



thinkcode

Ver. 2.0

Teacher's Manual

Extended Support for Teachers

Teacher's Time Table

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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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Vocabulary reaches about 10,000 words• Vocabulary increases rapidly throughout middle childhood
Emotional/Social	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none"> • Motor skills develop resulting enhanced reflexes
Cognitive	<ul style="list-style-type: none"> • Applies several memory strategies at once • Cognitive self-regulation is now improved
Language	<ul style="list-style-type: none"> • Ability to use complex grammatical constructions enhances • Conversational strategies are now more refined
Emotional/Social	<ul style="list-style-type: none"> • Self-esteem tends to rise • Peer groups emerge

Age 11 - 20 Years	
Physical	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Is now more self-conscious and self-focused • Becomes a better everyday planner and decision maker
Emotional/Social	<ul style="list-style-type: none"> • 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."

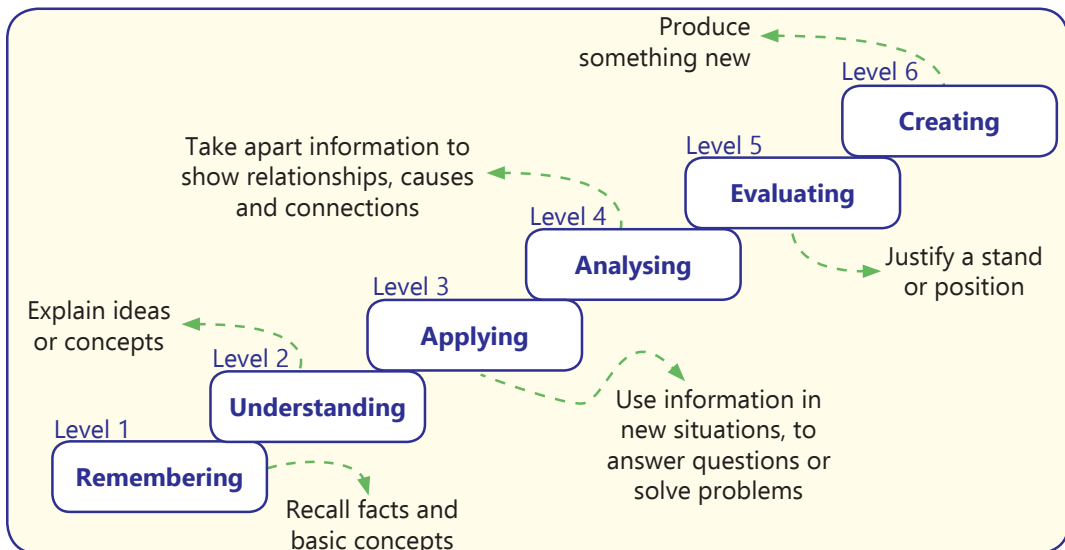
Teaching Strategies

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."

1. Categories of Computers

Teaching Objectives

Students will learn about

☞ Categories of Computers

☞ Some other Special Computers

Number of Periods

3

Teaching Plan

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 computers are categorized on the basis of:

- Functioning
- Size
- Speed
- Processing power and cost

Make them understand these categories in details with examples.

Tell the students that on the basis of functions, computers are further divided into three categories: Analog Computer, Digital Computer and Hybrid Computer with examples.

Explain the students that according to size, speed, processing power and cost, computers are further divided into categories.

Tell the students about the type of computers with examples:

- explain Microcomputer and examples like Desktop computer, Laptop and Tablet.
- explain Microcomputer with examples.
- explain Mainframe Computer with example.
- explain Supercomputer with examples.

Ask the students to solve the exercise Let's Catch Up given on page number 9.

Make them understand that there are some other special computers:

- Embedded Computer which is further divided into Digital Camera, ATM and Microwave, etc.
- Handheld Computer which is further divided into Smartphone, PDA, Smartwatch, Gaming Consoles, etc.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What is an analog computer?
- Q. What is a digital computer?
- Q. What is a hybrid computer?
- Q. What is a microcomputer?
- Q. What is a minicomputer?
- Q. What is a mainframe computer?
- Q. What is a supercomputer?
- Q. Give examples each of:
 - Analog Computer
 - Digital computer
 - Hybrid Computer

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. After solving the course book exercises, tell the students to solve Activity Zone activity given on Pages 13 and 14. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone 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 collect pictures of different types of computers and paste them on a chart paper according to the categories explained in this chapter.

