

# AI RoboGenius

1

## TEACHER'S MANUAL

Extended Support for Teachers

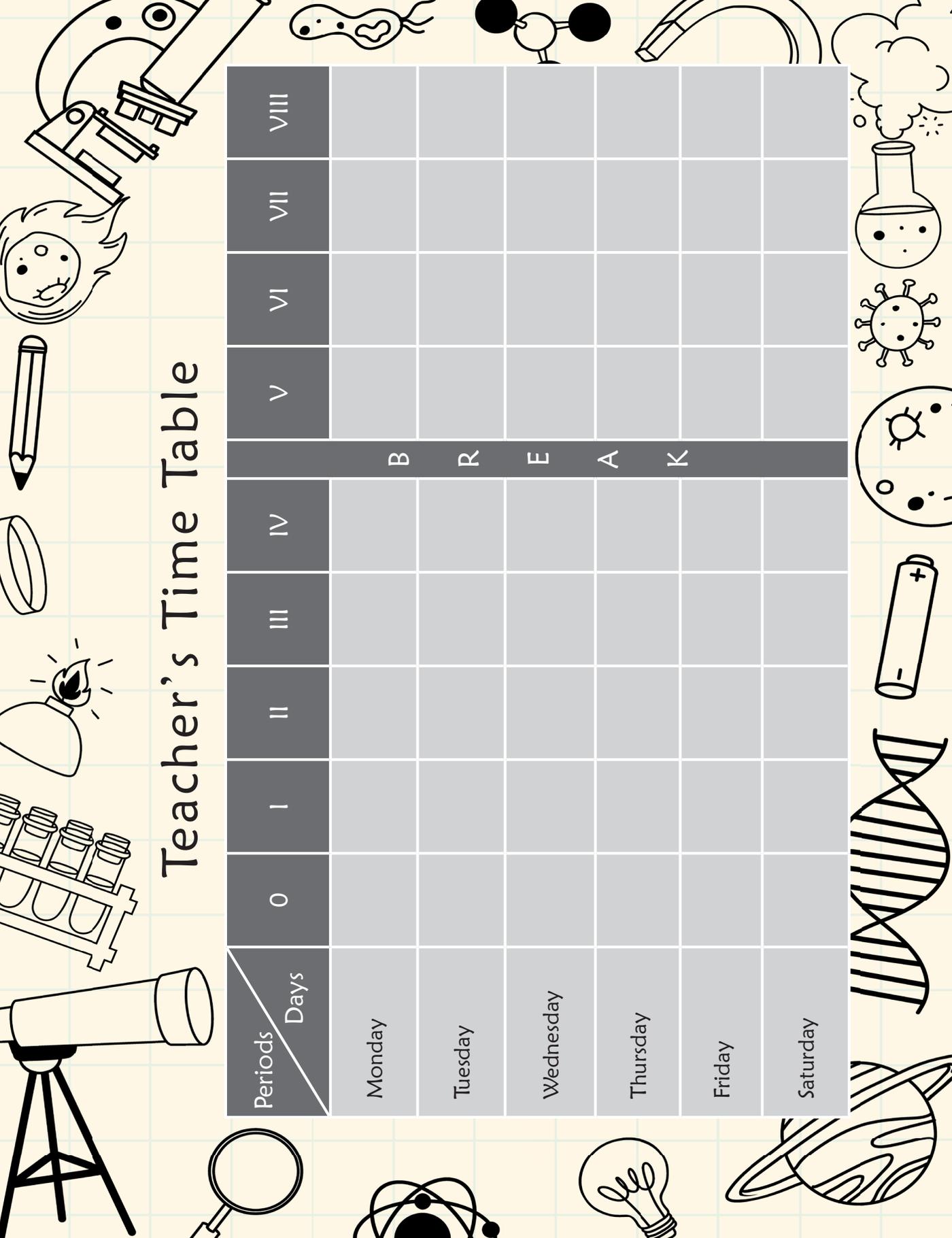


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# Teacher's Time Table

| Periods \ Days | 0 | I | II | III | IV | V | VI | VII | VIII |
|----------------|---|---|----|-----|----|---|----|-----|------|
| Monday         |   |   |    |     |    |   |    |     |      |
| Tuesday        |   |   |    |     |    |   |    |     |      |
| Wednesday      |   |   |    |     |    |   |    |     |      |
| Thursday       |   |   |    |     |    |   |    |     |      |
| Friday         |   |   |    |     |    |   |    |     |      |
| Saturday       |   |   |    |     |    |   |    |     |      |

