7

DIGICODE AI

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	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

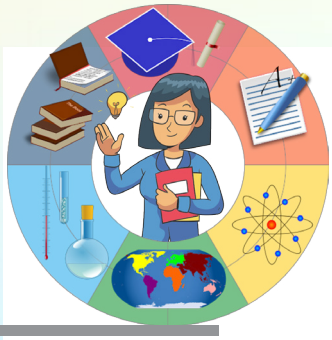
"If you cannot do great things, do small things in a great way."

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.

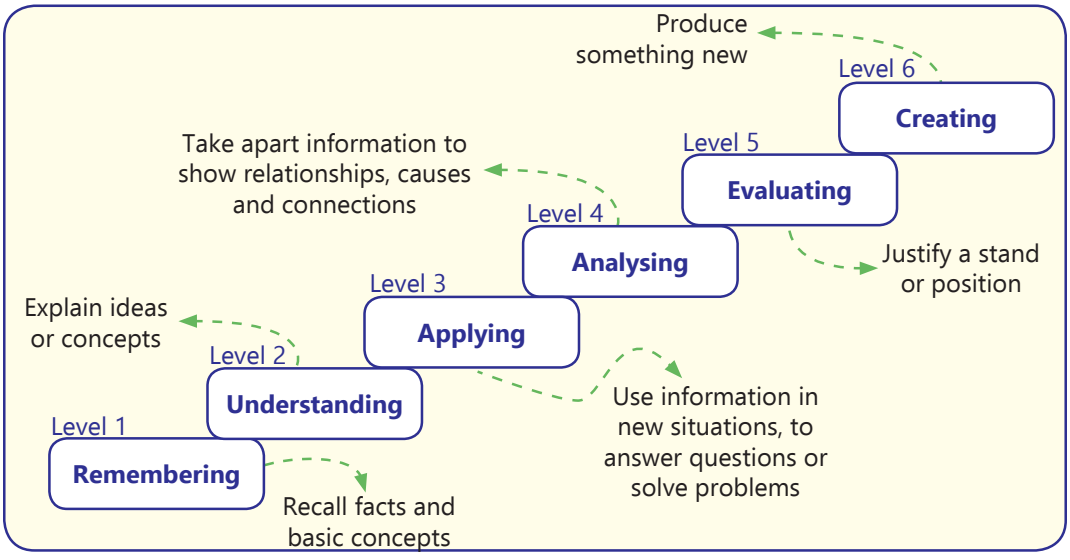
"Knowing yourself is the beginning of all wisdom."

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 7

Lesson Plan

DigiCode AI

1. App Development

Teaching Objectives

Students will learn about

- What is an App?
- Types of Mobile Apps
- Downloading and Installing the App
- Defining the Android and iOS
- Categories of Apps
- Developing an App

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on Page 7 of the main course book.

While teaching this chapter, brief the students about smartphones and technology.

Tell the students that an App is a software program primarily developed for hand-held smart devices such as mobile and tablet.

Explain to the students the difference between the Android and iOS in detail.

Demonstrate the types of Mobile Apps to the students with example, that are:

- Native Apps
- Web Apps
- Hybrid Apps

Explain the following categories of Apps to the students along with the examples:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Explain to the students the steps involved in downloading and installing the Apps.

Explain to the students the steps involved in developing an app using App Inventor.

IMPRINT 1

Ask the student to solve the exercise Byte Quest given on pages 8, 10 and 20 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App?

Q. Define the following:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Q. Name the two basic views of App Inventor.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 21 and 22 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 22 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 23 of the main course book. Help the students to solve these questions.

In creative assignment, activity like Byte Task given on page 23 of the main course book will enhance the ability of the students and serve as technology literacy and media literacy activity.

Suggested Activity

Ask the students to develop an App for reciting tables using App Inventor.

2. Krita—Image Editing

Teaching Objectives

Students will learn about

- ☞ Downloading and Installing Krita
- ☞ Components of Krita
- ☞ Opening an Image for Editing
- ☞ Tools to Edit an Image
- ☞ Starting Krita
- ☞ Creating a New File
- ☞ Understanding Krita Tools
- ☞ Saving an Image

Number of Periods	
Theory	Practical
1	3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 24 of the main course book.

IMPRINT 1

While teaching this chapter, tell the students about image editing.

Introduce the students to free and open source Krita Software.

Show to the students the interface of Krita and explain various elements.

