8

thinkcode

Ver. 2.0

Teacher's Manual

Extended Support for Teachers

avaeducation.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 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

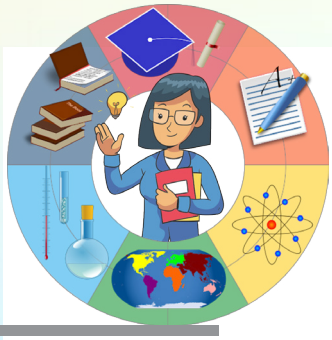
"If you cannot do great things, do small things in a great way."

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.

↓

During the class:

Present the lesson plan.

↓

After the class:

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

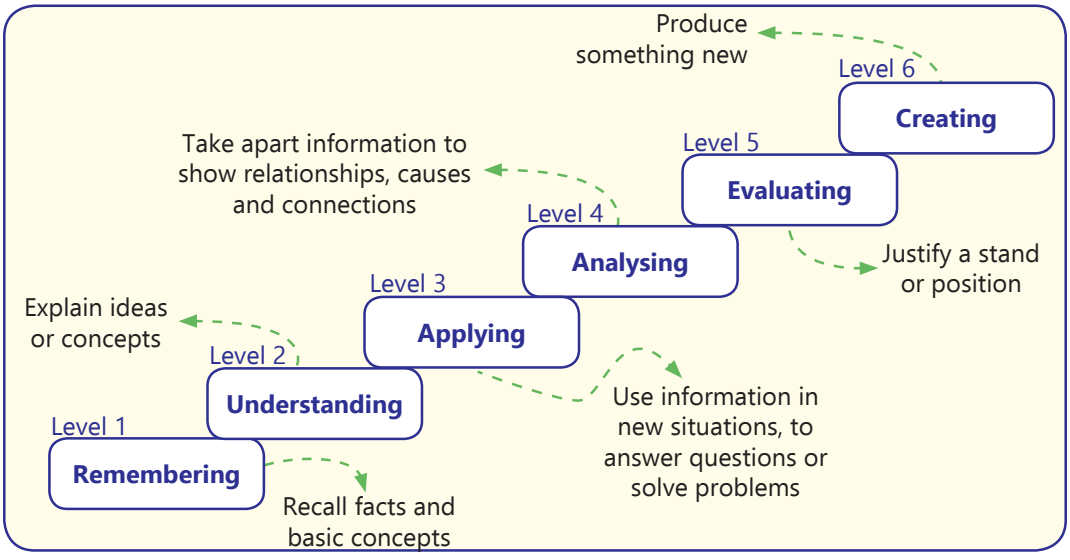
"Knowing yourself is the beginning of all wisdom."

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 8

LESSON PLAN

Thinkcode Ver 2.0

1. Computer Networking

Teaching Objectives

Students will learn about

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

Number of Periods
4

Teaching Plan

While teaching this chapter, tell the students that the process of connecting computers and peripheral devices with each other to exchange data is called computer networking.

Tell the students about the meaning and basics of computer network.

Share with the students the need for computer network – for resource sharing and for communication.

Discuss with the students the advantages of a computer network.

Introduce network terms like Server (host computer) and Client (dependent on server).

Explain the different types of servers to the students covering dedicated server, print server, database server, network server and web server.

Tell the students about the components required for a network covering NIC, hub/switch, router, modem and networking cable.

Share with the students that on the basis of geographical area covered, the networks can be classified into LAN (Local Area Network), MAN (Metropolitan Area Network), WAN (Wide Area Network), PAN (Personal Area Network) and CAN (Campus Area Network).

Introduce Topology as geometric arrangement of computers or nodes in a network.

Explain the difference between different types of topologies covering bus topology, ring topology, star topology, tree topology and mesh topology (Refer Suggested Activity also).

Tell the students that the network architecture defines the overall design of the computer network.

Share with the students the two types of network architectures as Peer-to-Peer network and Client-Server network.

