TOUCHPAD

Artificial Intelligence Ver. 1.1

2

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

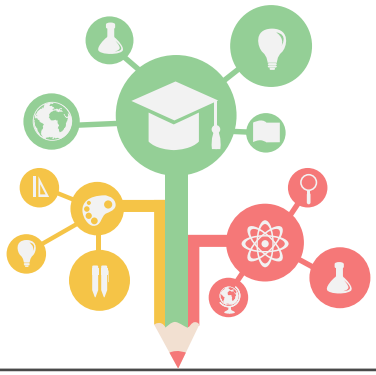
Age 11 - 20 Years

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.

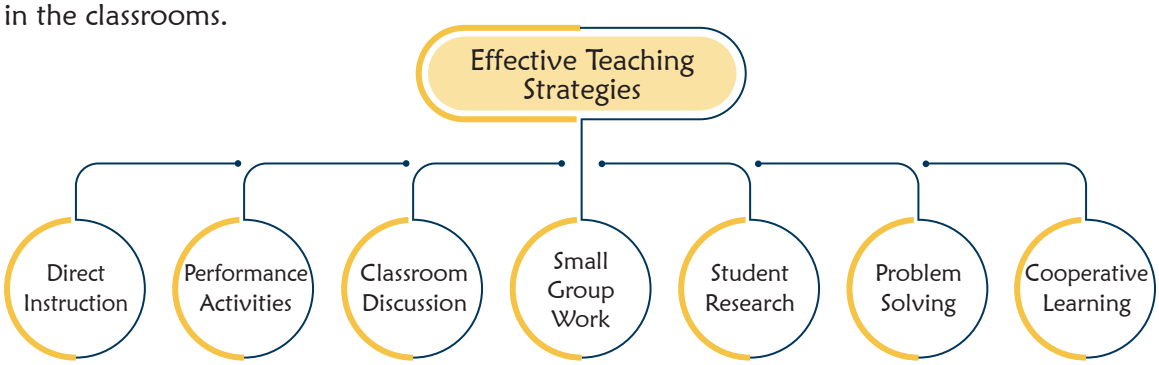
After the class

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

"Knowing yourself is the beginning of all wisdom."

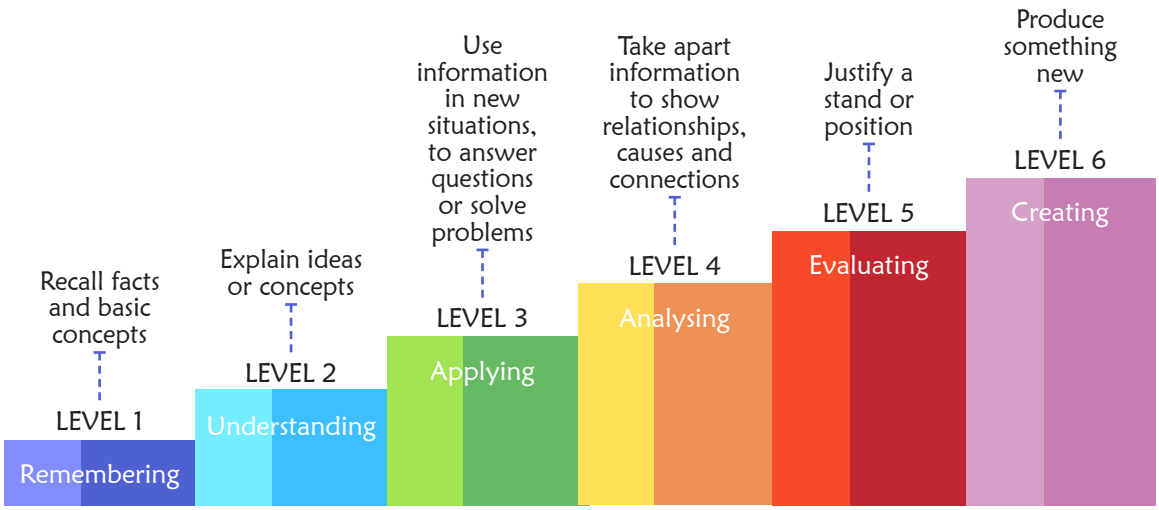
Teaching Strategies

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 2

LESSON PLAN

1 Evolution of Computers

Teaching Objectives

Students will learn about

- Early Counting Tools
- Charles Babbage's Analytical Engine
- ENIAC—The First Electronic Computer
- IBM PC
- Abacus—First Calculating Device
- Lady Ada Lovelace's Programs
- UNIVAC
- Modern Computers

Teaching Plan

Number of Periods	
Theory	Practical
2	1

Before starting the chapter, ask the students to read the comic given in page number 7 to understand the recap of the topic.

While teaching this chapter, tell the students how people in ancient times invented tools for calculations.

Tell the students about the first calculating machine i.e. Abacus.

Tell them about Charles Babbage and his inventions.

Tell them about that Lady Ada Lovelace who was the first to introduce the concept of programming.

Show the picture of ENIAC—the First Electronic Computer, UNIVAC, and the IBM PC and explain it to the students.

Explain to the students about modern computers and the types of modern computers given below:

- Desktop Computer
- Laptop
- Tablet
- Smartphone

Also, teach the students through Topic Animation.

Ask the students to solve the exercise given on page 15 as **AI Reboot**.

Ask the students to solve the task given on page 12 as **AI Task**.

Ask the students to read the **Brainy Fact** given on page 9.

Extension

Ask the students some oral questions based on this chapter.

Q. Name the different types of modern computers.

Q. Which is the first calculating device?

Q. Who was the first to introduce the concept of programming?

Q. Which device is used to calculate numbers at a fast speed?

Q. In which year Charles Babbage developed a steam-driven calculating machine?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 15 to 17 of the main course book as **AI Quiz** and **Exercise**. Tell them to solve the critical thinking exercises as **AI in Life** given on page 17.