Demonstrate to the students the method of creating a new file in Krita software.

Tell the students about the various tabs available in the Create new document—Krita dialog box.

Tell the students the steps involved in opening an image for editing.

Demonstrate various Krita tools available in Krita for creating and editing images.

Explain to the students following tools:

- Rectangular Selection Tool: used to select a rectangular portion of an image.
- Elliptical Selection Tool: used to select an oval or circular portion of an image.
- Polygonal Selection Tool: used to select a multi-side section of the image.
- Freehand Selection Tool: used to select an object or section of an image by drawing a freehand border around it.
- Contiguous Selection Tool: used to detect the edges of the image automatically on the basis of the colour codes and do the selection quickly using the round brush tip.
- Similar Color Selection Tool: used to select the areas with similar colour in an image.
- Crop Tool: used to remove unwanted portion from an image.
- Text Tool is used to type text on the image or the blank workspace.
- Smart Patch Tool: used to remove dark spots, scratches and other unwanted parts from an image.
- Clone Tool: used to duplicate a part of an image.

Further tell them the steps involved in saving an image after editing.

Ask the students to solve the exercise Byte Quest given on page 37 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the image editng?

Q. What is Krita?

Q. What is the process to start Krita?

Q. Name any two components of Krita.

Q. What is Resolution?

Q. What is a Layer?

Q. What do you mean by cropping?

Q. What do you understand by Freehand Brush?

Q. Which tool is used to type text?

IMPRINT 1

Q. Which tool is used to remove dark spots?

Q. Which key is used to select the Crop tool?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 39 and 40 of the main course book as Tech Ready. After solving the course book exercises, tell the students to solve Tech Twister activity given on page 40 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 40 of the main course book. Help the students to solve these questions.

In creative assignment, activities like Byte Task and Go Online given on page 41 of the main course book will enhance the ability of the students and serve as information literacy and creative activities.

Suggested Activity

Ask the students to open an image in Krita and use various tools to manipulate, retouch, crop, resize and add colours to the image. Finally ask them to save the image as 'My first editing in Krita'.

3. Advanced Features of Excel 2016

Teaching Objectives

Students will learn about

- Form in Excel
- Filtering Data
- Using Data Validation
- Using Pivot Table
- Using Form in Excel
- Conditional Formatting
- Using Subtotal Command

Number of Periods	
Theory	Practical
1	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 42 of the main course book.

Tell the students the use of Form command in Excel.

Demonstrate the steps involved in adding a new record, searching a record and deleting a record by using form command.

Introduce filtering as hiding unwanted data from a set of data.

Show to the students the various steps involved in applying Filters in a worksheet.

Share with the students that Filters once applied can be easily removed and tell them the method of removing filters.

Introduce Conditional Formatting as highlighting the required information.

Tell the students about basic difference between Filtering (unwanted information gets hidden) and Conditional Formatting (required information gets highlighted).

Explain the various criteria detailed under Conditional Formatting.

Demonstrate the steps involved in applying conditional formatting on a worksheet.

Demonstrate steps for applying data validation.

Show how to use the Subtotal command.

Guide students through creating a Pivot Table.

Ask the students to solve the exercise Byte Quest given on pages 45 and 48 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the use of form in Excel?

Q. How can you delete a record by using form in Excel?

Q. What is the use of filtering data in Excel?

Q. How can filters be removed in a worksheet?

Q. What is the primary function of the Subtotal command in Excel?

Q. What do you understand by conditional formatting feature?

Q. How is conditional formatting different from filtering data?

Q. What is the purpose of data validation in Excel?

Q. What purpose does a Pivot Table serve in Excel?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 53 and 54 of the main course book as Tech Ready. After solving the course book exercises, tell the students to solve Tech Twister activity given on page 54 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 54 of the main course book. Help the students to solve these questions.

In creative assignment, activity like Byte Task on page 54 of the main course book will enhance the ability of the students and serve as experiential learning and technology literacy activities.

Suggested Activity

1. Ask the students to enter their height and weight along with similar information for their nine friends. Sort the data with primary criteria as heights in ascending order and secondary criteria as weights in descending order.
2. Highlight the cells where the heights are less than the height of the student or weight is more than the weight of the student preparing the worksheet.

4. Algorithmic Intelligence

Teaching Objectives

Students will learn about

- ☞ Information Processing
- ☞ Conditions in a Program

Number of Periods

Theory

1

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 56 of the main course book.

