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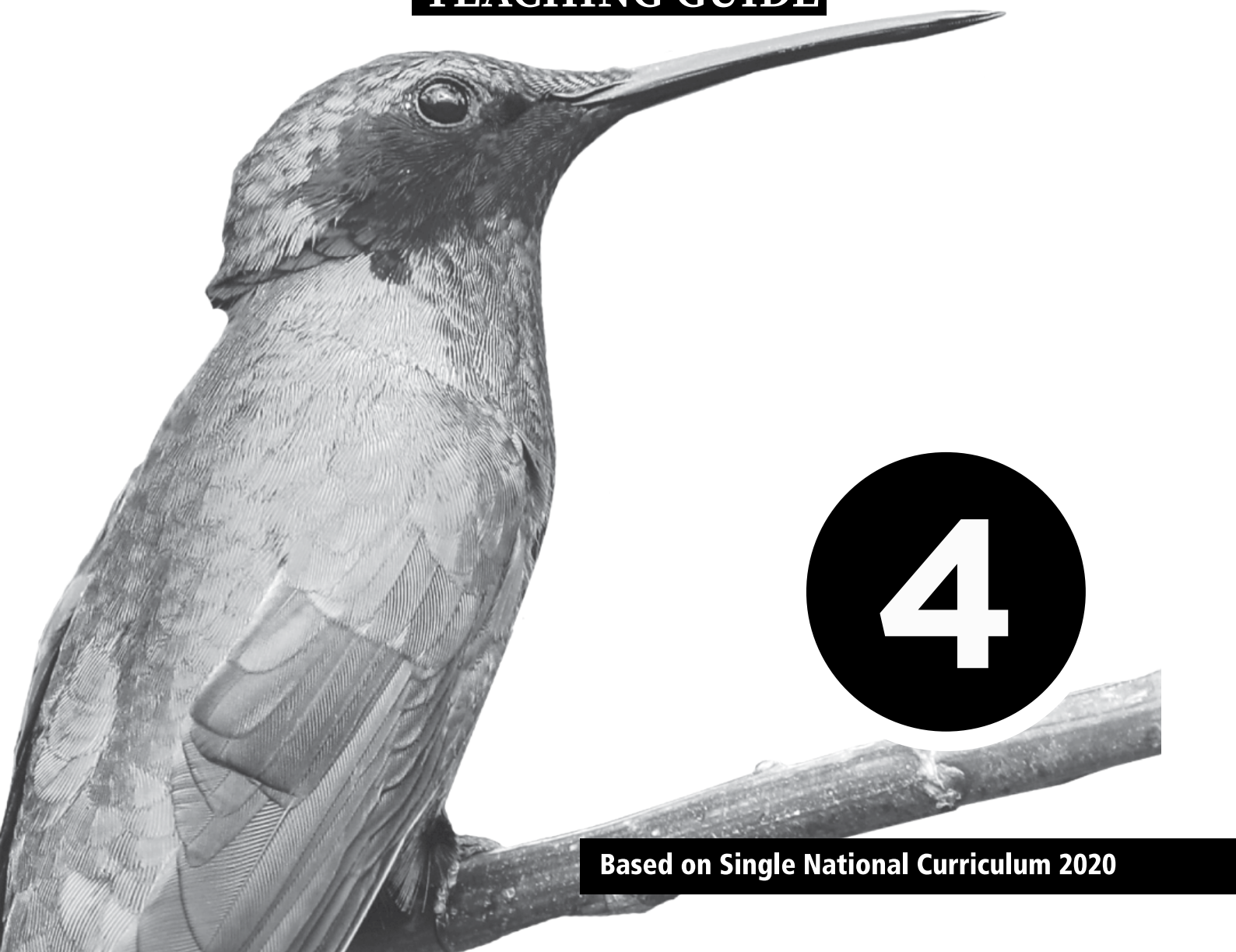
NEW Amazing Science

TEACHING GUIDE



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Based on Single National Curriculum 2020

Introduction

New Amazing Science Teaching Guide is a vital resource for science teachers in class to help deliver knowledge, problem-solving and thus achieve academic objectives.

Key Terms

Starter Activity:

These help in bringing focus to the lesson and set the tone for learning.

Lesson Methodology:

It suggests the method to cover the learning objectives for having a complete teaching and learning experience.

PMI Chart :

It is a type of graphic organizer in which student examines the pluses, minuses and interesting factors of the lesson.

Plus – Advantages

Minus – Disadvantages

Interesting -Implications

It is filled using ticks or cross

PLUS	MINUS	INTERESTING
x	-	x
-	x	x

Home Learning:

For revision and reinforcement of the topic learned for strengthening knowledge of students.

Contents

Unit 1a

CHARACTERISTICS AND LIFE PROCESSES OF ORGANISMS

SUB-TOPICS

- Introduction
- How living things :
  - Breathe
  - Need food
  - Feel
  - Grow
  - Reproduce
- Classification of living things
- Classification of Animals
- Animals with backbone ; Animal without backbone
- Classification of Plants
- Flowering plants
- Non-Flowering Plants
- Biodiversity

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 1a

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- Introduction
- How living things :
  - Breathe
  - Need food
  - Feel
  - Grow
  - Reproduce
- Differences between plants and animals

Date : Duration: 2x40 Term : Week:

Learning objectives

- Compare and contrast characteristics that distinguish major groups of living organisms (Plants and Animals).

Resources

- Textbook (NAS Book 4)
- Charts

Starter Activity (5 min)

- Prepare two charts as given, on the board. Ask students to help fill the empty columns

(Text and tick underlined, bold and italics show correct answers and should be removed when drawing on board)

Chart 1

Characteristic	Plants	Animals	Both
Ability to move		✓	
Feeding/ eating			✓
Growth			✓
Feeling			✓

Chart 2

Plants and Animals	
Similarities	**Differences**
Both need water and food to survive.	Animals move to get food and water but plants do not.
Plants and animals grow and reproduce.	Plants make their own food from sunlight whereas animals are dependent.

Lesson Methodology (30 min)

- After the starter activity teacher will write and briefly explain the keywords of the topic on the board. Keywords include backbone, classification and vertebrates.
- Students will be asked to pair up and read the page number assigned respectively. The teacher will take rounds and assist. Furthermore, the teacher will read along with the students in the next step. The teacher will explain the lesson.
- The teacher will facilitate a classroom discussion to elaborate key points about characteristics of living organisms i.e. Plants and Animals followed by their similarities and differences.
- In the end, the teacher will give a quick analysis of the lesson and have the student attempt the respective Quick Review present in the book.

Teacher Ideas

Plenary (5 min)

- Quick PMI chart (Plus, minus, interesting) will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed questions 1, 2 . Facilitate accordingly.

Home Learning

Re-read the topic for revision and comprehension

- Divide the class into three groups, assign a sub-topic each, and have them collect information and present it in class. (Presentation- 10 minutes)

Lesson Evaluation

- As a warm-up activity in the next class, the teacher shall ask a few questions to deduce whether the concepts are clear and well comprehended.

Further Notes

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 1a

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- Classification of living things
- Classification of animals
- Animals with backbone
- Animals without backbone

Date : Duration: 2x40

Term : Week:

Learning objectives

- To define classification of living things.
- To further explain the basis for the classification of animals into two main types of animals and their groups.

Resources

- Textbook (NAS Book 4)
- Charts

Starter Activity (5 min)

- The teacher should place a pictorial chart showing the classification of living organisms (copy chart from the book).
- They will conduct a brainstorming session asking how to identify animals and plants. The core word is ***"features"***. They will establish this fact with the students' prior knowledge as they can identify some animals as well as plants due to their distinguishing features.

Lesson Methodology (30 min)

- After the starter activity, teacher will ask students about keywords studied earlier *i.e classification, backbone, vertebrates.*
- Students will be asked to pair up and read page numbers assigned respectively. Furthermore, the teacher will read along next, followed by an explanation by the teacher.
- The teacher will facilitate a classroom discussion to elaborate key points about the classification of living organisms, animals with or without backbones and finally a larger picture will be shown and explained with the help of a given chart showing the classification of animals.
- In the end, the teacher will give a quick analysis of the lesson and have students attempt questions –***Quick Review*** present in the unit.

Teacher Ideas

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed question no. **3** and facilitate accordingly.

Home learning

- Assign reading for revision.

Presentation

- Divide the class into four groups and assign sub-topics to each group to collect information on and present in class (a ten-minute presentation).

Lesson Evaluation

- As a warm-up activity in the next class, the teacher shall ask a few questions to deduce whether the concepts are cleared and well comprehended.

Further Notes

LESSON PLAN #3

Class: IV Subject: General Science

Unit: 1a

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- Classification of Plants
- Flowering plants
- Non-Flowering Plants
- Biodiversity

Date : Duration: 2 x40 Term : Week:

Learning objectives

- To explain the classification of plants.
- To further explain with examples of the two main groups.
- To talk about Biodiversity and how it is important.

Resources

- Textbook (NAS book 4)
- Plant pots

Starter Activity (5 min)

- The teacher will arrange pots of flowering and non-flowering plants, e.g. Rose, ferns.
- She will show the Rose plant and ask students about its features. Similarly, the non-flowering plant will be shown and its features will be identified and differentiated.

Lesson Methodology (30 min)

- After the starter activity teacher will write keywords like classification, flowering plants, non-flowering plants and biodiversity and they will be defined.
- Students will be asked to pair up and read the page number assigned respectively. The teacher will take rounds and assist the students. The teacher will explain the lesson.
- The teacher will facilitate a classroom discussion to elaborate key points about the classification of plants into flowering and non-flowering plants and Biodiversity will be highlighted for students awareness.
- In the end, the teacher will give a quick analysis of the lesson and have the students attempt the respective ***Quick Review***. Followed by ***STEM activity.*** In the end, the teacher will sum up the topic by discussing the ***MindTree*** and ***Project*** present in the book.

Teacher Ideas

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt all the remaining questions of ***ChapterReview*.** Facilitate accordingly.

Home learning

- Re-read the topic for review and comprehension.

Project

- Students will follow the guidelines present in the book.

Lesson Evaluation

- Students can be evaluated during the lesson and through exercises done in the respective notebooks.

Further Notes

ANSWER KEY UNIT 1a

Circle the correct answer.

1.	d .teddy bear	4.	a. earthworm
2.	a. air	5.	d. mushroom
3.	c. ant		

Fill in the blanks.

Ferns and mosses are two types of ***non-flowering*** plants, which do not produce ***seeds***. They reproduce by making ***spores***. They live either in ***damp*** places where there is plenty of ***moisture***.

Mosses produce spores at the end of the stalk, and ***ferns*** produce it on the underside of the leaves.