Share with the students about the wireless networking technologies detailing about Wi-Fi and Bluetooth.

Introduce Protocol as a set of rules that govern the communication between the computers on a network.

Discuss briefly about the different types of protocols explaining about HTTP, HTTPS, FTP, TC/IP, POP3, IMAP and SMTP.

Ensure that the scope of 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. Define computer network.

Q. What is the need for a computer network?

Q. What are the advantages of a computer network?

Q. Define server / client.

Q. What are the different types of computer servers?

Q. What are the components required for a network?

Q. Define LAN / MAN / WAN / PAN / CAN.

Q. Define Topology.

Q. Name different types of topologies.

Q. What is meant by protocol?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 13, 14 and 15 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 15. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 15 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to make models of different types of topologies using marbles and used wire pieces / straws.

2. Introduction to Adobe Photoshop CC

Teaching Objectives

Students will learn about

- ☞ Features of Adobe Photoshop CC
- ☞ Creating a New Document
- ☞ Opening an Image in Photoshop
- ☞ Tools in Photoshop
- ☞ Cropping Tools
- ☞ Inserting Text
- ☞ Saving a File in Photoshop
- ☞ Opening Adobe Photoshop CC 2018
- ☞ Adobe Photoshop CC 2018 Interface
- ☞ Placing an Image in an Existing Document
- ☞ Move and Selection Tools
- ☞ Painting Tools
- ☞ Transform Tool
- ☞ Closing a File and Exiting Photoshop

Number of Periods
5

Teaching Plan

While teaching this chapter, tell the students that Photoshop is a designing software developed in 1988.

Introduce student with Adobe Photoshop CC using examples.

Explain the features of Photoshop to the students in detail.

Demonstrate to the students the steps involved in opening Photoshop CC 2018.

Demonstrate to the students the steps involved in creating a new document in Photoshop.

Explain all the components of Photoshop interface with proper labeled pictures.

Tell the students the steps to open an image in Photoshop.

Demonstrate to the students the steps involved in placing an image in an existing document in Photoshop.

Explain to the students the following tools of Photoshop and explain them in details with steps:

a. Move and Selection tools
   - Rounded Marquee tool
   - Elliptical Marquee tool
   - Lasso tool
   - Polygonal Lasso tool
   - Magnetic Lasso tool
   - Quick Selection tool
   - Magic Wand tool

b. Cropping tools
   - Crop tool
   - Perspective Crop tool
   - Slice tool and Slice Select tool

c. Painting tools
   - Brush tool
   - Pencil tool
   - Color Replacement tool

- Mixer Brush tool
- History Brush tool
- Gradient tool
- Paint Bucket tool
- 3D Material Drop tool

d. Inserting Text

- Using Horizontal Type Tool
- Using Horizontal Type Mask Tool

e. Transform Tool

Tell the students the steps to save a file and closing a file in Photoshop along with exiting Photoshop.

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 role of Adobe Photoshop?

Q. What are the features of Photoshop?

Q. What is the use of Move tool?

Q. What is the use of Selection tool?

Q. What is the use of Cropping tool?

Q. What is the use of Inserting text tool?

Q. What is the use of transform tool?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 35, 36 and 37 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 37. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 37 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 crop two images and make them one using proper Photoshop tools taught in this chapter.

3. More on Photoshop CC

Teaching Objectives

Students will learn about

- ☞ Layers in Photoshop
- ☞ Painting Tools in Photoshop

- ☞ Retouching Tools
- ☞ Shape Tools
- ☞ Image Menu
- ☞ Drawing Tools
- ☞ Navigation Tools
- ☞ Layer as a Smart Object

Number of Periods
3

Teaching Plan

While teaching this chapter, revise the features and tools of Photoshop CC for the students taught in the earlier chapter.

Demonstrate to the students the Layers in Photoshop CC 2018 and explain the step involved in creating a new layer.

Explain all the components of Photoshop interface with proper labeled pictures.

Tell the students the steps to open an image in Photoshop.

