AI RoboGenius

3

Teacher's Manual
Extended Support for Teachers
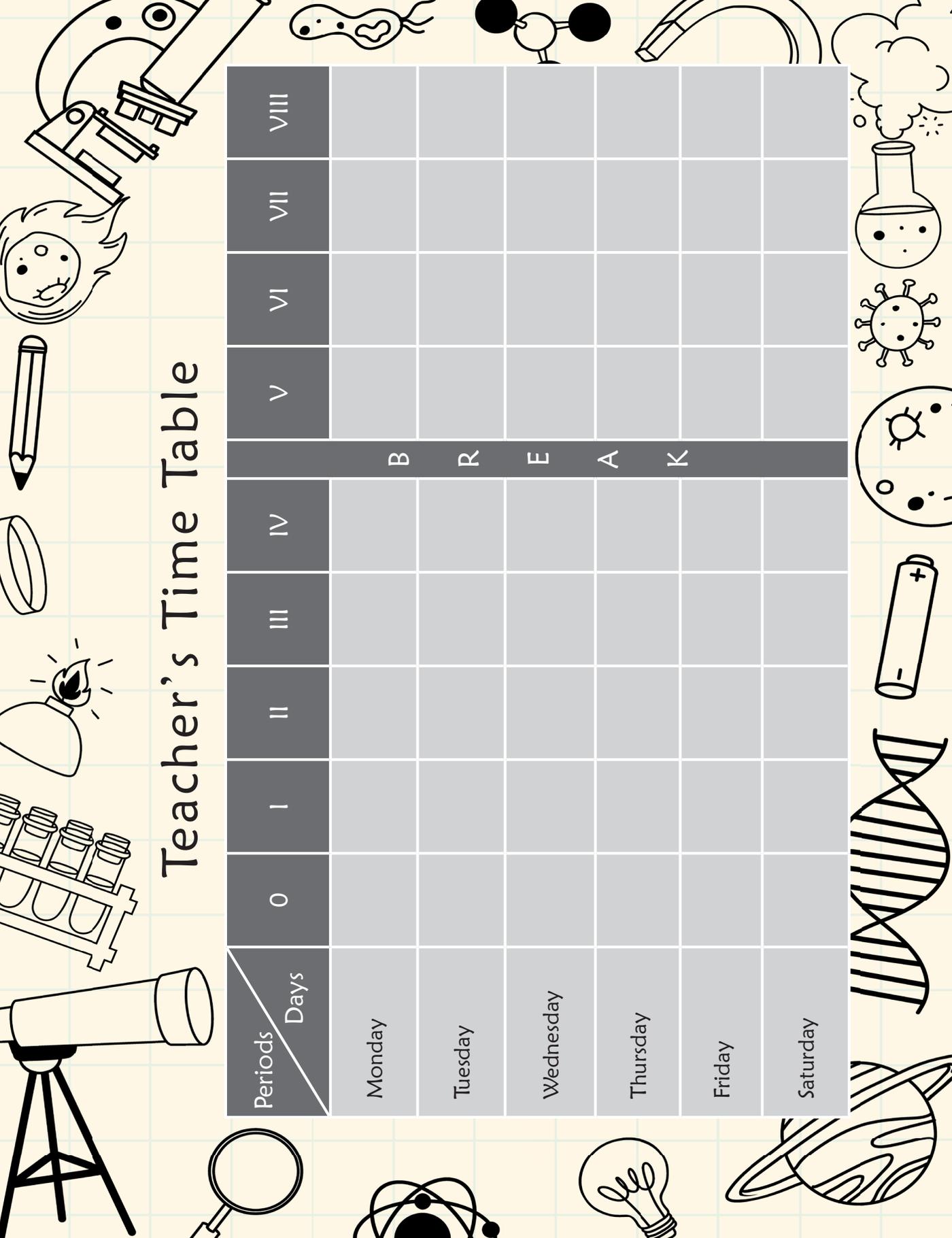
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Teacher's Time Table