Vocabulary review

1.	Vertebrates	4.	Coniferous
2.	Invertebrates	5.	Pomegranate
3.	Bones		

One-Word Answer

1.	Fish and Elephant	3.	Jellyfish and sea anemone
2.	Earthworm and Spider	4.	Earthworm

Observe and Answer

Invertebrates	Vertebrates
Ladybird	Tiger
Spider	Peacock
Earthworm	GoldFish
Tapeworm	Turtle

Note: Ladybird is also called ladybug

Detailed Questions

1. Explain the important characteristics of living organisms.

Answer:

The important characteristics of living organisms are :

- They can move.
- They can breathe.
- They need food.
- They can feel.
- They can grow.

2. Explain how plants are different from animals.

Answer:

Plants are different in some ways from animals such as:

- Plants do not move from place to place.
- Plants make their own food from water, air, and sunlight in green parts, in the presence of chlorophyll.

3. How do you classify animals into two groups? Write their names and features.

Answer:

Animals are classified into two groups, based on the presence or absence of a backbone. The two groups are known as:

a. Vertebrates

Features:

- Presence of a backbone and skeleton

b. Invertebrates

Features:

- Absence of a backbone and some do not have any kind of skeleton at all. Some invertebrates have tough skin and shells.

4. What are the two main groups of plants? Write their features.

Answer:

The two groups of plants are known as flowering and non-flowering plants respectively.

Features:

a. Flowering plants

Plants that have flowers and produce seeds.

b. Non-flowering plants

These plants do not have flowers that produce seeds, instead, some grow cones to produce seeds or plants, such as ferns, and mosses that produce spores.

Unit 1b | CHARACTERISTICS ANDLIFE PROCESSES OF ORGANISMS

SUB-TOPICS

- Introduction
- The Brain
- The Heart and Blood
- the Lungs and Breathing
- The Muscles and Movement
- The Teeth and Food
- The Teeth and their different shapes and sizes
- The Stomach and Digestion
- Parts of Plants
- Root
- Shoot
- Stem
- Leaf
- Function of the Leaves
- Flowers

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 1b

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- Introduction
- The Brain
- The Heart and Blood
- The Lungs and Breathing

Date : Duration: 2x40 Term : Week:

Learning objectives

- To introduce the concept of living organisms.
- To make the students learn about the important organs and how they enable our bodies to be fully functional.

Resources

- Text Book (NAS 4)
- Human body model
- Starter Activity (5min)
- The teacher will show a model of the human body to represent various organs.
- A brainstorming session will be conducted for the recognition and identification of the brain, heart and lungs.

- Students will be asked to feel their heart movement by putting their hands on the centre-left area of their chest.

Lesson Methodology (30 min)

- The teacher will question the students highlighting the keywords ***e.g Muscles, organs, function and processes.*** What these mean to them.
- Next, the students will be asked to read the respective pages for the highlighted sub-topics and the teacher will read along next, followed by an explanation.
- During the classroom discussion, the teacher will elaborate key points about body organs such as the brain, heart and lungs. Simultaneously, there will also be a discussion of the blood, breathing and important processes, using labelled diagrams drawn on the board or using a PowerPoint presentation.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed questions **1** and **2.**

Home learning

- Re-read the topic for revision and comprehension.
- Divide the class into three groups assigning an organ/process each to draw/ illustrate on an A4 paper for display in class the next time.

Lesson Evaluation

- As a warm-up activity in the next class teacher, ask a few questions from the students to deduce whether the concepts are clear and well comprehended.

Further Notes

Teacher Ideas

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 1b

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- The Bones and Skeleton
- The Muscles and Movement
- The Teeth and Food
- The Teeth and their different shapes and sizes
- The Stomach and Digestion

Date : Duration: 2x 40

Term : Week:

Learning objectives

- To learn about the various parts of the human body which enable us to perform vital functions.

Resources

- Text Book NAS 4
- Model of teeth

Starter Activity (5 min)

- The teacher will write keywords of the sub-topics on the board; bones, skeleton, muscles, movement, teeth, food, shape of teeth, stomach and digestion.
- The teacher will instruct students to point towards the body part they read out e.g. teeth.
- Students will be asked about the bone that helps in digestion(teeth).

Lesson Methodology (30 min)

- After the starter activity, the keywords written on the whiteboard earlier will be explained.
- Students will be instructed to pair up, and read respective pages from the book. The teacher will continue taking rounds and provide assistance. Furthermore, they will read along teacher followed by a classroom discussion.
- The teacher will facilitate a classroom discussion to elaborate in detail the key points and how various systems work in animals bodies.
- In the end, the teacher will give a quick analysis of the lesson and have the students attempt the respective Quick Review present in the book.

Teacher Ideas

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have the students attempt the Quick Review.

Home learning

- Re-read the topic for revision and comprehension.
- Have each student draw one of the organs named in the sub-topic.

Lesson Evaluation

- As a warm-up activity in the next class the teacher shall ask questions to deduce whether the concepts are clear and well comprehended.

Further Notes

LESSON PLAN #3

Class: IV Subject: General Science

Unit: 1b

Topic: Characteristics and Life Processes of Organisms

Sub-Topics:

- Parts of Plants
- Root
- Shoot
- Stem
- Leaf
- Leaves Perform The Following Functions
- Flowers

Date : Duration:

Term : Week:

Learning objectives

- To enable students to identify the main parts of a plant.
- To highlight the structure of leaves in flowering and non-flowering plants.
- To make them learn how a plant lives with different parts working together as they perform vital functions.

Resources

- Text Book NAS 4
- Magnetic alphabets

Starter Activity (5 min)

- UNSCRAMBLE WORDS

Using the magnet alphabets to introduce the keywords by having them unscramble it. as shown below.

T O S O H	O R T O	N P A T L
L F A E	E T S M	F W O E R L

Shoot Root Plant Leaf Stem Flower

Lesson Methodology

- Students will be asked to open books and read the assigned pages along with the teacher so the students can pick up the correct pronunciation of new words. Followed by individually reading it silently.

Teacher Ideas

- A discussion on each sub-topic will take place with students adding on any prior knowledge about it. The teacher will side by side draw any diagrams necessary to clear concepts.
- **Quick Review** will be done followed by the **STEM Activity**.
- The lesson will be concluded with a discussion of the Mind Tree.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment Opportunities (30 min)

- Have students attempt the leftover chapter review and detailed questions.

Home learning

- Re-read the topic for revision and comprehension.

Lesson Evaluation

- Cross question to deduce whether they have understood it or not.

Further Notes

ANSWER KEY UNIT 1b

Circle the correct answer.

1.	a. brain	4.	c. roots
2.	b. larger	5.	c. cabbage
3.	d. in all directions		

Vocabulary review

1.	Brain	4.	Lungs
2.	Heart	5.	Teeth
3.	Skeleton		

One-Word Answer

1.	stem and leaves	3.	Potato, ginger
2.	Beetroot, turnips	4.	Cabbage, spinach

Observe and Answer

1.	Sun is the source of light in photosynthesis.	3.	The purpose of chlorophyll is to trap sunlight.
2.	Chlorophyll	4.	Carbon dioxide and water

Answer The Following Questions

1. What is the function of the brain?

Answer:

The brain is an organ where all our thoughts and feelings are processed. It controls our entire body and sends commands throughout different body parts, through our nerves.

2. Explain the working of the lungs.

Answer:

When we breathe, air goes into our nose or mouth. The air then passes down the windpipe to our lungs. When we breathe in, the lungs fill with air and become larger (expand) and when we breathe out, they become small (contract).

3. What is the function of a flower?

Answer:

The function of a flower is reproduction. They develop into fruits that contain seeds that grow into new plants.

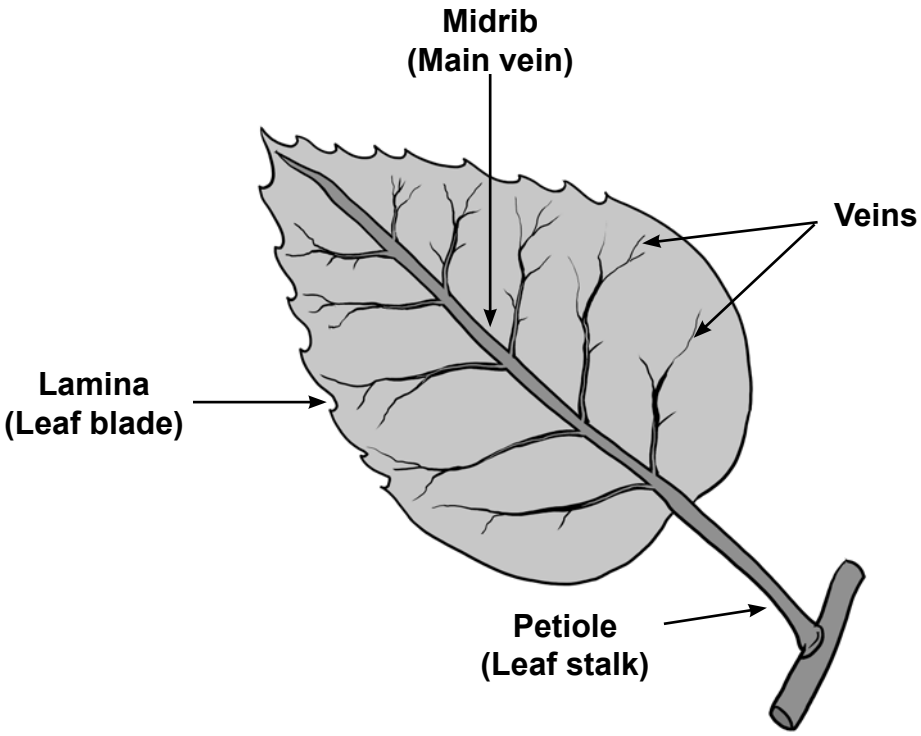
4. What is the function of a stem?

Answer:

The function of a stem is to hold up the plant so it can grow upright. In addition, it absorbs and helps in the transportation of nutrients, water, minerals from roots to other parts of the plant and stores food.

5. With the help of a diagram describe the structure of a leaf.

Answer:



Unit 2 | ECOSYSTEM

SUB-TOPICS

- Introduction
- Types of Ecosystem
- Food Relationship in Ecosystem
- Energy Transfer Through Living Things
- Competition
- Cooperation
- Protecting Ecosystem

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 2

Topic: Ecosystem

Sub-Topics:

- Introduction
- Types of Ecosystem
- Food Relationship in Ecosystem
- Energy Transfer Through Living Things

Date : Duration: 2x 40 Term : Week:

Learning objectives

- To introduce the topic "Ecosystem " and talk about its various types.
- To give clear concepts of "Food Chain" and its energy which is transferred through food.

Resources

- Text Book NAS 4
- Video (from the internet/ Powerpoint presentation slide show – computer lab)

Starter Activity (5 min)

- A three-minute video chosen by the teacher, will be shown to the students. The video should contain various ecosystems such as terrestrial regions including deserts, forests, grasslands, polar and aquatic regions. The video must include animals and plants along with land and water resources available on Earth; to introduce the topic.