Take the students to the computer lab and let them practice the activity given in the **AI Lab** section on Page 17 in the main course book. This will enhance the abilities of the students and serve as a Subject Enrichment Activity.

Suggested Activity

- Ask the students to draw an Abacus on an A-4 size sheet and also color it.
- Ask the students to create an underwater scene in Tux Paint.

2 Artificial Intelligence

Teaching Objectives

Students will learn about

- What is AI?
- Real-Life Examples of AI
- Advantages and Disadvantages of AIs

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 18 to understand the recap of the topic.

While teaching this chapter, tell the students that AI stands for Artificial Intelligence. It is the process of making a machine intelligent.

Teach the students through real-life examples of AI which are:

- Google Assistant
- Face lock
- Robots
- YouTube
- Google Maps

Tell the advantages and disadvantages of AI using various examples to the students.

Also, show pictures of real-life examples of AI.

Teach the students through Topic Animation and show the video about artificial intelligence on the link given on pages 19 and 22 as **Video Session**.

Ask the students to solve the exercise given on page 23 as **AI Reboot**.

Ask the students to solve the task given on page 20 as **AI Task**.

Ask the students to read the **Brainy Fact** given on pages 19 and 21.

Extension

Ask the students some oral questions based on this chapter.

Q. What is AI?

Q. What is the full-form of AI.

Q. Which is known as a virtual assistant or voice assistant?

Q. Which feature in a smartphone is used for scanning our face to unlock?

Q. Name an automatic machine that can do almost any task without the help of a human.

Evaluation

Encourage the students to walk through the chapter and ask them to play the game given on page 24 on their own under the name **AI Game** after learning about the rules and basics.

After explaining the chapter, let the students do the exercises given on pages 25 and 26 of the main course book as **AI Quiz** and **Exercise**. Tell them to solve the critical thinking exercises as **AI in Life** given on page 26.

Take the students to the computer lab and let them practice the activity given in the **AI Lab** section on page 27 in the main course book. This will enhance the abilities of the students and serve as a Subject Enrichment Activity.

Suggested Activity

Ask the students to play and draw in the Quickdraw AI game by using the link given below:

https://quickdraw.withgoogle.com/

3 AI-enabled Devices

Teaching Objectives

Students will learn about

- Smartphone
- Chatbot
- Smart Doorbell
- Smart Speakers
- Smartwatch
- Smart TV
- Driverless Cars

Number of Periods	
Theory	Practical
2	1

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 28 to understand the recap of the topic.

While teaching this chapter, tell the students that Artificial Intelligence has become an important part of our lives.

Make them understand about the following:

- Smartphone
- Smartwatch
- Chatbot
- Smart TV
- Smart Doorbell
- Driverless Cars
- Smart Speakers

Show the pictures of AI-enabled devices to the students.

Also, teach the students through Topic Animation.

Ask the students to solve the exercise given on page 32 as **AI Reboot**.

Ask the students to solve the task given on page 29 as **AI Task**.

Ask the students to read the **Brainy Fact** given on page 32.

Extension

Ask the students some oral questions based on this chapter.

Q. What are smartphones?

Q. What do you mean by a chatbot?

Q. Name an AI-enabled doorbell that informs the homeowner when a visitor arrives at the door.

Q. Which device accepts our voice commands to play music?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 33 to 35 of the main course book as **AI Quiz** and **Exercise**. Tell them to solve the communication based exercises as **AI in Life** given on page 35.

Take the students to the computer lab and let them practice the activity given in the **AI Lab** section on page 35 in the main course book. This will enhance the abilities of the students and serve as a Subject Enrichment Activity.

Suggested Activity

Ask the students to open the link given below and play TicTacToe.

https://playtictactoe.org/

4 Introducing Robots

Teaching Objectives

Students will learn about

- What is a Robot?
- Advantages of Robots
- Popular Robots
- Disadvantages of

Teaching Plan

Number of Periods	
Theory	Practical
2	1

Before starting the chapter, ask the students to read the comic given in page number 36 to understand the recap of the topic.

While teaching this chapter, tell the students that most of the smart devices are made to help us in doing our work fast and efficiently. Similarly, robots are also made to help us.

Make them understand that a robot is a smart machine which can resemble human behaviour and can perform various tasks.

Share information about the popular robots with the students.

Show the pictures of different robots and also explain their role to the students.

Also, tell the advantages and disadvantages of robots to the students.

Also, teach the students through Topic Animation and show the video about artificial intelligence on the link given on pages 38 and 45 as **Video Session**.

Ask the students to solve the task given on page 40 as **AI Task**.

Ask the students to read the **Brainy Fact** given on page 40.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a Robot?

Q. Which is known as a lovable robotic dog whose personality and behaviour changes with time?

Q. What is the advantage of using a Robot?

Q. What is the name of a delivery robot that delivers food items?

Q. Which robot can move as quickly as 3.2 meters per second?

Evaluation

Encourage the students to walk through the chapter and ask them to play the game given on pages 41 and 42 on their own under the name **AI Game** after learning about the rules and basics.

After explaining the chapter, let the students do the exercises given on Pages 43 to 45 of the main course book as **AI Quiz** and **Exercise**. Tell them to solve the critical thinking exercises as **AI in Life** given on page 45.

Take the students to the computer lab and let them practice the activity given in the **AI Lab** section on Page 45 in the main course book. This will enhance the abilities of the students and serve as a Subject Enrichment Activity. Ask the students to think and answer the exercise as **AI Ready 1** given on page 46.

Suggested Activity

Ask the students to collect pictures of atleast 10 different robots and paste them in an A-3 size sheet. Also, write their names on the sheet.