Begin with introduction of algorithm as a step-by-step instructions in a sequential manner to solve a problem.

Let them know that a flowchart is a pictorial representation of an algorithm.

Make the students aware of information processing.

Make the students understand that binary code is the fundamental form of the programming data that is directly interchanged by a computer.

Explain about conditions in a program that are required to make certain decisions based on the logic of the program.

Also let them know about if-then-else statements and conditions related to them.

Ask the students to solve the exercise Code Quest given on pages 58 and 59 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is algorithm?

Q. What is a flowchart?

Q. Name the base to write a program.

Q. What is information processing?

Q. What is the importance of processing of information?

Q. What is binary code?

Q. Define conditions in a program.

Q. Why are conditional statements used in a program?

IMPRINT 1

Evaluation

After explaining the chapter, let the students do the exercises given on pages 60 and 61 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 61 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 62 of the main course book. Help the students to solve these questions.

In creative assignment, activity like Code Task given on page 62 of the main course book will enhance the ability of the students and serve as critical thinking and experiential learning activities.

Suggested Activity

Ask the students to write any if-then-else conditional statements.

5. More on MakeCode Arcade

Teaching Objectives

Students will learn about

- What are Variables?
- Performing Operations on Variables
- Data types in Programming
- Loop
- What is a Bug?
- What are Collections?
- Naming Variables
- What is Variable Initialization?
- What is a Sequence?
- Apply Loops and Conditionals with Sequencing
- What is an Event?

Number of Periods	
Theory	Practical
3	2

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 63 of the main course book.

While teaching this chapter, brief the students about variables and the scope of a variable.

Tell the students rules for naming a variable in Python.

Explain to the students the different operators and their uses.

Show to the students the way of creating or declaring a variable.

Introduce to the students some common data types used in programming.

Tell the students about sequence and its benefits in coding.

Introduce students with loops and tell them about the different types of loops.

Demonstrate to the students the use of loops and conditional with the help of sequencing.

Explain the students in brief about bug, event and collections.

Ask the student to solve the exercise Code Quest given on page 74 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the scope of a variable?

Q. What are the rules for naming a variable in Python?

Q. Define operator/operand.

Q. What is the syntax to declare a variable?

Q. Name some common data types.

Q. How using sequence in coding is beneficial?

Q. Name any three types of loops.

Q. Describe selection/iteration.

Q. Define bug/event/collection.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 75 and 76 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on pages 76 and 77 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 77 of the main course book. Help the students to solve these questions.

In creative assignment, activities like Code Task and Go Online given on pages 77 and 78 of the main course book will enhance the ability of the students and serve as critical thinking and experiential learning activities.

Suggested Activity

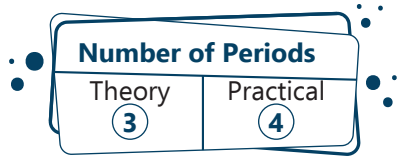
Ask the students to create program in MakeCode Arcade to display the sum of the two numbers.

6. Python

Teaching Objectives

Students will learn about

- ☞ Data Types
- ☞ Operators
- ☞ if Statement
- ☞ Nested if Statement
- ☞ Some More Programs
- ☞ Comments in Python
- ☞ Precedence of Operators
- ☞ if...else Statement
- ☞ if...elif...else Ladder



Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 82 of the main course book.

While teaching this chapter, tell the students that data types are used to define the type of value a data can contain.

Tell the students about data types and their four categories which are:

- Numbers
- Sets
- Sequence
- Boolean

Make them understand that comments can be used to explain parts of the code.

Explain to the students that Python supports two types of comments: Single line comment and Multiline comment.

Introduce to the students about operators in Python in detail.

Teach them about the types of operators in Python with examples:

- Arithmetic Operators
- Assignment Operators
- Logical Operators
- Relational Operator

Explain the Precedence of operators to the students.

Tell the students that decision making in Python is done using conditional statements which decide the flow of program execution.

Explain all the conditional statements available in Python to the students. Those are:

- if Statement
- if...else Statement
- Nested if Statement
- if...elif...else Ladder

Demonstrate the syntax and flowchart of each conditional statement to the students.

Demonstrate some more programs to the students.