Lesson Methodology (30 min)

- The students will be asked to read the assigned pages from the textbook along with the teacher.
- Then the teacher shall explain in detail, covering minor and major details about the sub-topics.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed question 1.
- Students will do Quick Review as a peer activity.

Home learning

- Re-reading the assigned pages for revision and comprehension.

Lesson Evaluation

- In the next class, as a warm-up activity, cross-question students to deduce the understanding of the topics taught.

Further Notes

Teacher Ideas

LESSON PLAN #2

Class: IV

Subject: General Science

Unit: 2

Topic: Ecosystem

Sub-Topics:

- Relationships in Ecosystems
- Competition
- Cooperation
- Protecting Ecosystem

Date :

Duration:

Term :

Week:

Learning objectives

- To highlight the importance of Ecosystems, stakeholders and their dynamics.

Resources

- Text Book NAS 4
- FlashCards

Starter Activity (5 min)

- The teacher shall make five flashcards, each on an A-4 paper with the following headings, one each as shown:
  - **Animal diversity in a jungle**
  - **A tiger hunting a deer**
  - **A beaver making a dam with logs of wood**
  - **A falcon attacking a bird**
  - **Small fishes living on a bigger fish**
  - **eg. Remoras on a Whale**
- One by one, teacher will show the flashcards and ask students to give their opinions and statements on what they understand from the flashcard.

Lesson Methodology (30 min)

- The teacher will relate each topic to a flashcard shared earlier and explain the sub-topic in detail. At the end of the last sub-topic, students will be told to read assigned pages silently. The teacher will take rounds and address the queries of students.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Teacher Ideas

Assessment opportunities (30 min)

- Have students attempt Chapter Reviews including the detailed questions 2, 3, 4, and 5.

Home learning

- Re-read the topic for revision and comprehension.
- STEM, Project and Mind Map will also be given as a home assignment and students can bring any queries in the next class.

Lesson Evaluation

- In the next class, the teacher shall ask students to sum up what they have learned to deduce their level of understanding.
- A formal or informal assessment will be taken.

Further Notes

ANSWER KEY UNIT 2

Circle the correct answer.

1.	b. ecosystem	5.	c. community of plants and animals and the physical environment in which they live.
2.	d. omnivore		
3.	c. forest	6.	d. carnivore
4.	c. remove		

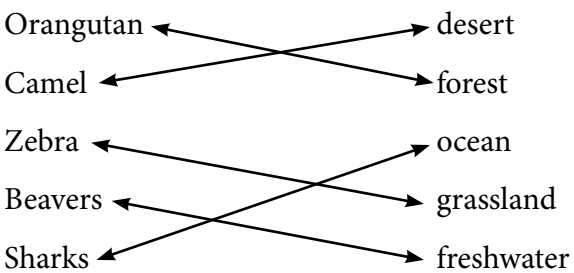
Vocabulary review

1.	Climate	4.	consumers
2.	grassland	5.	predators
3.	Plants		

One-Word Answer

1.	Cow or other plant-eating animals	4.	Pond or any other ecosystem
2.	Fish or other animals hunt upon	5.	Plants
3.	Lion or other hunting animals		

Match the following



Fill in the blanks.

1. The ***leaf*** is the producer in this food chain.
2. There are three consumers in the food chain, the ***worm***, the ***bird***, the ***cat***.
3. The bird is the prey of the ***cat***.
4. The ***bird*** is the predator of the worm.

Detailed Questions

1. How do small animals make the soil better?

Answer:

Small animals help to make the soil fertile as they eat and produce bodily waste. Some build their underground homes, thus making new soil, and helping to keep soil healthy.

2. How do animals help plants to grow new plants?

Answer:

When an animal eats the seeds of a plant and excretes it, or seeds of plant-like burdock, which catches onto the fur of an animal, and falls of later, help the plant to disperse their seeds to a wider area and promotes survival and growth. The excretion of an animal helps in providing nutrients to the soil.

3. Why plants are important for animals' survival?

Answer:

Plants such as trees provide animals with shelter and raw material to make their own nests. Plants are also a source of food.

4. What do you know about competition amongst living things?

Answer:

Plants and animals compete with one another to get what they need. They all try to get food, water, sunlight, and shelter in the same place. If someone cannot get what they need, they will die.

5. What are the three "R's"? Explain.

Answer:

The three "R's" are :

1. Reduce - use less of something
2. Reuse – use things more than once.
3. Recycle - make new things out of old things.

Unit 3 | HUMAN HEALTH

SUB-TOPICS

- Introduction
- Disease
- Deficiency Diseases
- Obesity
- Prevention of Non-Communicable Diseases
- Communicable Disease
- Through Air
- Through Sharing Food
- Through Water
- Through Insects
- Prevention of Diseases
- Food and Health
- Balanced Diet

LESSON PLAN #1

Class: IV Subject: General Science

Unit : 3

Topic: Human Health

Sub-Topics:

- Introduction
- Disease
- Deficiency Diseases
- Obesity
- Prevention of Non-Communicable Diseases

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To introduce the topic and provide clear concepts.
- To ensure enhanced awareness of the topic " Human Health" and our responsibility on how to maintain a good health.
- To create awareness on what to do if one is sick.

Resources

- Text Book NAS 4
- 3 A-4 size pictures

Starter Activity (5 min)

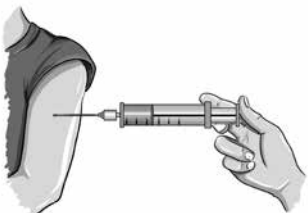
- The teacher will put up three pictures on the board, each highlighting different keywords.
- The students will be asked to say what they think the pictures mean and represent.
- The teacher will then briefly name the actual keyword and explain.

The keywords for the activity are:

- Healthy
- Sick
- Precaution
- Vaccinated

Reference images:



Lesson Methodology (30 min)

- After the starter activity, teacher will write and briefly explain the keywords of the topic on the board. Keywords include contagious diseases, non-contagious diseases, precautions and vaccination.
- Students will pair up and read pages assigned respectively, the teacher will take rounds and facilitate. The teacher will read along next.
- The teacher will facilitate a classroom discussion to elaborate key points about human health. The importance of all sub-topics will be emphasized.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Students will attempt detailed question 2, 3 and 5.

Home learning

- Re-read the topic for revision and comprehension.

Teacher Ideas

Lesson Evaluation

- While attempting detailed questions, teacher will randomly ask students to share their answers and their class learnings to deduce how clear the topic has been understood and comprehended.

Further Notes

LESSON PLAN #2

Class: IV Subject: General Science

Unit : 3

Topic: Human Health

Sub-Topics:

- Communicable Disease
- Through Air
- Through Sharing Food
- Through Water
- Through Insects
- Prevention of diseases

Date : *Duration:*

Term : *Week:*

Learning objectives

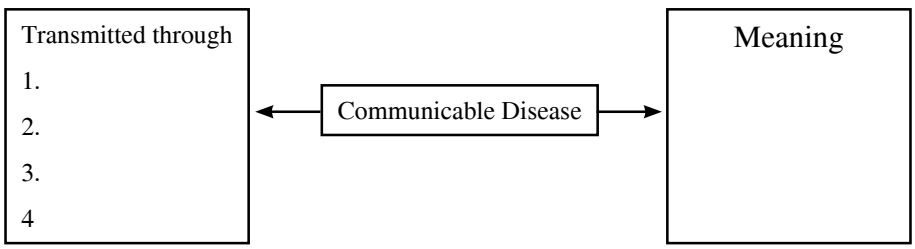
- To impart knowledge of Communicable Diseases.
- To give awareness of mode of transmission of communicable diseases.
- To share knowledge on how to prevent catching these diseases.

Resources

- Text Book NAS 4
- White board
- Charts - 2

Starter Activity (10min)

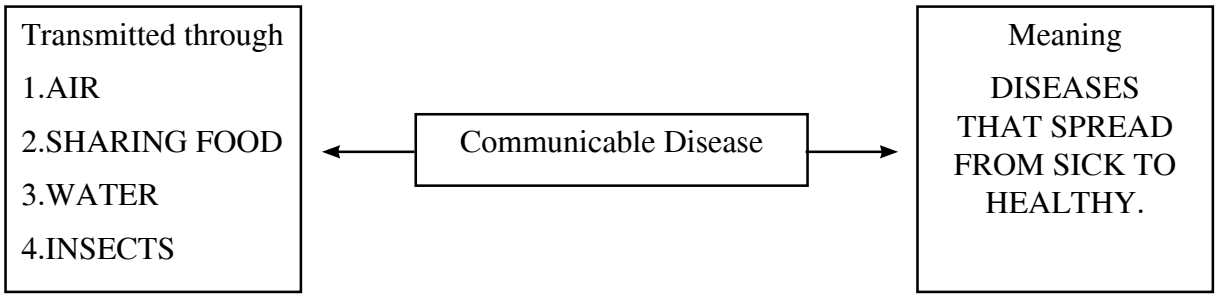
- Before the starter activity, the teacher will briefly explain what the term communicable and disease means.
- The following chart will be drawn on the board



The chart will be filled in by asking the students for correct answers.

Teacher Ideas

Suggested answer:



Lesson Methodology (25 min)

- A student will be asked to read aloud each sub-topic. After reading a sub-topic, the teacher will explain. After completion of every sub-topic that has been read and explained. The teacher will summarize it for the students.
- The prevention of disease will be explained using the charts below:

"Prevention is better than cure"

Possible through the following measures :

- Vaccination (Long term)
- Use a tissue when you cough or sneeze.
- Wash your hands before you eat.
- Never eat raw or undercooked and expired food.
- Keep cuts clean and wear a bandage.
- Wash your hands after you visit a toilet.
- Wear a mask.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed questions 1, 2, 3 & 5.

Home learning

- Assign reading for revision and comprehension.

Lesson Evaluation

- As a warm-up activity in the next class, the teacher shall ask questions to deduce the understanding of concepts given.

LESSON PLAN #3

Class: IV Subject: General Science

Unit : 3

Topic: Human Health

Sub-Topics:

- Food and Health
- Balanced Diet

Date : *Duration:*

Term : *Week:*

Learning objectives

- To instil the value of a balanced diet in students.
- To give knowledge of the vital relationship between food and health.

Resources

- Text Book NAS 4
- Puzzles

Starter Activity (10 min)

- The class will be divided into 6 groups sitting in a circle
- A puzzle will be handed to each group, to solve, to get the final image.