Demonstrate to the students the steps involved in placing an image in an existing document in Photoshop.

Explain to the students the following tools of Photoshop and explain them in details with steps:

a. Painting tools
   - Eye Dropper tool
   - 3D Material Eyedropper tool
   - Color Sample tool
   - Ruler tool
   - Note tool
   - Eraser tool
   - Background Eraser tool
   - Magic Eraser tool

b. Retouching tools
   - Spot Healing Brush tool
   - Healing Brush tool
   - Patch tool
   - Content Aware Move tool
   - Red Eye tool
   - Clone Stamp tool
   - Pattern Stamp tool
   - Blur, Sharpen and Smudge tool
   - Dodge, Burn and Sponge tool

c. Drawing tools
   - Pen tool

d. Shape tools
   - Custom Shapes

e. Navigation Tools
   - Hand tool
   - Rotate View tool
   - Zoom tool

Tell the students the image menu options along with the description of each.

Teach the students about Layers as an object with 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 is the use of Painting tool?

Q. What is the use of Retouching tool?

Q. What is the use of Navigation tool?

Q. What is the use of Drawing tool?

Q. What is the use of Shapes tool?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 53, 54 and 55 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 55. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 55 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 download and edit an image and make them one using proper tools.

4. Images, Links and Frames in HTML

Teaching Objectives

Students will learn about

- ☞ Inserting Images
- ☞ Linking Web Pages
- ☞ Creating Marquee
- ☞ Frames

Number of Periods
4

Teaching Plan

While teaching this chapter, tell the students that HTML allows inserting images and frames on web pages as well as interlinking them.

Tell the students that HTML supports JPEG, GIF and PNG image formats.

Tell the students that <IMG> tag is used to insert images and it takes the attributes as SRC, WIDTH, HEIGHT, ALIGN, BORDER and ALT.

Demonstrate to the students the use of <IMG> tag and its attributes.

Introduce Marquee as the moving objects on a web page to get special attention of the users.

Explain the use of <MARQUEE> tag and its attributes as BEHAVIOUR, DIRECTION and SCROLLAMOUNT.

Make the students understand that a hyperlink is an underlined text or an image which when clicked takes the user to some other location.

Share with the students that <A> is used to create links and the attributes that this tag can take are – LINK, ALINK and VLINK.

Demonstrate the use of <A> tag and its attributes to hyperlink web pages (See Suggested Activity also).

Introduce Frames as a feature to display more than one web page on a single screen of the web browser.

Explain the use of <FRAMESET> tag and <FRAME> tag to create and define frames on a web page.

Tell the students that the <FRAME> tag can take FRAMEBORDER, NORESIZE and SRC as attributes.

Demonstrate the use of <FRAMESET> and <FRAME> tags to create frames on a web page.

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. Which tag is used to insert images on a web page?

Q. State the use of SRC / WIDTH / ALIGN /ALT attribute of IMG tag.

Q. Which image formats are supported by HTML?

Q. What is the use of MARQUEE tag?

Q. Which tag is used to link web pages?

Q. Name the attributes that can be taken by FRAME tag.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 70 and 71 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 72. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 72 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 e-shopping web site listing categories of items on home page and details of items on separate category pages.

5. Ethics and Safety Measures in Computing

Teaching Objectives

Students will learn about

- ☞ What is Internet?
- ☞ What are Internet ethics?
- ☞ Safety measures while using Computer/Internet
- ☞ Computer ethics
- ☞ What are unethical practices?
- ☞ Digital Footprints

Number of Periods
5

Teaching Plan

While teaching this chapter, tell the students that what is Internet and what are its advantages & disadvantages.

Introduce computer ethics and etiquettes.

Share examples of some unethical practices involving computers:

- Plagiarism
- Cyber bullying
- Phishing
- Hacking
- Spamming
- Individual right to privacy
- Software Piracy
- Intellectual property rights
  - Copyright
  - Patent
  - Trademark

Tell the students about the safety measures to be followed while using computer/Internet.