B R E A K



# 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

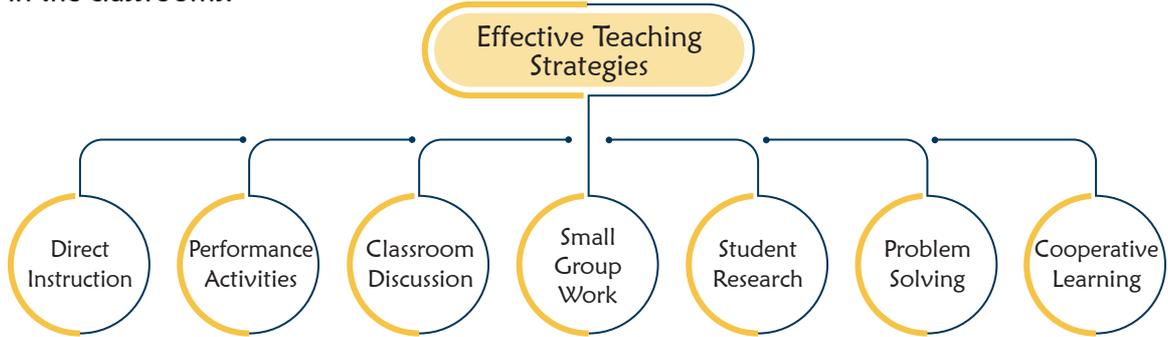
Managing the children's learning needs according to their developmental milestones is the key to a successful teaching-learning transaction in the classroom.

“ Family is the most important thing in the world. ”



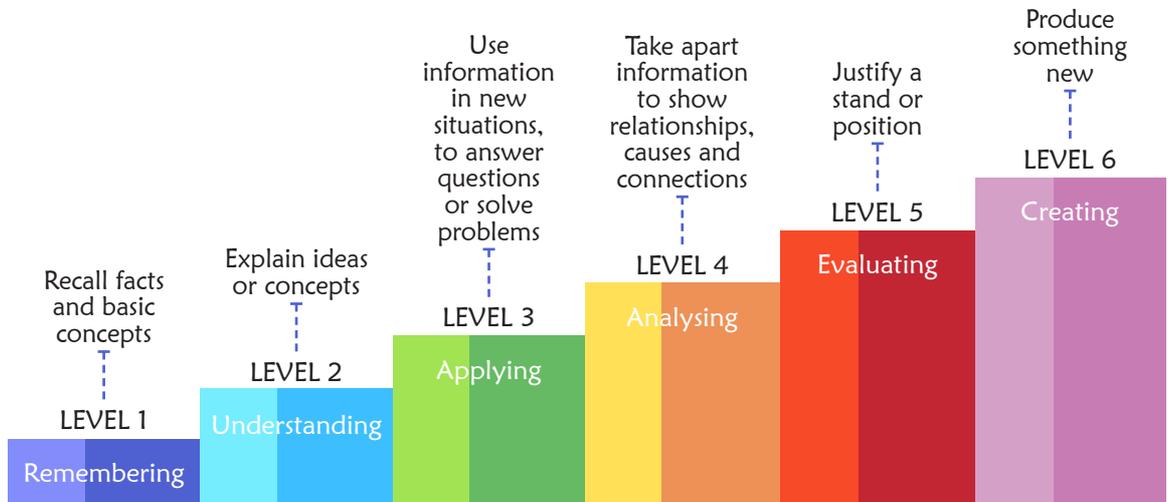
# Teaching Strategies

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 Natural vs Artificial

### Teaching Objectives

Students will learn about:

- ✦ Natural Things
- ✦ Artificial Things
- ✦ Difference Between Natural and Artificial Things
- ✦ Machine
- ✦ Robot
- ✦ Artificial Intelligence (AI)

| Number of Periods |           |
|-------------------|-----------|
| Theory            | Practical |
| 2                 | 1         |

### Teaching Plan

Discuss examples of natural things such as the Sun, trees, animals, and the Moon (illustrated with images).