(2 types of puzzles – 1 each group)

Suggested reference images for the puzzle :

Further Notes

Teacher Ideas


Yogurt
Yogurt
low fat milk

Lesson Methodology (25 min)

- The class will continue with the same seating. The teacher will ask a randomly chosen student to read a sub-topic. The teacher will explain the sub-topic and give the concept.
- After the sub-topics are covered, students will read silently.
- Students will attempt Quick Review.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment Opportunities (30 min)

- Have students attempt the remaining chapter review including detailed question 4. Facilitate accordingly.

Home learning

- Re-read the text for revision and comprehension.

Lesson Evaluation

- Students can be evaluated through their responses in class as well as through written work.
- Formal assessment.

Further Notes

Teacher Ideas

ANSWER KEY – UNIT 3

Circle the correct answer.

1.	d. all of these	4.	d.egg
2.	d. lack of some nutrients	5.	b. chemicals
3.	d. all of these		

Vocabulary review

1.	Disease	3.	Communicable / contagious
2.	Non- communicable / non - contagious	4.	Fever

One-Word Answer

1.	Tuberculosis and flu	4.	Bread and rice
2.	Diabetes and asthma	5.	Spinach and lettuce
3.	Burning fat		

Observe and Answer

Healthy food/drink	**Unhealthy food/drink**
Apple	Fried chicken
Eggs	Burger
Lettuce	French fry
Tomatoes	
Oranges	
Bread	

Detailed Questions

1. Write the differences between communicable and non-communicable diseases.

Communicable	***Non-communicable diseases***
The disease that can spread from a sick person to a healthy person.	*The disease that does not spread from a sick to a healthy person.*

2. Explain how germs spread disease?

Answer:

Harmful microorganisms or germs get into our bodies through our mouth and nose, or sometimes through cuts and wounds. Once inside, they multiply very quickly, and make a person feel ill or fall sick. These organisms are spread and passed on from one infected person to another.

3. How you can prevent the invasion of germs?

Answer:

Following are the best ways to stop germs' invasion

- Use a tissue when you cough or sneeze
- Wash your hands before you eat
- Never eat food that is too cold or not properly cooked
- Keep your cuts clean and wear a plaster
- Wash your hands after you visit the toilet

4. Write a sentence about the function of each group of foods. Use these functions.

- foods for energy (GO)
- foods for building and repairing the body (GROW)
- foods for good health (GLOW)

Answer:

1. Carbohydrates are food for energy which includes cereals and pulses.
2. Proteins give you energy for growth, for example; meat and eggs.
3. Vitamins and minerals keep us healthy and our skin glows due to vegetables and fruits in our diet.

5. Define a vaccine.

Answer:

A vaccine is a special substance that is used to prevent a specific disease.

Unit 4 MATTER AND ITS CHARACTERISTICS

SUB-TOPICS

- Introduction
- Matter can change its state
- Physical Properties of Matter
- Metals and Their Properties
- Uses of Metals

LESSON PLAN #1

Class: IV Subject: General Science

Unit:4

Topic: Matter and Its Characteristics

Sub-Topics:

- Introduction
- Matter can change its state
- Physical Properties of Matter

Date : *Duration:* *Term :* *Week:*

Learning objectives

- To introduce the topic with everyday examples and experiences in reference to Matter.
- To discuss changes in the state of matter quoting example.
- To give a clear concept of physical properties.

Resources

- Text Book NAS 4
- Random objects from the class
- Balloon
- Chart page 59.

Starter Activity (5 min)

- The teacher will ask students to keep their stationery boxes and water bottles on the desk. They will be asked about the material and what kind of matter these objects are.Also, the teacher shall show a balloon and tell the students about gas.

Suggested outcome:
Water in the bottle- Liquid
The pencil-wood/lead- Solid
Scale-Plastic- Solid

Lesson Methodology (30 min)

- After the starter activity, the teacher shall briefly define what Matter, is and its states, and write the keywords on the board. Keywords include Matter, Volume, Compress, Conduction.
- The students will be told to read the respective pages silently.
- The silent reading will be followed by a classroom discussion, where the teacher will explain the concept in detail with reference to the sub-topics.
- The chart on pages 58 and 59 will be drawn on the board, and filled in during classroom discussion.
- After which, teacher will briefly sum up the topic and students will do Quick Review.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Students will do Quick Review, Vocabulary Review and detail questions 1, 2 and 3.

Home learning

- Students will be assigned reading for revision.
- **Presentation:**
  - The class will be divided into three groups.
  - Each group will be assigned to prepare a written presentation on the matter and its type.

Lesson Evaluation

- In the next class, through the student presentations, the teacher will be able to deduce whether the concepts are cleared or not.

Further Notes

Teacher Ideas

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 4

Topic: Matter and Its Characteristics

Sub-Topics:

Metals and Their Properties

Uses of Metals

Date : *Duration:*

Term : *Week:*

Learning objectives

Resources

- Text Book NAS 4.
- Video.

Starter Activity (5 min)

- The teacher will show a three-minute video on metals. The melting of iron, making of jewellery can be shown to create awareness of metals.
- After the video is shown, students will share their observations.

Lesson Methodology (30 min)

- Students will read the assigned pages.
- The teacher will read along in the next step, followed by a classroom discussion to elaborate key points about properties of metals and their uses.
- In the end, the teacher will sum up the lesson by using the Mind Map, and have students attempt Quick Review, Let's find out and STEM.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- The students will be instructed to complete the remaining Chapter Review.
- Note- Here the teacher will elaborate the reason for double answers for 2 and 3 to introduce new concepts:
  1. Both metal and water conduct electricity while one is better than the other.
  2. Air is a mixture of various gases including oxygen.

Teacher Ideas

Home learning

- Assign reading for revision.

Lesson Evaluation

- Formal/ Informal test

ANSWER KEY – UNIT 4

Circle the correct answer.

1.	c. air
2.	a. metal d. water
3.	b. air c. oxygen
4.	b. copper
5.	b. wool

Vocabulary review - Fill in the blanks.

1. Anything that takes up space is called ***matter***.
2. ***Solids*** have fixed volume and shape whereas ***liquids*** only have fixed volume.
3. Liquid takes the ***shape*** of container.
4. Liquids can flow from one place to another so are called ***fluids***
5. Water can change its ***state*** depending on change in temperature.

One-Word Answer

1.	Gold and iron	4.	Petrol and milk
2.	Gold	5.	Solid
3.	Hardness		

Observe and Answer

1.	• The sweater, gloves and muffler are used to provide warmth and provide insulation and the safety pin can be use to tie the muffler to the sweater. • The gold bangles are used as accessory. • The utensil is used for cooking
2.	• metal (safety pin) • gold • aluminum / iron / steel
3.	• Wool provides the best insulation, so it is used for making warm clothing. • Gold does not rust and its hardness is good for making jewelry. • Aluminium is a metal and a good conductor of heat, therefore used for making cooking utensils.

Detailed Questions

1. Define matter and discuss the three states of matter.

Answer:

Matter is anything that takes up space. There are three states of matter :

1. Solids – They have fixed volume and fixed shape.
2. Liquids – They have fixed volume and take up the shape of the container.
3. Gas- They have neither fixed shape or volume.

2. Give three properties of solids.

Answer:

The three properties of solids are :

1. Fixed volume
2. Fixed shape
3. Do not flow.

3. Explain how matter can change from one state to another.

Answer:

The state of matter remains constant, whether it is a solid, liquid or gas at a particular temperature. When the boiling or melting point is reached, it can change shape. The change of temperature occurs due to heating or cooling.

4. Give one example each of solid , liquid and gas.

Answer:

Solid: Sand

Liquid: Honey

Gas: Smoke

5. Write any three physical properties of matter.

Answer:

The three physical properties of matter are :

1. Conduction
2. Volume
3. Shape changes due to heat

Unit 5 FORMS OF ENERGY AND ENERGY TRANSFER

SUB-TOPICS

- Introduction
- Uses of Energy
- Energy Transformation
- Solar Energy Transformation
- Conservation of Energy
- Ways to Conserve Energy
- Forms of Energy
- Light Energy
- Reflection of Light
- Shadow Formation
- Colours and Rainbow
- Forms of Energy
- Light Energy
- Reflection of Light
- Shadow Formation
- Colours and Rainbow
- Sound Energy
- Echo
- Heat Energy
- Electrical Energy
- Heat
- Light
- Motion
- Sound

LESSON PLAN #1

Class: IV Subject: General Science

Unit:5

Topic: Forms of Energy and Energy Transfer

Sub-Topics:

- Introduction
- Uses of Energy
- Energy Transformation
- Solar Energy Transformation
- Conservation of Energy
- Ways to Conserve Energy

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

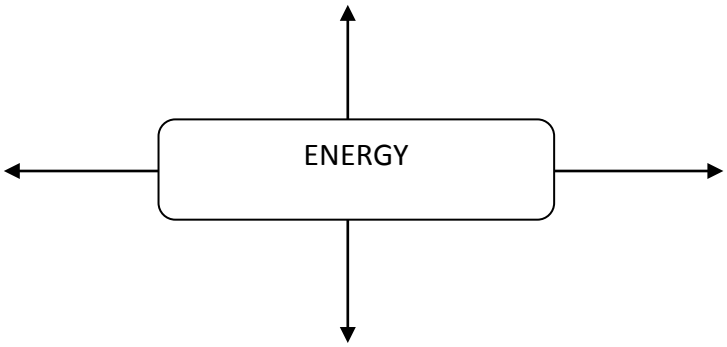
- To introduce the topic and elaborate upon various uses, transformation and conservation of energy.

Resources

- Text Book NAS 4

Starter Activity (5 min)

- The teacher will conduct a brainstorming session to introduce the topic. The keyword ENERGY will be written on the board and the students will be asked to name types of energy they observe and know about.



Lesson Methodology (30 min)

- Students will read the assigned pages silently and then again the teacher will read along next.
- The teacher will facilitate a classroom discussion to elaborate on the concept of energy and its uses. Use daily life examples performed by the students and other human beings at large. The transformation of energy, quoting the example of Solar energy transformation. The importance of the conservation of energy will be discussed.
- In the end, the teacher will give a quick analysis of the lesson and have students attempt Quick Review.

Plenary (5 min)

- Quick PMI chart will be filled by students, on board.

Assessment opportunities (30 min)

- Have students attempt detailed questions 1 and 2.

Home learning

- Assign reading for revision.

Lesson Evaluation

- As a warm-up, activity in the next class, the teacher shall ask a few questions to deduce whether the concepts are clear, and well comprehended.

Teacher Ideas

LESSON PLAN #2

Class: IV Subject: General Science

Unit:5

Topic: Forms of Energy and Energy Transfer

Sub-Topics:

- Forms of Energy
- Light Energy
- Reflection of Light
- Shadow Formation
- Colours and Rainbow

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

Resources

- Text Book NAS 4
- Torch
- Prism
- White cardboard paper

Starter Activity (5 min)

- The teacher will show a reflection of light, shadows and rainbow colours with the help of an activity.
- In a dark room, a white cardboard sheet will be placed on the table. In the centre, the prism will be kept.
- The light from the torch will be passed through a prism, and the rainbow colour will show on the white cardboard sheet. Similarly, the teacher can show a beam of light as well as shadow.

