11

TOUCHPAD

Artificial Intelligence Ver. 2.0

Teacher's Manual

Extended Support for Teachers

ORANGE
www.orangeeducation.in
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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

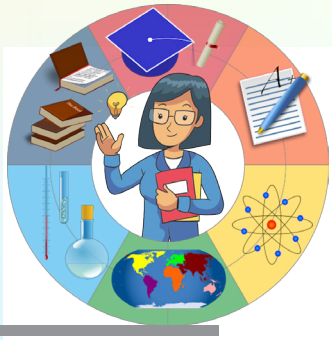
"If you cannot do great things, do small things in a great way."

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.

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During the class:

Present the lesson plan.

↓

After the class:

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

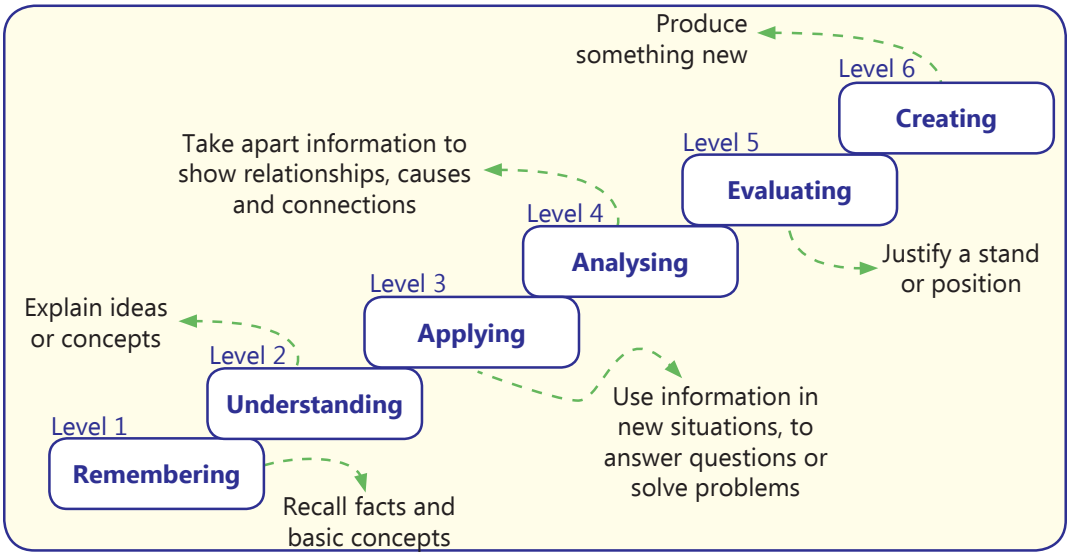
"Knowing yourself is the beginning of all wisdom."

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 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 XI

Lesson Plan

Part-A: Employability Skills

Artificial Intelligence

1. Communication Skills-III

Teaching Objectives

Students will learn about

- Communication—An Introduction
- Factors Affecting Communication
- Communication Styles
- Parts of Speech
- Asking Questions
- Habits and Routines
- 7Cs of Communication
- Methods of Communication
- Basics of Pronunciation
- Greetings
- Discussing Family

Number of Hours

Theory

30

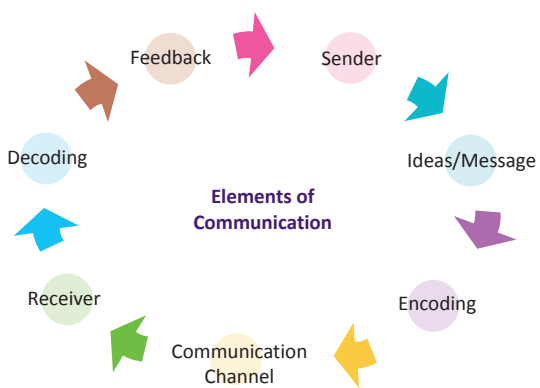
Teaching Plan

Before starting the chapter, give an introduction of Communication to the students.

Tell the students Communication is the 'sharing' of information between two or more people or within a group to achieve a common understanding.

Explain the elements of communication to the students:

- Sender
- Ideas/Message
- Encoding
- Communication Channel
- Receiver
- Decoding
- Feedback



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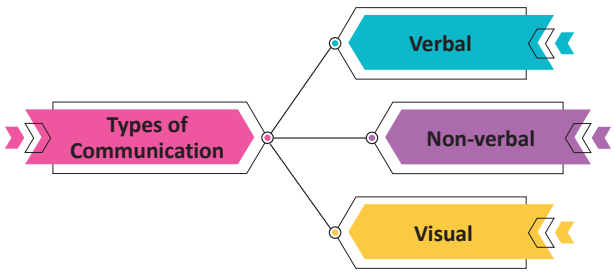
Share to the students that in order to ensure the communication in the most effective and engaging manner we need to have a clear vision of 7 C's:

- Clear
- Concise
- Concrete
- Correct
- Coherent
- Complete
- Courteous

Discuss the factors affecting of communication to the students in brief.