Explain to the students what is digital footprints and how to delete digital footprints.

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 a plagiarism?

Q. State any two advantages and two disadvantages of internet.

Q. State any two methods by which a computer may be used unethically.

Q. State any two types of intellectual property rights.

Q. What is digital footprint?

Q. What is the main purpose of computer ethics and etiquettes?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 82, 83 and 84 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Pages 84 and 85. Help the students to solve these questions.

In Creative Assignment, activities like Let's Get Better and Practical Zone given on Page 85 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 ethical practices to be followed while using computer/ Internet and make a chart on the same using MS Word.

6. Google Apps

Teaching Objectives

Students will learn about

- ☞ Google
- ☞ Apps of Google

Number of Periods
2

Teaching Plan

While teaching this chapter, brief the students about Google and mobile apps.

Introduce Google to the students along with the history.

Explain the Google Apps to the students in detail like Gmail, Google Drive, Google Maps, Google Docs, Google Sheets, Google Slides and YouTube.

Explain the following components of Google Drive to the students along with the steps involved in:

- What can you store in Google Drive?
- How much can you store in Google Drive?
- How does it work?
- Features of Google Drive

Demonstrate the features of Google Maps to the students along with the steps involved in it.

Demonstrate the opening/ importing an existing word document for editing in Google Docs to the students along with the steps involved in it.

Explain the following components of Google Sheets to the students along with the steps involved in:

- Features of Google Sheets
- Creating and Saving a New Google Sheet
- Sharing and Protecting Data in Google Sheets
- Sharing a File
- Protecting Data

Explain the following components of Google Slides to the students along with the steps involved in:

- Features of Google Slides
- Creating a New Presentation

Explain the following components of YouTube to the students along with the steps involved in:

- Features of YouTube
- How to Create YouTube Account
- Uploading a Video on YouTube

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 Google Apps ?

Q. What is Gmail?

Q. What is Google Drive?

Q. What is Google Maps?

Q. What is Google Docs?

Q. What is Google Sheets?

Q. What is Google Slides?

Q. What is YouTube?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 104, 105 and 106 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 106. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 106 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a document in Google Docs and a presentation in Google Slides on 'Environment Day'.

7. Latest Technological Development

Teaching Objectives

Students will learn about

- ☞ Augmented Reality and Virtual Reality
- ☞ 3D Printing
- ☞ Internet of Things
- ☞ RPA (Robotic Process Automation)

Number of Periods
2

Teaching Plan

Explain the following to the students along with the examples in detail:

- Augmented Reality
- Virtual Reality
- Internet of Things (IOT)
- 3D Printing
- RPA (Robotics Process Automation)

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 Augmented Reality?

Q. What is an Virtual Reality?

Q. What is an Internet of Things?

Q. What is an 3D Printing?

Q. What is an RPA?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 113, 114 and 115 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 "what is the Augmented Reality" and ask "What is Virtual Reality?".

8. 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
4

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

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. 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 course book exercises given on Pages 124 and 125 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 126. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 126 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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

9. Python—Loop and Functions

Teaching Objectives

Students will learn about

- ☞ The FOR Statement
- ☞ Jump Statements
- ☞ The WHILE Statement
- ☞ Functions

Number of Periods
4

Teaching Plan

While teaching this chapter revise Python for the students and repeat the features of Python from the earlier class.

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

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

a. FOR statement
   - using the range() statement

b. WHILE statement
   - infinite loop
   - while loop using else statement

c. JUMP statement
   - break statement
   - continue statement

Demonstrate to the students the steps involved in using the FUNCTIONS using programs and syntax.

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 looping statement?

Q. What is the function of FOR statement?

Q. What is the function of WHILE statement?

Q. What is the function of JUMP statement?

Q. What is a FUNCTION?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 135 and 136 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Activity Zone activity given on Page 136. Help the students to solve these questions.

In Creative Assignment, activity like Practical Zone given on Page 137 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to make a list of series where you can apply the FOR and JUMP statements.