Lesson Methodology (30 min)

- After the starter activity, the teacher will write keywords on the board e.g., forms of energy, light, shadows, colours and rainbows.
- Students will be asked to pair up and read assigned pages.
- A classroom discussion will be facilitated by the teacher, discussing the forms of energy, light energy and its reflection, shadow formation, colours and rainbows.
- In the end, the teacher will give a quick analysis of the lesson, and have the student attempt the respective Quick Review present in the book.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Teacher Ideas

Assessment opportunities (30 min)

- The teacher will assign students to make a poster for display on any one of the sub-topics.

Home learning

- Read the assigned pages again at home.

Lesson Evaluation

- As a warm-up activity in the next class, teacher will cross-question to deduce whether the topic is learned.

Further Notes

LESSON PLAN #3

Class: IV Subject: General Science

Unit:5

Topic: Forms of Energy and Energy Transfer

Sub-Topics:

- Sound Energy
- Echo
- Heat Energy
- Electrical Energy
- Heat
- Light
- Motion
- Sound

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

- Identify more forms of energies and how they manifest themselves.

Resources

- Text Book NAS 4
- Musical Instrument
- Ball (Sports)

Starter Activity (5 min)

- The teacher will ask students to share their hobbies specifically related to music and sport. Students who play can bring their instruments into class and play. The teacher discusses sound energy and echoes.
- The teacher will discuss sound energy. With a small ball, while playing catch and throw, the teacher will introduce energy through motion.

NOTE

- Bringing instruments to class should be communicated earlier.

Lesson Methodology (30 min)

- After the starter activity, the teacher will write the sub-topics on the board i.e. Sound Energy, Echoes, Heat Energy, Electrical Energy, Heat, Light, Motion and Sound.
- Randomly students will be asked to read assigned pages aloud.
- The teacher will explain the sub-topics with the help of drawings on the board.
- The teacher will facilitate discussion with students.

Teacher Ideas

- In the end, the teacher will sum up with a Quick Review, STEM and Mind Tree.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- The teacher will instruct students to complete Chapter Review and the detailed questions, numbered 3, 4 and 5, and facilitate accordingly.

Further Notes

Home learning

- To study the complete topic for revision.

Lesson Evaluation

- Through written work in notebooks
- Formal / Informal assessment

ANSWER KEY – UNIT 5

Circle the correct answer.

1.	a. energy	4.	b. solid
2.	b. electrical	5.	c. natural gas
3.	b. light		

Vocabulary review - Fill in the blanks.

1. Your body uses energy for ***work*** it performs.
2. We can see or feel affects of energy through its ***influence***.
3. Light energy travels in straight ***lines***.
4. Light from ***sun*** and ***electric*** light looks white, however it is made up of 7 colors.
5. Heat is transferred from a ***hot*** object to ***cold*** object.

One-Word Answer

1.	Energy	4.	Sound
2.	Light	5.	Sunlight
3.	Heat		

Observe and Answer

1.	Heat	4.	Electric
2.	Light	5.	Energy due to movement
3.	Sound		

Answer The Following Questions

1. Our bodies use energy to perform various works. Briefly write about it.

Answer:

Our bodies use energy to carry out various activities such as moving, growing, and responding to changes around them.

2. How is energy transformed?

Answer:

Energy transformation takes place when energy changes from one form to another .Whenever something moves, jumps, runs, breathes, thinks or provides light, energy gets transformed.

3. Energy sources can be classified into two types. Name them and give one example of each.

Answer:

The two types of energy sources are the ones we can run, for example chemical energy. Sources of chemical energy are charcoal, oil and petroleum gas.

The other type energy is the one that won't run out, for example, solar energy. The Sun is the main source of heat and light energy.

4. What are the three main parts of electric circuit? Briefly write about them.

Answer:

The three main parts of electric circuit, besides a source of electric current; are:

1. A device that needs electric energy to work.
2. Wire that links the sources of charge and the device in a loop.
3. A fuse in a safety measure, which protects the appliance.

5. What is reflection of light? Give an example of a substance that reflects light.

Answer:

When light falls on the objects it bounces off / is reflected. A metal reflects light.

Unit 6 | FORCES AND MOTION

SUB-TOPICS

- Introduction
- Force can change the shape and size of objects
- Forces can stop a moving object
- Force can change the speed of a moving object
- Gravity
- Friction
- Advantages of Friction
- Disadvantages of Friction
- Simple Machine
- Pulley
- Lever
- Wedge
- Wheel and Axle
- Inclined Plane
- Gear

LESSON PLAN #1

Class: IV Subject: General Science

Unit:6

Topic: Forces and Motion

Sub-Topics:

- Introduction
- Force can change the shape and size of objects
- Forces can stop a moving object
- Force can change the speed of a moving object
- Gravity
- Friction
- Advantages of Friction
- Disadvantages of Friction

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To define force and its forms.
- To elaborate on different types of forces such as Gravity.
- To study friction with its advantages and disadvantages.

Resources

- Text Book NAS 4
- Flash Card

Starter Activity (5 min)

- The class will begin with the use of flashcards to introduce the topic to the students.
- The side with the keyword will be shown to students and they will be asked to define it on prior knowledge, also sharing any relevant examples.

INSTRUCTION FOR FLASHCARDS

WORD	Definition Example

Suggested words-

Force, Friction, Gravity and keywords are given in the book

Lesson Methodology (30 min)

- After the starter activity, the teacher will write the same word list on the board.
- Students will pair up and silently read the assigned pages. The teacher will take rounds and provide assistance. The teacher will read along next.
- A classroom discussion follows where the teacher will further elaborate and explain to strengthen concepts.
- In the end, the teacher will give a quick analysis of the lesson and have the students attempt Quick Review in the book.

Plenary (5 min)

- A Quick PMI chart will be filled by students on board.

Teacher Ideas

Assessment opportunities (30 min)

- Have students attempt detailed questions 1 and 2.

Home learning

- Assign sub-topics for revision.

Lesson Evaluation

- As a warm-up activity in the next class, teacher shall cross-question to deduce how clear and well comprehended the concepts are.

Further Notes

LESSON PLAN #2

Class: IV Subject: General Science

Unit:6

Topic: Forces and Motion

Sub-Topics:

- Simple Machine
- Pulley
- Lever
- Wedge
- Wheel and Axle
- Inclined Plane
- Gear

Date : *Duration:* *2x40*

Term : *Week:*

Teacher Ideas

Learning objectives

- To introduce the concept of Simple Machines.
- To name and elaborate upon working of simple machines, quoting examples from everyday life.

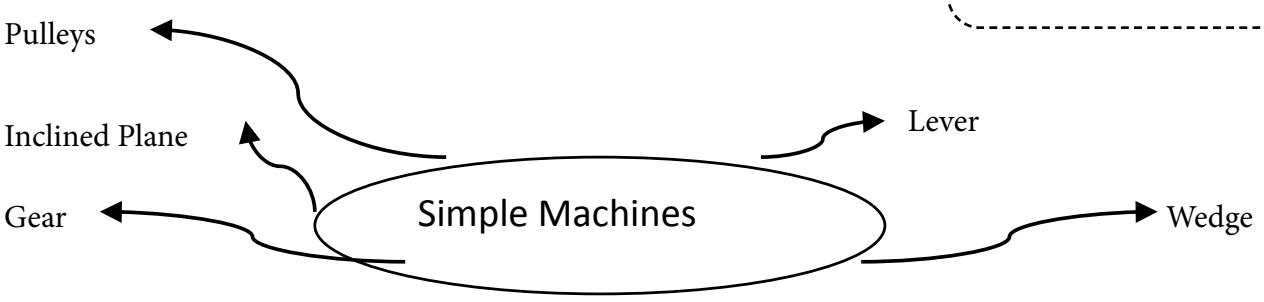
Resources

- Text Book NAS 4
- Pictures of Simple Machines

Starter Activity (5 min)

- The teacher will put up the pictures of the simple machines, as shown below. With each simple machine introduced, the function of a machine will also be discussed while brainstorming.

(Relevant pictures can be found online)



Simple Machines

Lesson Methodology (30 min)

- Since the topic has been introduced using the starter activity, so the teacher will assign students to read respective pages.
- Next, the teacher will further elaborate on the concept followed by a classroom discussion.
- In the end, the teacher will sum up the lesson using the Mind Map.
- The students will be told to attempt the Quick Review and do STEM.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- The students will be instructed to attempt detailed questions 3, 4 and 5. They will also complete the Chapter Review.

Home learning

- The teacher will assign reading for revision.

Lesson Evaluation

- Formal/ Informal Assessment
- Written work in the notebook

Further Notes

Vocabulary review

Cause	Effect
Pulley	cut things
Levers	raise, lower or move a load
Wedge	lift or move a load e.g., a shovel
Wheel and axel	moving objects up or down from a height
Inclined Plane	lift or move .e.g., bicycle

Observe and Answer

1.	Screw	4.	Pulley
2.	Wedge	5.	Wheel and axle
3.	Lever		

DRAW AND ANSWER (drawing from NAS Book4)

Ramp – It is used for moving heavy objects up or down from a height.

Wheel and axle – It is used to lift or move heavy objects from one place to another.

Gear – A pair of wheels that turns and help a machine work.

Lever – It is a bar that rests on a support and helps you exert a bigger force when you turn it. Can be used to lift or move loads by applying the force at one end.

One-Word Answer

1.	a. friction, gravity (also push and pull) b. Cars, Door Knobs c. Knives, Axe
2.	Friction
3.	Gravity

Detailed Questions

1. What is a force? Explain what role it plays in daily life.

Answer:

The push or pull needed to move an object is called force. It cannot be seen. The daily life example includes opening or closing of a classroom door.

2. What is friction? Give two advantages and two disadvantages of friction.

Answer:

Friction is a force that occurs whenever two objects or surfaces come in contact with each other. It always acts in the direction opposite to the movement of an object.

Advantages:

i. Friction is needed for walking.
ii. Friction is needed for writing on a piece of paper.

Disadvantages:

i. Soles of shoes worn out due to friction.
ii. Vehicles require fuel to overcome friction.

3. What is a simple machine? Describe three simple machines.

Answer:

Simple machines are tools that make your work easier and faster by using much less force. The three simple machines include a wedge, whose sharp edge helps to cut things, and a pulley is used to bring the window blinds up.

4. What would happen if there was no gravity?

Answer:

Gravity is a force that pulls things towards each other. Earth has a strong force of gravity because of its size, so without gravity, objects will stay afloat.