Tell the students about the methods of communication in detail:



Also, discuss about the advantages and disadvantages of different types of communication.

Explain Communication styles and discuss all the four Communication Styles to the students in detail. Those are:

- Passive
- Passive Aggressive
- Aggressive
- Assertive

Tell the students that Pronunciation is how you say a word of a language. Also, discuss the basics of Pronounciation with the students.

Teach the students about the parts of speech and various words used in that with examples.

Tell the students that greetings help us to start a nice conversation. Also introduce them about the types of greetings.

Teach them how to ask right questions which help them to get the correct information they want.

Teach them about the topics given below with examples:

- Discussing Family
- Habits and routines

Show the videos from the link given on pages 21 and 28 as a **Video Session**.

Ask the students to solve the exercise given on pages 29 as **Reboot**.

Ask the students to solve the task given on page 24 as **Task**.

Extension

Ask the students some oral questions based on this chapter.

Q. What is communication?

Q. What are the elements of communication?

Q. What is the importance of communication skills?

Q. What is the perspective of communication?

Q. What are effective ways of communication?

Q. Define the types of communication.

Q. What is verbal communication?

Q. What is non-verbal communication?

Q. Define written communication.

Q. What is a paragraph?

Q. What is a sentence?

Q. How we can construct a paragraph?

Q. Define parts of speech.

Q. What are the types of greetings?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 34 to 38 in the main course book as **Quiz** and **Exercise (Solved and Unsolved Questions)**.

Take the students to the computer lab and let them practice the activity given in **Lab Activity** section given on page 39 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment Activity.

Suggested Activity

Ask the students to create a PowerPoint Presentation on the topic Types of Communication.

Class XI

Lesson Plan

Part-B: Subject Specific Skills

Artificial Intelligence

1. Introduction to AI

Teaching Objectives

Students will learn about

- Introducing Artificial Intelligence
- History of Artificial Intelligence
- Domains of AI
- Machine Learning
- Types of Machine Learning
- Neural Networks
- What Machine Learning Can and Cannot Do?
- Why Artificial Intelligence?
- Types of Artificial Intelligence
- What is Data?
- Conditional Programming Vs Machine Learning
- Deep Learning
- How Does Neural Networks Work?
- Jobs in AI

Number of Periods	
Theory	Practical
20	10

Teaching Plan

While teaching this chapter, tell the students that **Artificial Intelligence (AI)** is a branch of computer science that simulate human intelligence into machines, especially in computer systems, so that they can think and perform actions similar to humans.

Tell the students about the importance and history of AI.

Explain the three types of AI to the students. Which are:

- Artificial Narrow Intelligence
- Artificial General Intelligence
- Artificial Super Intelligence

Introduce them to the domains of AI. Those are:

- Machine Learning
- Neural Networks
- Robotics

- Expert Systems
- Fuzzy Logic Systems
- Natural Language Processing

Teach them about the term data and the types of data.

Explain to the students the concept of Machine learning, the Machine learning process, and the features of Machine learning.

Teach them about Traditional Programming Vs Machine Learning.

Tell the students that Machine learning is often divided into three categories: Those are:

- Supervised
- Unsupervised
- Reinforcement Learning

Explain the concept of Deep Learning with the help of examples.

Teach the concept of neural networks to the students. Also, explain its three layers.

Demonstrate the working of neural networks to the students in detail.

Tell them about what Machine learning can and cannot do.

Let them know about the various jobs in the field of AI. Those are:

- Al Data Analyst
- Big Data Engineer
- BI Developer
- Data Scientist
- ML Engineer
- Product Manager
- Research Scientist

Ask the students to read the **Brainy Fact** given on pages 106, 108, 119, 121 and 122.

Ask the students to solve the exercise given on pages 106, 108, 117, 118 and 123 as **AI Task**.

Ask the students to solve the task given on pages 110 and 117 as **AI Reboot**.

Extension

Ask the students some oral questions based on this chapter.

Q. What do you mean by Artificial Intelligence?

Q. What is data?

Q. What is the difference between Machine learning and Deep Learning?

Q. Name the three domains of AI.

Q. What are the characteristics of structured and unstructured data?

Q. What are the steps involved in the Machine Learning process?

Q. What is Deep Learning?

Q. What do you understand by the term neural networks?

Q. How many layers are there in neural networks?

Q. Name the different types of jobs in the field of AI.

Evaluation

Encourage the students to walk through the chapter and ask them to play the game given on pages 113 and 119 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 124 to 129 of the main course book as **AI Quiz** and **Exercise**. Tell them to solve the critical and computational skill-developing exercises as **AI in Life** and **AI Deep Thinking** is given on page 129.

Take the students to the computer lab and let them practice the activity given in the **AI Lab** given on pages 129 to 131 in the main course book. This will enhance the abilities of the students and serve as a Subject Enrichment Activity.

Ask the students to solve the exercise given on page 132 as **AI Ready**.

Suggested Activity

Ask the students to try Quizzes and play games on the Kuki chatbot by using the link given below:

https://chat.kuki.ai/chat

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