Ask the student to solve the exercise Code Quest given on page 90 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. Define the term data types
Q. What do you mean by Precedence of operators?
Q. Define Assignment Operators.
Q. Define comments in Python.
Q. What are the operators?
Q. How many types of comments does Python support?
Q. Which operators are used to evaluate and decide?
Q. Which is the simplest conditional statement?
Q. Which statement checks for a condition?
Q. What do you mean by nested if statement?
Q. What are the types of conditional statements available in Python?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 99, 100 and 101 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on pages 101 and 102 of the main course book. Ask the students to answer the question given as Competency-based/Application-based questions on page 102 of the main course book. Help the students to solve these questions.

In creative assignment, activity like Code Task given on page 102 of the main course book will enhance the ability of the students and serve as critical thinking activities.

Suggested Activity

Ask the students to make a Word file containing five Python programs using different operators and code them on Python Idle Window to find the output of it. Also, paste the screenshots of the output in Word.

7. AI Terminologies

Teaching Objectives

Students will learn about

- ☞ Brief History of Human-Machine Interaction
- ☞ Components of Human-Machine Interaction
- ☞ Stages of Human-Machine Interactions
- ☞ Types of Human-Machine Interactions
- ☞ Future of Human-Machine Interaction

Number of Periods
Theory
3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 103 of the main course book.

Explain the meaning of Human-Machine Interaction and also tell the brief history of HMI to the students.

Tell the components of HMI in brief to students.

Explain the stages of HMI with proper examples to the students which are:

- Intention
- Selection
- Execution
- Evaluation

Define the different types of HMI to the students with examples:

- Menu Driven Interface
- Voice User Interface
- Command Line Interface
- Touch Sensitive Interface
- QWERTY
- Eye Tracking Device
- ENIAC
- Trackball or DATAR
- Gaming Joysticks
- Virtual Reality
- Multi-Touch Technology
- 3D Printing
- Smartwatch
- Wii
- Google Voice Search App
- Dexmo Exoskel

Share with the students about the scope and future of HMI.

Ask the student to solve the exercise AI Quest given on pages 105 and 110 of the main course book.

Tell the student to do the activity AI Game given on pages 111 and 112 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What is HMI?

Q. What are the components of HMI?

Q. What are the stages of HMI? Define each in detail.

Q. Define the following:

a. Menu Driven Interface
b. Voice User Interface
c. Command Line Interface
d. Touch Sensitive Interface
e. QWERTY
f. Eye Tracking Device
g. ENIAC
h. Trackball or DATAR
i. Gaming Joysticks
j. Virtual Reality
k. Multi-Touch Technology
l. 3D Printing

m. Smartwatch
n. Wii
o. Google Voice Search App
p. Dexmo Exoskel

Evaluation

After explaining the chapter, let the students do the exercises given on pages 113 and 114 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 114 of the main course book. Ask the students to answer the question given as Competency-based/Application-based questions on page 115 of the main course book. Help the students to solve these questions.

In creative assignment, activities like Code Task and Go Online given on page 115 of the main course book will enhance the ability of the students and serve as creative and interdisciplinary learning activities.

Suggested Activity

Ask the students to search about examples of all the types of HMI.

8. Types of AI

Teaching Objectives

Students will learn about

- Weak AI
- Super AI
- Strong AI

Number of Periods
Theory
2

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 117 of the main course book.

Explain the meaning of term AI to the students.

Tell the students about weak AI and its characteristics.

Discuss the meaning if strong AI and its characteristics.

Tell the students about super AI and its characteristics.

Ask the student to solve the exercise AI Quest given on page 120 of the main course book.

Tell the student to do the activity AI Game given on pages 120 and 121 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What do you mean by term AI?

IMPRINT 1

Q. Name the three categories of AI based on functionality of AI applications.

Q. Define Weak AI/Strong AI/Super AI.

Q. What are the characteristics of Weak AI/Strong AI/Super AI?

Evaluation

After explaining the chapter, let the students do the exercises given on pages 121 and 122 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 123 of the main course book. Ask the students to answer the question given as Competency-based/Application-based questions on page 123 of the main course book. Help the students to solve these questions.

In creative assignment, activities like AI Task and Go Online given on page 123 of the main course book will enhance the ability of the students and serve as creative and experiential learning activities.

Suggested Activity

Ask the students to search about more types of AI other than the one taught in this chapter.

9. Smart Living

Teaching Objectives

Students will learn about

- ☞ Concept of Smart Living
- ☞ Future of AI

Number of Periods
Theory
3

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 124 of the main course book.