5. Can a force applied on a moving object stop it? Explain it with examples.

Answer:

Force applied against the moving object can stop it. For example, a player can stop a moving football. In a cricket match, a player can catch a ball and stop its movement.

Unit 7 THE EARTH AND ITS RESOURCES

SUB-TOPICS

- Introduction
- Water Sources
- Earth's Resources
- Forest and Natural Resources
- Animals and Natural Resources
- Non-Living Resources
- Water and Wind
- Rocks and Soil
- Fuels
- Renewable Resources
- Non-renewable Resources
- Conservation of Resources

LESSON PLAN #1

Class: IV Subject: General Science

Unit:7

Topic: The Earth And Its Resources

Sub-Topics:

- Introduction
- Water Sources
- Earth's Resources
- Forest and Natural Resources
- Animals and Natural Resources

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To introduce the topic and give awareness of Resources available for us.
- To highlight the importance of planet " Earth" having life.

Resources

- Text Book NAS 4

Starter Activity (5 min)

- The teacher will write the words given below for students to unscramble on the board.

W T R A E	T O F S E R	C A L G R E I
(WATER)	(FOREST)	(GLACIER)
H L G I T	R E T A H	L R U N T A A
(LIGHT)	(EARTH)	(NATURAL)

Teacher Ideas

Lesson Methodology (30 min)

- After the starter activity, the teacher will further elaborate the words unscrambled earlier.
- The teacher will ask a different student to read each sub-topic. The teacher will elaborate in detail, on the sub-topic along with the reading.
- Students will then read each sub-topic silently themselves again.
- The lesson will end by the teacher, giving a brief analysis and having students do 'Let's find out'.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Students will be instructed to attempt detailed questions 1 & 3. The teacher will facilitate accordingly.

Home learning

- Assign page numbers for revision.

Lesson Evaluation

- As a warm-up activity in the next class, the teacher shall ask students a few questions to deduce whether the concepts are cleared or not.

Further Notes

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 7

Topic:The Earth And Its Resources

Sub-Topics:

- Non-Living Resources
- Water and Wind
- Rocks and Soil
- Fuels
- Renewable Resources
- Non-renewable Resources
- Conservation of Resources

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

- To elaborate non-living resources and its types.
- To explain and emphasize non-renewable resources and our role in the conservation of these resources.

Resources

- Text Book NAS 4
- Flashcards (pictorial)

Starter Activity (5 min)

- The teacher will show the picture containing side of the flashcard and ask students to identify the resource shown. Then, after asking the students, the correct answer will be displayed.

Instructions for flashcard usage:Find similar pictures of resources shown/ mentioned in the book.

Lesson Methodology (30 min)

- A student at random will be asked to read in the first step.
- The reading will be followed by a classroom discussion in which the key points will be explained in-depth.
- The topic will be summed up using the Mind Map.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Teacher Ideas

Assessment opportunities (30 min)

- Students will be instructed to attempt the remaining detailed questions and complete the chapter review.

Home learning

- Revision of the topic along with STEM will be assigned.

Lesson Evaluation

- Formal/ Informal assessments
- Written work.

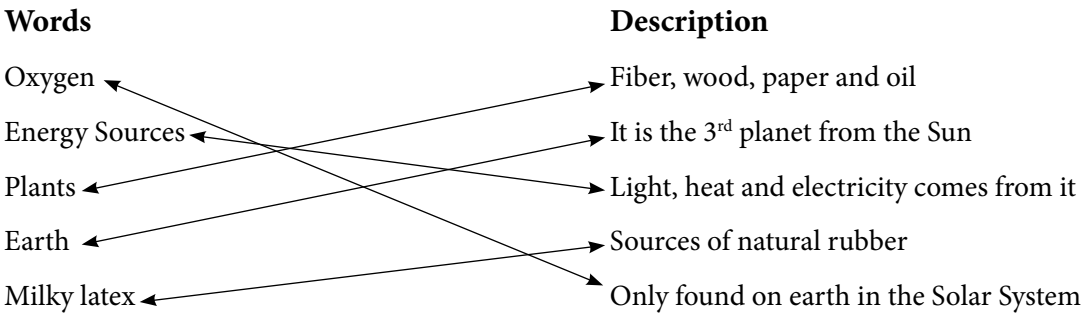
Further Notes

ANSWER KEY – UNIT 7

Circle the correct answer

1.	b. heat	4.	b. electric power
2.	b. living and non-living	5.	b. air, wind
3.	b. oxygen		

Vocabulary review



Observe and Answer

In the picture, water and plants are the prominent natural resources shown.

Water:
It is the main source of life on Earth. It helps in the formation of rivers, lakes, ice caps of the North and South poles. Springs, waterfalls, marshes, oceans, seas and gulfs help the Earth to provide conditions to support life.

Plants:
They are useful in many ways. Plants are a source of nutrition, oxygen and they filter out the carbon dioxide from the environment.

One-Word Answer

1.	Seven	4.	Turquoise
2.	Non-renewable	5.	Windmill
3.	Natural gas		

Detailed Questions

1. What are Earth's resources?

Answer:

Earth's resources are materials that are found in nature and that are useful to you as an energy source. Air, water, soil, minerals, forests and fuels are all natural materials. They occur naturally and cannot be manufactured by humans, though are used to make everyday things.

2. What are the main sources that help in living organisms' survival?

Answer:

All resources on Earth and Sun support life. The living organisms depend on these resources. Solar energy gives light and heat. Earth's resources can be classified into living and non-living. Plants and animals are living resources, non-living resources include water, wind, rocks and soil.

3. How are animals useful as a natural resource? Explain with examples.

Answer:

Animals are useful as a natural resource, as they are a source of food such as eggs, milk, meat, butter, cheese and honey. Animal fibre is used to make wool and silk. Animal skin is used to make leather, which is used to make coats and shoes.

4. What are the three 'R's' followed for conservation of energy? Explain.

Answer:

The three R's followed for conservation of energy are reduce, reuse and recycle.

Reduce is the reduction of the use of natural resources, such as petrol, by finding alternatives. Reuse is the repeated use of items as many times as possible. To Recycle means to convert the thing into something new such as recycling paper.

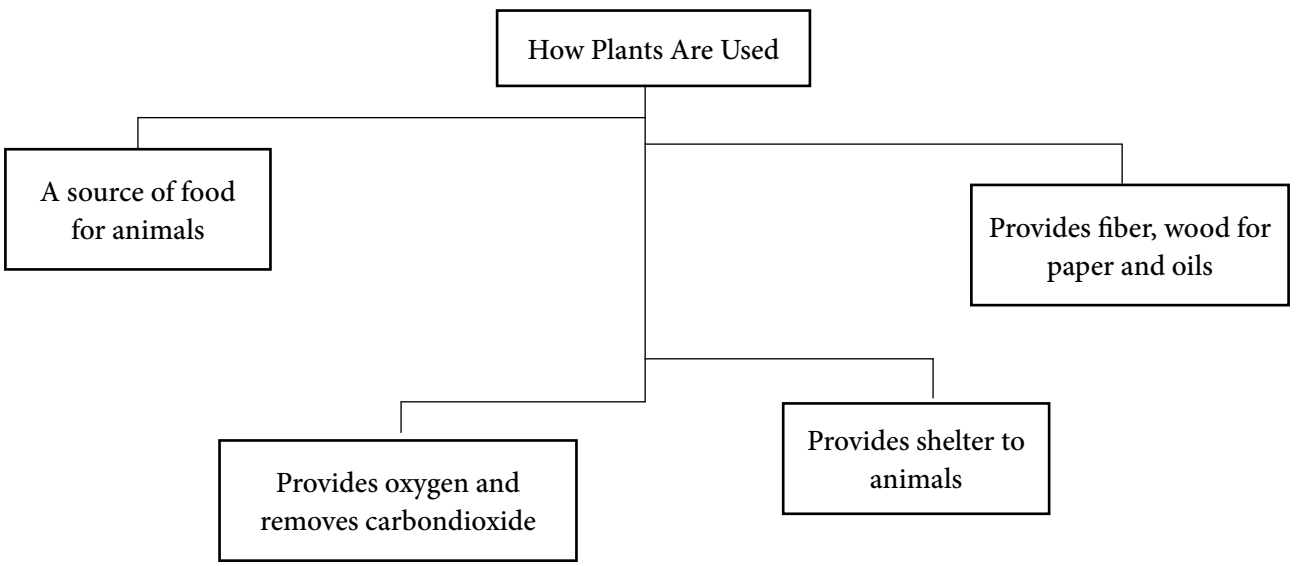
5. What are fossils? Explain.

Answer:

Fossils are formed from the dead remains of plants and animals, which stay covered in mud and deep rock in the earth. The pressure from the ground above combined with the Earth's heat, converts them to fossil fuels, such as coal, gas and petroleum.

6. Name four ways plants are used.

Answer:



Unit 8 EARTH'S WEATHER AND CLIMATE

SUB-TOPICS

- Introduction
- Different Kinds of Weather
- Moisture
- Precipitation
- Formation of Wind
- Weather changes with Geographical Location.
- Weather

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 8

Topic: Earth's Weather and Climate

Sub-Topics:

- Introduction
- Different Kinds of Weather
- Moisture
- Precipitation

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To introduce the topics of weather and climate.
- To give a clear concept of various elements of nature that contributes to the climate of an area.

Resources

- Text Book NAS 4
- Globe
- Basketball
- White and black tape
- White Chart Paper
- Torch

Starter Activity (10 min)

- Part 1 –

  Using the globe, the teacher will introduce the basic geography of the Earth.
  By placing the white chart paper on the board or at a wall, students will be instructed to hold the globe while the teacher shines the torch to help students understand the light that falls on Earth is not always the same all around.

- Part 2-

  Using the basketball, the teacher will introduce and explain the difference between longitude and latitude.
  Black tape will be wrapped around at different points to show latitude and white to show longitude. Then the teacher will compare the globe to the basketball.

Lesson Methodology (25 min)

- After the starter activity, the teacher will highlight the keywords such as Climate, Weather, Moisture and Precipitation and have students find their meanings from the text while reading the assigned pages.
- After the students have read, randomly, the teacher will ask to define the keywords from before.
- An elaborate, detailed classroom discussion will follow.
- The teacher will give a quick analysis of the lesson to end it.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have students attempt detailed questions 1 and 2 and facilitate accordingly.

Home learning

- Assign text for reading.

Lesson Evaluation

- The students will be asked to sum up what they have learned.

Further Notes

Teacher Ideas

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 8

Topic: Earth's Weather and Climate

Sub-Topics:

- Formation of Wind
- Weather changes with Geographical Location.
- Weather

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

- To give the concept of formation of winds.
- To give knowledge of weather and changes in it with geographical location.

Resources

- Text Book NAS 4

Starter Activity (10 min)

- The activity will begin with the teacher writing the word WEATHER on the board and keep on adding other terms until a chart on page 108 will be put up on the soft board.
- The written words will also be explained.