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
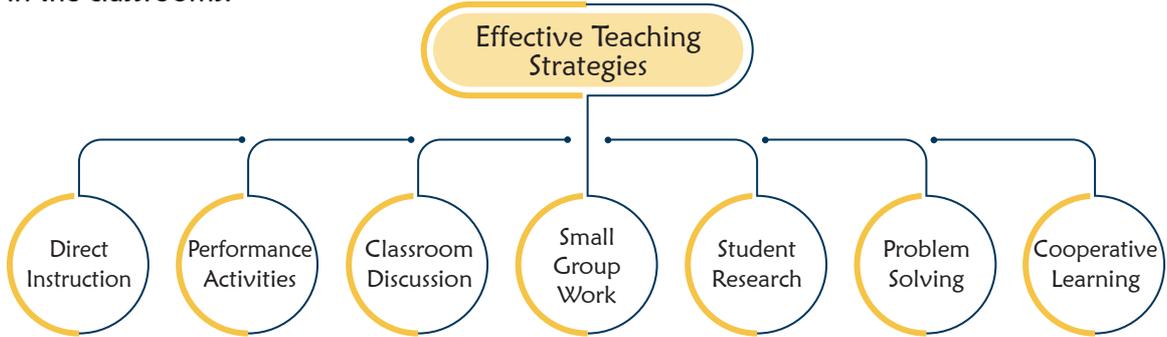- May have a conventional moral orientation

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

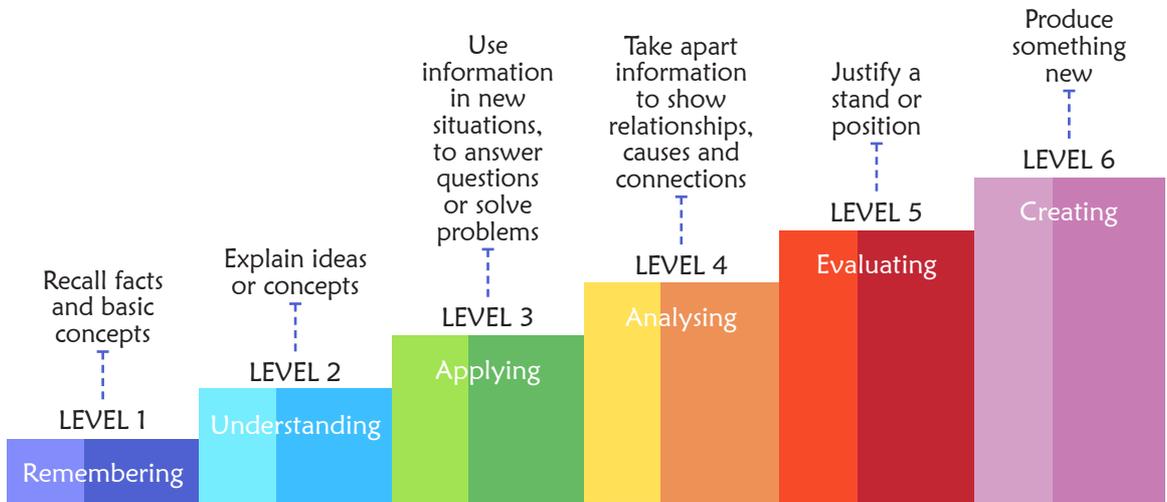**" Family is the most important thing in the world. "**

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. ❞

Numerous strategies have evolved over the years to facilitate the teaching-learning process in the classrooms.

Effective Teaching Strategies

- Direct Instruction
- Performance Activities
- Classroom Discussion
- Small Group Work
- Student Research
- Problem Solving
- Cooperative Learning

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.

Recall facts and basic concepts — LEVEL 1 — Remembering

Explain ideas or concepts — LEVEL 2 — Understanding

Use information in new situations, to answer questions or solve problems — LEVEL 3 — Applying

Take apart information to show relationships, causes and connections — LEVEL 4 — Analysing

Justify a stand or position — LEVEL 5 — Evaluating

Produce something new — LEVEL 6 — Creating

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.

