- Using Form in Excel
- Sorting Data
- Filtering Data
- Conditional Formatting
- Using Data Validation
- Using Subtotal Command
- Using Pivot Table

Number of Periods	
Theory	Practical
2	1

Teaching Plan

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 the From In Excel. And add , searching , and deleting a record.

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).

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

Explain the Data Validation.

Tell the student uses of SUBTOTAL Command.

Explain the uses of Pivot Table. It's steps to use the Pivot Table.

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?

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, activities like In The Lab given on Page 65 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

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

Number of Periods	
Theory	Practical
2	1

Teaching Plan

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
- Column Chart
- Pie chart
- Bar chart
- Area chart
- Scatter chart

Demonstrate the steps of:

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

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 73 and 74 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 Productivity & Accountability and Creativity 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
- Hacking and Cracking

Number of Periods	
Theory	Practical
3	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, E-Greeting, E-Banking, Cloud Storage.

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, Hacking, Cracking.

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. 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 86 to 88 of the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 88 of the main course book will enhance the ability of the students and serve as a Creativity and Communication 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 Statement
- The if...else Statement
- Nested if Statement
- The if...elif...else Ladder

Number of Periods	
Theory	Practical
2	3

Teaching Plan

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

Extension

Ask the students some oral questions based on this chapter.

Q. Write 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 97 to 101 in the main course book as Exercise.

In Creative Assignment, activities like In The Lab given on Page 101 of the main course book will enhance the ability of the students and serve as a Critical Thinking and Technology Literacy activity.

Suggested Activity

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