Lesson Methodology (25 min)

- Students will be paired up and told to read assigned pages. The teacher will read along next.
- The reading will be followed by a classroom discussion where key points and concepts will be explained.
- The lesson will be summed up by summarizing what has been taught using the Mind Map.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment Opportunities (30 min)

- Have students attempt the chapter review and the remaining detailed questions.

Teacher Ideas

Home learning

- Assign reading for revision.
- Instruct students to do the STEM and Project.

Lesson Evaluation

- Through formal and informal assessment.
- Written work in the notebook.

Further Notes

ANSWER KEY – UNIT 8

Circle the correct answer

1.	b. sun	4.	b. hot
2.	b. latitude	5.	a. foggy
3.	c. monsoon		

Vocabulary review

1.	Precipitation	4.	mountains, colder
2.	weather, solar	5.	mudslides, landslides
3.	Clouds		

Observe and Answer

a.	Cold	c.	Cloudy
b.	Sunny		

One-Word Answer

1.	Weather	4.	Equator
2.	Climate	5.	Sun
3.	Sunlight		

Detailed Questions

1. Define weather. Give some details.

Answer:

Weather is the state of the atmosphere at a given place and time. It is influenced by many variables such as temperature, humidity, precipitation, cloudiness, visibility and wind.

2. What is climate? Explain.

Answer:

Climate is the average weather for a region. It is affected by temperature, precipitation, wind, ocean, currents, latitude and altitude.

3. What is precipitation? Name some forms of precipitation.

Answer:

Precipitation is any liquid or frozen water that is formed by condensation of atmospheric water vapours, and falls to the Earth. Forms of precipitation include snowflakes, rain, sleet and hail.

4. How does Sun cause evaporation?

Answer:

The heat of the Sun causes evaporation of water from the water bodies. The sun warms up the water on Earth's surface and causes it to evaporate which is to turn into vapours.

5. What is humidity?

Answer:

The amount of water vapours present in the air is known as humidity.

Unit 9 EARTH IN THE SOLAR SYSTEM

SUB-TOPICS

- Introduction
- The Solar System
- Our Earth
- The Seasons
- The Moon
- The Changing Moon
- Eclipses

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 9

Topic: Earth In The Solar System

Sub-Topics:

- Introduction
- The Solar System
- Our Earth
- The Seasons

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To introduce the topic and give knowledge of Earth as a planet in the Solar System.
- To impart the knowledge of various interlinked phenomena taking place.

Resources

- Text Book (NAS 4)
- Model of Solar System or Chart

Starter Activity (5 min)

- The teacher will display a working model of the Solar System and illicit from students about it. From the present knowledge, the topic shall begin.

Lesson Methodology (30 min)

- After the starter activity, the teacher will write down the important keywords on the board. The keywords include The Solar System, Earth and Seasons.
- Students will be asked to read the assigned pages.The teacher will take rounds and provide assistance. Furthermore, the teacher will read along with students in the next step. Classroom discussion will follow.
- The teacher will facilitate a classroom discussion elaborating the sub-topics, keeping the students involved.
- In the end, the teacher will give the quick analysis and students will attempt Quick Review.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment Opportunities (30 min)

- Have students attempt detailed questions 1, 2 and 3

Home learning

- 'Let's Find out' for the next class.
- Assign page numbers for reading.

Lesson Evaluation

- As a warm-up activity in the next class, teacher will ask a few questions to deduce the understanding of the concept.

Teacher Ideas

Further Notes

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 9

Topic:Earth In The Solar System

Sub-Topics:

- The Moon
- The Changing Moon
- Eclipses

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

- To impart knowledge of Earth's Moon, its apparent changes and phenomena of Eclipses.

Resources

- Text Book NAS 4
- Charts- Phases of Moon
  - Lunar Eclipse
  - Solar Eclipse

Starter Activity (5 min)

- The teacher will do a brainstorming about the topic, the students will be asked about what they have observed about the moon and its monthly changes, highlighting the moon sighting and full moon.

Lesson Methodology (30 min)

- The teacher will put relevant charts on board.
- Students will be assigned to read pages.
- The teacher will randomly ask a student to read, and after every sub-topic covered with the help of the charts, it will be explained in detail.
- The teacher will make sure students relate the lesson to their daily observations.
- After the classroom discussion, the teacher will sum up the topic and have the students attempt Quick Review.

Plenary (5 min)

- Quick PMI chart will be filled by students on board.

Assessment opportunities (30 min)

- Have the students attempt the remaining detailed question and the Chapter Review. Facilitate accordingly.

Teacher Ideas

Home learning

- To read and revise assigned pages.
- To study the mind map and STEM.
- To attempt the given Project in the textbook.

Lesson Evaluation

- Formal/ Informal Assessments
- Written work in the notebook.

Further Notes

ANSWER KEY – UNIT 9

Circle the correct answer

1.	8	4.	Summer
2.	Life	5.	both a and b
3.	one year		

Vocabulary review

1.	True	4.	True
2.	True	5.	True
3.	False		

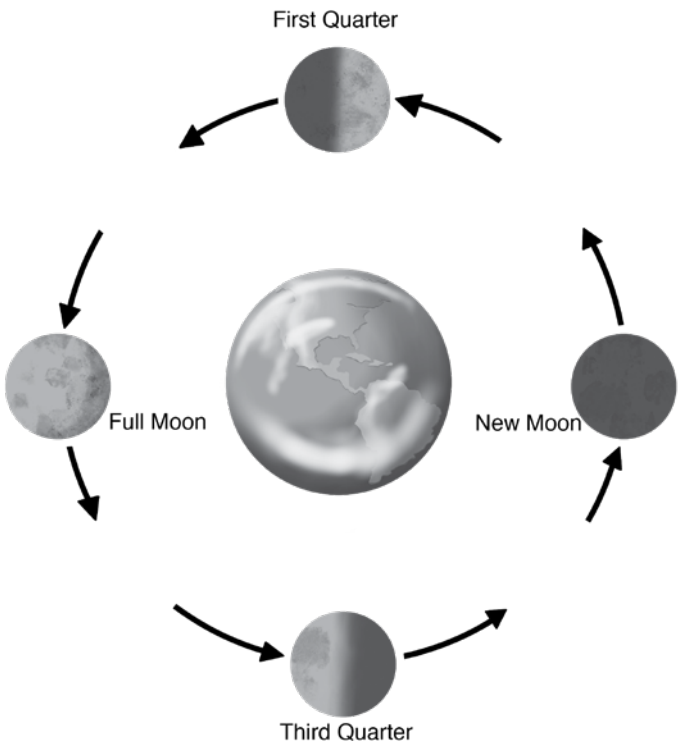
One-Word Answer

1.	Sun	4.	Sunlight
2.	One day	5.	Winter
3.	Shadows		

Observe and Answer

1.	Mercury	5.	Jupiter
2.	Venus	6.	Saturn
3.	Earth	7.	Uranus
4.	Mars	8.	Neptune

Draw and Answer



Detailed Questions

1. What is Solar System? Explain.

Answer:

The Sun and planets make up the solar system. There are eight planets including the Earth in the solar system. The sun is the largest and hottest object, providing light and heat to the rest of the solar system.

2. What is a star? Explain.

Answer:

A star is an object that produces its own energy. The energy includes heat and light such as the Sun, which is over a million times bigger than the Earth.

3. Define Earth's axis. How does it relate to day and night on the planet?

Answer:

Earth's axis is an imaginary line starting from the North and ending at the South pole. It relates to the day and night since the Earth rotates, while being tilted on its axis and while the Sun shines at all times, but only half of the Earth is exposed to it.

4. Define Eclipse. Write about the two types visible on Earth.

Answer:

Eclipses are caused by shadows because Earth and moon are opaque they stop sunlight from passing through, and cast a shadow. The two types of eclipses are lunar and solar eclipse(s). The lunar eclipse occurs when the Earth comes between the moon and the sun, preventing light from reaching the moon, which seems to disappear for some time. The solar eclipse occurs when the moon comes in between the sun and the Earth, and the sun looks dark.

5. What makes the moon shine? Explain the phases of the moon.

Answer:

The moons shines because it reflects the light from the sun. As the moon revolves around the Earth, the shape of the moon appears to change. These changes in appearance are called phases of the moon.

Unit 10 | TECHNOLOGY IN EVERYDAY LIFE

SUB-TOPICS

- Introduction
- Making a Paper Bag
- How to make a Card
- Technology and Health
- How to make a Face Mask
- Technology and Daily Life
- Mobile Phones
- Bandages and Medical Tape
- Cold Pack
- Medicines
- Antiseptic and Disinfectant Alcohol
- Eye drops
- Syringes
- Thermometer
- How to measure Blood Pressure

LESSON PLAN #1

Class: IV Subject: General Science

Unit: 10

Topic: Technology In Everyday Life

Sub-Topics:

- Introduction
- Making a Paper Bag
- How to make a Card
- Technology and Health
- How to make a Face Mask

Date : *Duration:* *2x40* *Term :* *Week:*

Learning objectives

- To introduce the topic with sharing of activities that will instil the value of technology in everyday life.
- To plan and conduct "hands-on" activities.

Resources

- Text Book NAS 4
- Materials required for making :
  - a. Paper Bag
  - b. Card
  - c. Envelope
  - d. Face mask

(The list of materials required will be told to the students earlier, based on the group they are divided into)

Starter Activity (5 min)

- The teacher will conduct a brainstorming session, regarding technology and its everyday use in our lives. The important points will be written on board as the topic is covered.

Lesson Methodology (35 min)

- As instructed earlier to students, the class will divide into the assigned four groups and sit accordingly. The group leader will check for all materials available.
- The teacher will take rounds to brief each group about their designated activity.
- When completed, each group will come in front of the class to show what they have made, and the group leader will explain how they made it in the next lesson.
- All items made will be put on display during a Science Exhibition / PTM.
- Students work will show their success in following instructions as well as their concepts.

Assessment Opportunities (30 min)

- Each group will come in front to explain what and how have they made their designated item through the activity, and answer any questions their fellow students have.

Lesson Evaluation

- Students will be evaluated based on how well they followed instructions and how clear their concepts were.

Further Notes

Teacher Ideas

LESSON PLAN #2

Class: IV Subject: General Science

Unit: 10

Topic: Technology In Everyday Life

Sub-Topics:

- Technology and Daily Life
- Mobile Phones
- Bandages and Medical Tape
- Cold Pack
- Medicines
- Antiseptic and Disinfectant Alcohol
- Eye drops
- Syringes
- Thermometer
- How to measure Blood Pressure

Date : *Duration:* *2x40*

Term : *Week:*

Learning objectives

- To discuss technology in daily life.
- To raise awareness of maintaining good health through gadgets for active monitoring.