LESSON PLAN

1 Artificial Intelligence

Teaching Objectives

Students will learn about:

✦ What Artificial Intelligence (AI) is

✦ Real-life examples of AI

✦ Advantages and disadvantages of AI

Teaching Plan

Number of Periods	
Theory	Practical
2	2

Explain the concept of Artificial Intelligence (AI)

Discuss how AI is integrated into everyday life. Demonstrate the steps to activate Google Assistant and allow students to ask AI-based questions.

Explain the concept of Face Lock on smartphones and how AI uses facial recognition to unlock devices.

Discuss robots like Sophia, a humanoid robot that has been granted citizenship.

Reference AI systems in YouTube and Google Maps, showcasing how AI personalises video recommendations and helps in navigation.

Discuss the advantages and disadvantages of AI.

Extension

Ask the students some questions based on this chapter.

Q.   What is AI and how does it differ from human intelligence?

Q.   Name one AI technology that helps you navigate real-world locations.

Q.   How do robots, like Sophia, help illustrate the role of AI in society?

Q.   How do YouTube and Google Maps use AI to improve user experience?

Q.   Discuss the advantages and disadvantages of AI based on the examples provided.

Evaluation

Guide the students to complete the sections, such as **AI TASK** provided on page **9**.

Encourage the students to solve the question in the **AI REBOOT** section on page **12**.

Ask the students to do the **AI GAME** task on page **13**.

After explaining the chapter, let the students do the **ROBO CHECK** on pages **14** and **15** in the main course book.

Ask the students to complete the **AI IN LIFE** activity provided on page **15**.

Take the students to the computer lab and let them practice the activity given in the **AI LAB** section on page **16** in the main course book. This will enhance their skills in creativity and technology literacy.

Suggested Activity

Have students create a presentation on how AI is used in different sectors like healthcare, entertainment, or transport. Students will need to highlight AI applications and how they impact daily life.

2 AI in Games and Movies

Teaching Objectives

Students will learn about:

✦   What Artificial Intelligence (AI) is and how it works in games

✦   How AI makes games fun and interactive

✦   How AI is used in movies to make characters and actions realistic

✦   Simple AI-based games and movies they can explore

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Start by explaining AI in simple terms—how computers can think and act like humans.

Discuss how AI helps in video games, such as making characters move and respond like people. Use CodeMonkey Jr. and Emoji Scavenger Hunt as examples of games where AI helps kids play and learn.

Explain to the students that they can play the Emoji Scavenger Hunt game to see how AI works in real-time using their parent's mobile devices, but only after getting permission from them.

Explain that Shadow Art uses AI to analyse hand movements and help children create shadow puppets.

Introduce Data Games, where students play fun games to learn math, logic and data analysis, developing coding skills while having fun.

Describe how AI is used in movies like Wall-E and Big Hero 6 to create robots that can act like people, showing emotions like love and care.

Discuss how robots in movies, like in Robots, work with humans and how AI helps them do tasks that are hard for humans to do.

Extension

Ask the students some questions based on this chapter.

Q.   How does AI help robots in movies act like humans?

Q.   What is your favourite AI game?

Q.   Can AI help robots have emotions, like in Wall-E?

Q.   How do AI characters in games help us learn?

Q.   What kind of robot would you like to see in a movie?

Q.   Name the types of games that help students learn math, logic, and develop coding skills while having fun.

Evaluation

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

Guide the students to complete the sections, such as **AI TASK** provided on page **22**.

Ask the students to answer the question after watching the video in the **VIDEO SESSION** section on page **28**.

After explaining the chapter, let the students do the **ROBO CHECK** on pages **29** and **30** in the main course book.

Take the students to the computer lab and let them practice the activity given in the **AI LAB** section on page **30** in the main course book. This will enhance their skills in critical thinking.

Suggested Activity

Students can play an AI game, such as CodeMonkey Jr., to see how AI makes the game fun.

Ask the students to draw their own robot, thinking about how it might use AI to talk, move, or help people.

After watching a short clip from Big Hero 6, have students discuss what they think the robot Baymax could do to help them if it were real.

Encourage students to talk about a robot or AI character they saw in a movie and what it could do.