Explain that these things come from nature and are not created by humans.

Discuss how natural things help in life on Earth (e.g., Sun provides warmth, trees give us oxygen).

Discuss examples of artificial things such as refrigerators, cars, and air conditioners (show corresponding images).

Discuss how computers are also machines but special because they can do many different tasks

Highlight the difference between natural and artificial things by explaining that natural things grow, while artificial things cannot grow.

Define a machine as a human-made object that makes work easier (e.g., scissors, refrigerator).

Define a robot as a special type of machine that can act like a human.

Explain AI as when a machine can think, learn, and make decisions, just like humans. This is different from simple machines that only perform pre-programmed tasks.

## Extension

Ask the students some questions based on this chapter.

- Q. What are natural things?
- Q. Can artificial things grow? Why or why not?
- Q. What is a machine? Can you give an example?
- Q. What makes a robot different from other machines?
- Q. How does AI help machines make decisions?

## Evaluation

Guide the students to complete the sections, such as **Ask AIRO** provided on page **12**.

Encourage the students to solve the question in the **VISUAL VAULT** section on page **13**.

Take the students to the computer lab and let them practice the activity given in the **GAME** section on page **14** in the main course book. This will enhance their skills in creativity and technology literacy.

After explaining the chapter, let the students do the **ROBO CHECK** on pages **16** and **17** in the main course book.

Encourage the students to complete the activity like **CASE STUDY** given on page **17**.

## Suggested Activity

Ask students to find out how artificial things are used in their homes (e.g., what machines or robots are present). Have them create a simple poster showcasing their findings, listing the artificial things and their uses.

# 2

## Natural and Artificial Intelligence

### Teaching Objectives

Students will learn about:

- ✦ Natural Intelligence
- ✦ Artificial Intelligence

| Number of Periods |           |
|-------------------|-----------|
| Theory            | Practical |
| 2                 | 0         |

### Teaching Plan

Ask students, “What do you think intelligence means?” and “Can machines be intelligent like humans?”

Explain that natural intelligence is something humans and some animals have, and it’s gifted by nature.

Define AI as intelligence that is created by humans. It allows machines and robots to think and learn, just like humans.

Discuss AI-powered devices that students may use or have seen, such as AI in toys (Aibo), factories, smartphones, televisions, etc. Show images of AI in toys, factories, televisions, and smartphones.

Encourage students to share their experiences with AI, like using voice commands on their smartphones or TV.

### Extension

Ask the students some questions based on this chapter.

- Q. What is natural intelligence?
- Q. What is artificial intelligence?
- Q. Can AI learn like humans? Give examples.
- Q. What makes AI different from human intelligence?
- Q. Name some devices that use AI.

### Evaluation

Guide the students to complete the sections, such as **AI TASK** provided on page **21**.

Encourage the students to solve the question in the **AI REBOOT** section on page **22**.

After explaining the chapter, let the students do the **ROBO CHECK** on pages **23** and **24** in the main course book.

Encourage the students to complete the **AI DEEP THINKING** activity given on page **25**.

Take the students to the computer lab and let them practice the activity given in the **AI LAB** section on page **25** in the main course book. This will enhance their skills in creativity and technology literacy.

### Suggested Activity

Take pictures of different hand gestures (e.g., thumbs up, peace sign, fist) and upload them to Google Teachable Machine. Train the model to recognise each gesture, test it with new images, and present how the model works and how its accuracy was improved.