Resources

- Text Book NAS 4
- Gadgets- Mobile phones, Digital Thermometer, Blood pressure machine

Starter Activity (5 min)

- The teacher will hold up a mobile phone and ask students about its uses and functions.
- Items from a Medical or First Aid Box will be displayed and asked and informed about.

(Necessary precautions need to be taken)

Lesson Methodology (30 min)

- The teacher will write the names of all sub-topics on board.
- Students will read assigned page numbers. The teacher will randomly ask students to explain what they read.
- Items from the Medical Box will be picked up by the teacher, one by one, and explained.
- Students will note down important points and they will share them with their families.
- The closure to the topic will be provided using the Mind Tree.

Teacher Ideas

Assessment Opportunities (30 min)

- Have students attempt the complete chapter review.
- "Let's find out" both tasks will be performed; each with the help of the teacher.

Home learning

- Sharing what they have learned in class with family.

Lesson Evaluation

- Students work done will show a positive learning experience.
- Feedback from students.

Further Notes

ANSWER KEY – UNIT 10

State whether True or False

1.	False	3.	True
2.	True	4.	False

One-Word Answer

1.	120/80 mm	3.	Wood pulp
2.	Clinical thermometer	4.	Ribbon/ rope

Short Answers

1.	Mask is a precautionary measure and prevents the spreading of infection.
2.	A clinical thermometer contains, mercury which rises with an increase in temperature, whereas a digital thermometer does not contain mercury.
3.	Adding details using markers, paints or pastel colours can make it more attractive.

UNIT 1a: Characteristics and Life Processes of Organisms
Worksheet #1

UNIT # 1a

NAME: _____ DATE: _____

Q1. Complete the following statements.

1. All living things are called _____.
2. _____ can walk, run or fly in search of food and shelter.
3. _____ prepare their own food in presence of sunlight.
4. All living things need _____ to breathe.
5. _____ eat food obtained from both animals and plants.

Q2.

i. What are the two major groups of animals?

_____

_____

_____

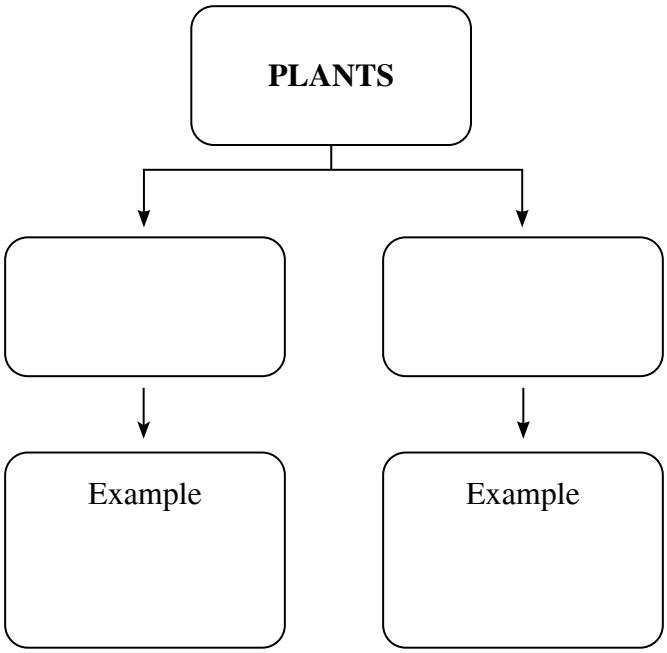
ii. Draw two examples from each.

Worksheet #2

UNIT # 1a

NAME: _____ DATE: _____

Q1.Plants are classified into two groups. Name them with two examples each.



Q2. Name the main groups included in Non-flowering plants.

_____

_____

_____

Q3.Write a short note on "Biodiversity".

_____

_____

_____

_____

_____

_____

_____

Unit 1b: Characteristics and Life Processes of Organisms
Worksheet #1

UNIT # 1b

NAME: _____ DATE: _____

Q1. Define the following terms:

- Muscles

_____

- Incisor

_____

- Canine

_____

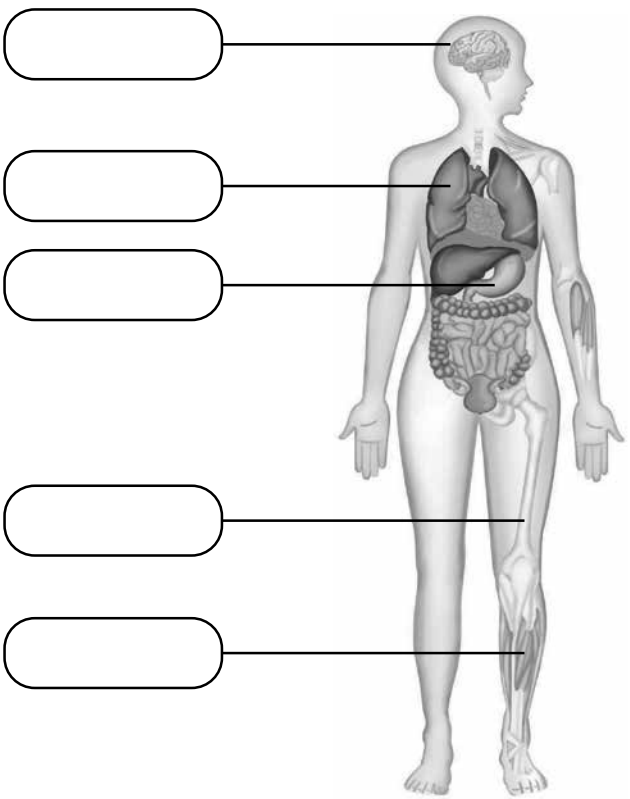
- Molar

_____

- Premolar

_____

Q2.Label the diagram below.



Worksheet #2

UNIT # 1b

NAME: _____ DATE:_____

Q1. Tick whether True or False.

i. Fish have gills for breathing.
(TRUE /FALSE)

ii. When mammals breathe, in their lungs become smaller.
(TRUE /FALSE)

iii. The skeleton is a framework of bones in our bodies that protects our organs.
(TRUE /FALSE)

iv. Muscles can push.
(TRUE /FALSE)

v. Teeth help in chewing food in the mouth.
(TRUE /FALSE)

Q2. Fill in the blanks.

i. A plant's body is divided into _____ main parts.

ii. The shoot is the main part of the plant that grows _____ the ground.

iii. Without the supply of water and _____ through the _____ plants will die.

iv. A strong force of _____ can uproot the trees.

v. A leaf has a flat surface called the _____.

Q3 Draw a labelled diagram of a plant to show the exchange of gases taking place.

Unit 2: Ecosystem
Worksheet #1

UNIT # 2

NAME: _____ DATE:_____

Q1.Define the following:

- Ecosystem

_____

- Abiotic

_____

- Food chain

_____

- Biotic

_____

- Predator

_____

Q2.Give examples of two food chains.

_____

_____

Q3.Write briefly about the two relationships in the ecosystem.

_____

_____

_____

Q4. Name two types of ecosystems on Earth with examples.

_____

_____

_____

Q5. What do you understand by the term three R's?

_____

_____

_____

Unit 3: Human Health
Worksheet #1

UNIT # 3

NAME: _____ DATE:_____

Q1.Define the following terms:

- Contagious disease

_____

- Non-contagious disease

_____

- Balanced diet

_____

- Vitamins

_____

- Energy

_____

Q2. What are the important components of a balanced diet?

_____

_____

_____

_____

Q3. How can communicable diseases be transmitted?

_____

_____

_____

_____

Q4.What actions in our daily life can promote good health?

_____

_____

_____

_____

Unit 4: Matter and its Characteristics
Worksheet #1

UNIT # 4

NAME: _____ DATE:_____

Q1. Name the processes involved in the conversion of water from ice to water vapour and vice versa.

_____

Q2. Define the following:

- Mass

_____

- Volume

_____

- Conduction

_____

- Melting Point

_____

- Boiling Point

_____

Q3. Give different uses of metals.

_____

_____

_____

Unit 5: Forms of Energy and Energy Transfers
Worksheet #1

UNIT # 5

NAME: _____ DATE:_____

Q1. Fill in the blanks.

i. _____ is invisible but we can see its effects.

ii. Energy is the ability to do _____.

iii. No _____ would exist if _____ was not there.

iv. In an engine, _____ is converted to heat.

v. Energy from running _____ is used to generate electricity at hydroelectric power station.

Q2. Name various forms of energy.

_____

_____

Q3. What kind of energy travels fastest in the world?

_____

Q4. What happens when light falls on an object?

_____

_____

_____

Q5. What is an echo?

_____

_____

_____

_____

Q6. What are the uses of electrical energy in our daily life's?

_____

_____

_____

Unit 6: Forces and Motion
Worksheet #1

UNIT # 6

NAME: _____ DATE:_____

Q1. Illustrate to show how a force works.

Q2.Name six simple machines.

_____

_____

_____

_____

Q3.What is gravity?

_____

_____

_____

_____

Q4.How does friction work? Explain using examples.

_____

_____

_____

_____

Unit 7: The Earth and its Resources
Worksheet #1

UNIT # 7

NAME: _____ DATE:_____

Q1.Fill in the blanks.

i. The main source of life on Earth is _____.

ii. _____ makes up the fifth of Earth's atmosphere.

iii. Mass of snow on mountains is known as _____.

iv. _____ is made up of sand and limestone.

v. Air, water and soil are all _____ materials.

Q2.How are natural resources classified? Explain using examples.

_____

_____

_____

Q3.What are fuels? Name some examples.

_____

_____

_____

_____

Q4.What are the two types of energy sources? Give two examples of each.

_____

_____

_____

_____

Q5.Why is conservation of resources important in your opinion?

_____

_____

_____

_____

Unit 8: Earth's Weather And Climates
Worksheet #1

UNIT # 8

NAME: _____ DATE:_____

Q1.Define the following:

- Weather

_____

- Climate

_____

Q2.Write down the factors that affect the weather of an area?

_____

_____

_____

_____

Q3.What is precipitation?

_____

_____

_____

_____

Q4.Name the three zones of the Earth based on the variation of the climate.

_____

_____

_____

_____

Q5.What is the difference between snow, rain, sleet and hail?

_____

_____

_____

_____

Unit 9: Earth In The Solar System
Worksheet #1

UNIT # 9

NAME: _____ DATE:_____

Q1.Draw a diagram to show the planets and the sun in our solar system.

Q2.Draw a diagram to show what causes day and night on Earth.

Unit 10: Technology In Our Daily Life
Worksheet #1

UNIT # 10

NAME: _____ DATE:_____

Q1. How is technology important in our daily lives? Explain.

Q2. What precautionary measures should be taken if one is sick?

Q3. How is a mobile useful in our daily lives?

Q4.Write about the importance of a First Aid Box and what must it comprises of?