Start the chapter with an introduction of variety of gadgets used in our homes to make the life easier.

Explain the meaning and purpose of Smart Homes to the students. Also, tell them how these devices are beneficial like:

- Power Saver
- Protect Home and its Belongings
- One Point Access
- Remote Control
- Protection
- Increased Energy Efficient
- Interactive Home
- Flexibility
- Climate Control

Share the devices which are used in smart homes to the students:

- Smart Hubs
- Video Doorbells

- Smart Cameras
- Smart Lighting
- Smart Speakers
- Smart Smoke Detectors
- Smart Thermostats

Introduce smart cities to the students.

Tell the students about the benefits of smart cities and challenges involved in establishing smart cities.

Explain the meaning of smart highway to the students.

Introduce the students with AI wave and scope in all fields.

Tell the students about the three stages of AI:

- First Stage
- Second Stage
- Third Stage

Explain the Future of AI to the students with the concept that is being planned in fields like:

- Automated Transportation
- Traffic Management
- AI in Education
- Safety and Security
- Health Care Industries
- AI in Military and Cybersecurity

Ask the student to solve the exercise AI Quest given on pages 129 and 134 of the main course book.

Tell the student to do the activity AI Game given on pages 130 and 131 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. What are smart devices?

Q. What is the concept of smart home?

Q. What are the benefits of smart home?

Q. Define the following:

a. Smart Hubs

b. Video Doorbells

c. Smart Cameras

d. Smart Smoke Detectors

e. Smart Lighting

f. Smart Thermostats

g. Smart Speakers

Q. Explain the meaning of smart cities?

Q. What are the challenges involved in establishing smart cities?

Q. Define smart highway.

Q. What are the three stages of AI evolution?

Q. What is the future of AI?

Q. Define the following:

a. Automated Transportation

b. Safety and Security

c. Health Care Industries

d. AI in Education

e. AI in Military and Cybersecurity

Evaluation

After explaining the chapter, let the students do the exercises given on pages 136 and 137 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 138 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based questions on page 138 of the main course book. Help the students to solve these questions.

In creative assignment, activities like AI Task and Go Online given on page 138 of the main course book will enhance the ability of the students and serve as creative and media literacy activities.

Suggested Activity

Ask the students to search about some more devices used in smart homes.

10. Fields Where Robots Are Used

Teaching Objectives

Students will learn about

- Security and Surveillance
- Military
- Cooking
- Space Exploration
- Agriculture
- Manufacturing
- Customer Service
- Healthcare
- Entertainment
- Underwater Research

Number of Periods

Theory

2

Teaching Plan

Before starting the chapter, ask the students to solve the question in Tech Set Go given on page 139 of the main course book.

While teaching this chapter, tell the students that robots are assigned to specific tasks.

Make them understand that robots are used in different fields which are:

- Security and Surveillance
- Military
- Manufacturing
- Customer Service

- Cooking
- Space Exploration
- Agriculture
- Healthcare
- Entertainment
- Underwater Research

Ask the student to solve the exercise AI Quest given on pages 140, 143 and 145 of the main course book.

Extension

Ask the students some oral questions based on this chapter.

Q. How are robots being used as security guards?

Q. Name a robot used in space exploration and mention its mission.

Q. How are robots used in the entertainment industry?

Q. What tasks can robotic arms perform in manufacturing industries?

Q. Give an example of a humanoid robot used in customer service.

Q. How can chef robots help with cooking?

Q. What are some applications of surgical robots in healthcare?

Q. What are some tasks that agriculture robots can perform?

Q. Name a robot used for underwater research and its purpose.

Evaluation

After explaining the chapter, let the students do the exercises given on pages 146, 147 and 148 of the main course book as Tech Ready. Tell the students to solve Tech Twister activity given on page 148 of the main course book. Ask the students to answer the questions given as Competency-based/Application-based question on page 148 of the main course book. Help the students to solve these questions.

In creative assignment, activity like AI Task given on page 149 of the main course book will enhance the ability of the students and serve as art integration learning and productivity & accountability activities.

Suggested Activity

Ask the students to explore the world of robotics and build their own robot using simple materials.

Some of the materials they can use are:

- Cardboard or sturdy paper
- Craft supplies (markers, colored pencils, scissors, glue, tape)
- Optional: Additional materials for embellishments (pipe cleaners, googly eyes, buttons, etc.)
- Small motor or battery-operated toy (optional)