2. Word Processor—Mail Merge

Teaching Objectives

Students will learn about

- ✎ Mail Merge
- ✎ Creating mail merge



Teaching Plan

While teaching this chapter, tell the students introduce to the students Mail Merge as the feature used to create personalized letters to be sent to many persons.

Explain the advantages of mail merge and how it helpful in creating personalized letters to be sent to many persons.

Explain the components of mail merge. Tell them the various steps involved in creating a mail merge (refer Suggested Activity also).

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What do you mean by Mail Merge?

Q. How is mail merge helpful?

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. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 22. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 22 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 an electronic invitation (personalized) for inviting middle school teachers to a thank you performance organized by Grade 6-8 students.

3. Advanced Features of PowerPoint 2016

Teaching Objectives

Students will learn about

✎ Inserting Audio and Video Files

✎ Action Buttons

✎ Printing the Presentation

Teaching Plan

While teaching this chapter, tell the students that PowerPoint 2016 is used to create electronic presentations.



Tell the students that what elements a movie has to make it interesting.
Show to the students how sound and audio files can be inserted into a presentation.
Explain the steps involved in inserting an audio file into a presentation.
Demonstrate the steps involved in inserting a video file into a presentation.
Explain the students about actions button in PowerPoint.
Demonstrate the steps involved in adding the action button.
Show the students how to print a presentation with labeled steps involved in it.
Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What type of audio files can be inserted into a presentation?
- Q. Can we add video files on a slide?
- Q. What are action buttons?
- Q. How can you add action button in a presentation?
- Q. How can you print a presentation?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 31 and 32 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Pages 32 and 33. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 33 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.







Suggested Activity

Divide the class into two teams. Ask one team to prepare charts on various types of pollution. Ask the other team to prepare a PowerPoint presentation on the same topic. Make the students share the benefits enjoyed and limitations faced by each team while working on their project.

4. More on Excel 2016

Teaching Objectives

Students will learn about

- | | |
|--|--|
|  Selecting Cells in a Worksheet |  Copying/Moving Data |
|  Column Width and Row Height |  Inserting Rows/Columns |
|  Merging Cells |  Splitting Cells |



- ✎ Formatting Spreadsheets
- ✎ AutoFill
- ✎ Order of Operation

- ✎ Customising Worksheet Tab
- ✎ Using Formulas to Perform Calculation

Number of Periods

4

Teaching Plan

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

Demonstrate how to select cells in a worksheet in Excel. Show them the labeled steps to modify the cell content.

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.

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.

Tell the students how to use formulas to perform calculations and also how to copy them.

Explain to the students the order of operation with the help of examples.

Ensure that the scope of For The Teacher 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 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?
- Q. How can you use formulas to perform calculations?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 46 and 47 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 48. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 47 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 Excel 2016.

5. Formulas and Functions in Excel 2016

Teaching Objectives

Students will learn about

- ☞ Data Types in Excel
- ☞ Understanding Cell Range
- ☞ References to Other Worksheets
- ☞ Different Ways to Enter a Formula
- ☞ Cell Referencing in Formulas and Its Types
- ☞ Functions

Number of Periods

5

Teaching Plan

Introduce data type in Excel to the students.

While teaching this chapter, tell the students that 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.

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).

Show the different components of an Excel chart.

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

Demonstrate the steps of:

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

Ensure that the scope of For The Teacher 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 59 and 60 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 61. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 61 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 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.

6. App Development

Teaching Objectives

Students will learn about

- ☞ What is an App?
- ☞ Types of Mobile Apps
- ☞ Downloading and Installing the App
- ☞ Defining the Android and iOS
- ☞ Categories of Apps
- ☞ Developing an App

Number of Periods

2

Teaching Plan

While teaching this chapter, brief the students about smartphones and technology.

Tell the students that an App is a software program primarily developed for hand-held smart devices such as mobile and tablet.

Explain to the students the difference between the Android and iOS in detail.

Demonstrate the types of Mobile Apps to the students with example, that are:

- Native Apps
- Web Apps
- Hybrid Apps

Explain the following categories of Apps to the students along with the examples:

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

Explain to the students the steps involved in downloading and installing the Apps.

Explain to the students the steps involved in developing an App.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App ?

Q. Define the following:

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

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 76 and 77 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Pages 77 and 78. Help the students to solve these questions.



In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 78 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 an App for reciting tables with your help.

7. Introduction to Animate CC

Teaching Objectives

Students will learn about

- | | |
|---------------------------------------|-------------------------------------|
| ☞ Starting Adobe Animate CC | ☞ Creating a Document in Animate CC |
| ☞ Components of the Animate CC Window | ☞ Saving a Document in Animate CC |
| ☞ Creating Shapes in Animate CC | ☞ Gradient Fill |
| ☞ Creating a Symbol in Animate CC | |

Number of Periods

3

Teaching Plan

Tell the students about Animate CC and the steps to start the application.

Show the students how to create a document in Animate CC with labeled steps.

Explain the components of Animate CC window: stage, timeline, tools panel, properties panel, library panel, menu bar along with the functions.

Show the students the steps involved to save a program.

Demonstrate to the students the steps involved to create shapes in Animate CC.

Explain the use of gradient fill in Animate CC.

Show the students the steps involved to create a symbol in Animate CC.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Animate CC?

Q. How to create a document in Animate CC?

Q. Define:

a. Stage

b. Timeline

c. Tools Panel

d. Properties Panel

e. Library Panel

f. Menu Bar

Q. What is gradient fill?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 88 and 89 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 89. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 89 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 any shape in Animate CC using the tools taught in this chapter.

8. Introduction to HTML

Teaching Objectives

Students will learn about

- | | |
|---------------------------------------|-------------------------------------|
| ✎ HTML | ✎ HTML Tags and Attributes |
| ✎ Rules for Writing HTML Codes | ✎ HTML Document Structure |
| ✎ Creating and Saving a HTML Document | ✎ Basic HTML Tags |
| ✎ Designing a Web Page | ✎ Editing an Existing HTML Document |

Number of Periods

5

Teaching Plan

While teaching this chapter, tell the students that websites consist of millions of pages called web pages which contain text, graphics, audios, videos and links to other pages.

Introduce Hypertext Markup Language (HTML) as language that describes the structure of a web page. Make the students understand the meaning of the terms like hypertext and markup language. Tell the students about the tools needed for working with HTML.

Make the students aware about the different types of HTML editors – WYSIWYG editor and Text editor. Familiarise the students with basic HTML terms like tags, container tags, empty tags, block level tags, text level tags and attributes.

Tell the students about the concept of nesting of tags.

Share with the students the general rules followed for writing HTML codes.

Show to the students a HTML document and make them understand and identify the various sections and structure of the HTML document.

Demonstrate to the students the steps involved in:

- Creating a HTML document
- Saving a HTML document



- Previewing a web page.

Tell the students about the meaning and use of basic HTML tags covering <HTML>, <HEAD>, <TITLE> and <BODY> tags along with their attributes.

Tell the students about some more HTML tags like Heading, Paragraph, Line Break, Horizontal Ruler (and its attributes), Bold, Italic, Underline, Superscript and Subscript tags.

Share with the students about the use of tag and its attributes.

Demonstrate to the students the steps involved in designing a web page using the various HTML tags discussed.

Show the students the method of editing an existing HTML document.

Ensure that the scope of For The Teacher given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

- Q. What is HTML?
- Q. Define hypertext and Markup language.
- Q. Name the different types of HTML editors.
- Q. What are tags and attributes?
- Q. State the rules followed while writing HTML codes.
- Q. Name the text editor most commonly used to write HTML codes.
- Q. State the use of <HTML> / <HEAD> / <BODY> / <TITLE> tags.
- Q. What is the difference between container tags and empty tags?
- Q. What attributes can be taken by the tag?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 100 and 101 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 101. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 102 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 a similar web page in HTML.

9. Online Surfing and Cyber Security

Teaching Objectives

Students will learn about

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

Number of Periods

3

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

Tell the students that etiquettes are the rules that are expected to be followed while meeting or communicating with others.

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 importance of cyber security.

Explain the different types of cyber threats covering data diddling, phreaking, cloning and carding, Hacking and cracking.

Ensure that the scope of For The Teacher 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 Threats.
- Q. What are the different types of threats?
- Q. Differentiate between hackers and crackers.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 113 and 114 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 115. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 115 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.