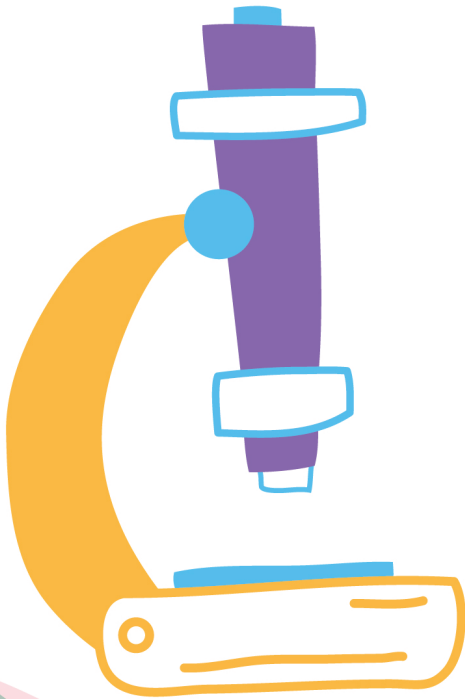
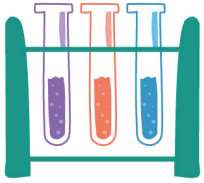
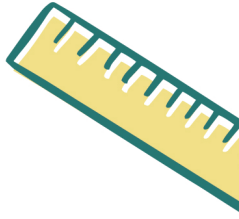




Professional Development  
for Quality Education

# GENERAL SCIENCE



## LESSON PLANS

# 4

GRADE



Based on Curriculum 2020



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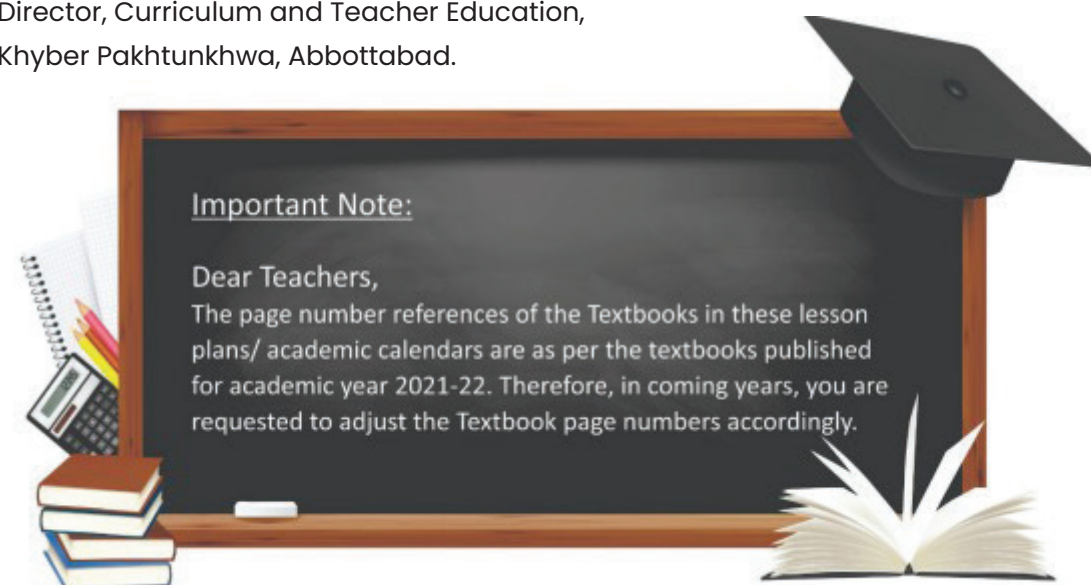
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**NOTIFICATION:**

**No.5236-5399/F.24/Vol-II/SLP/G-IV/SS-M&E, dated: 30-08-2021** : Consequent upon its development and review by the respective development and review committees notified for the purpose, the Directorate of Curriculum and Teacher Education (DCTE), Khyber Pakhtunkhwa, Abbottabad, being the competent authority under the Khyber Pakhtunkhwa Supervision of Curricula, Textbooks and Maintenance of Standards of Education Act 2011, is pleased to notify the scripted lessons for Grade-IV in the subjects of English, Urdu, Mathematics and Social Studies based on Curriculum 2020 and the textbooks aligned on it for all educational institutions in Khyber Pakhtunkhwa for the Academic Year 2021-22 and onwards.

**DIRECTOR**

Copy forwarded for information and necessary action to the:

1. Secretary, Elementary & Secondary Education Department Govt. of Khyber Pakhtunkhwa, Peshawar.
2. Director, Elementary & Secondary Education Khyber Pakhtunkhwa.
3. Director, Professional Development, Khyber Pakhtunkhwa Landey Sarak Charsadda Road Larama, Peshawar.
4. All District Education Officers (M/F) in Khyber Pakhtunkhwa and Newly Merged Districts (NMDs).
5. All Sub Divisional Education Officers (M/F) in Khyber Pakhtunkhwa and Newly Merged Districts (NMDs).
6. Team Leader ASI-KESP, at Peshawar.
7. PS to Minister Elementary & Secondary Education, Khyber Pakhtunkhwa, Peshawar.
8. PS to the Director Local Office.

**ADDITIONAL DIRECTOR (SS)**

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# INTRODUCTION

Teaching and learning process in the classroom can vary concerning the ability, experience, and training of the teacher, which is why to standardize instruction, every good and effective teacher requires a lesson plan. The preparation of a lesson plan is important for clarity and comprehension regarding how the entire learning process will be handled as well as how students can understand and store the knowledge that is being passed onto them.

Lesson plans are vital for helping students accomplish their goals within a learning environment on a short-term and long-term basis. Lesson plans based on clearly defined Student Learning Outcomes (SLOs) concerning the textbooks ensure students are taught the required curriculum most efficiently. These ensure the teacher is adequately prepared and has a clear sense of direction for their lessons. In the context of Khyber Pakhtunkhwa, Lesson Plans are designed to support teachers to implement new pedagogical methods and help provide direction to instruction in the classrooms.

## Traditional Teaching Style:

Many teachers in Pakistan have come to rely on the textbook for teaching. They come into the classroom, ask students to open the textbook on a certain page, have students read a portion of the text, paraphrase the same and then ask students to answer questions that require them to reproduce material from the text. They teach every subject (the exception being mathematics) and every lesson in the same way. In some cases, the teacher is unable to complete the curriculum or impart the SLOs for a particular grade to the students effectively. Using lesson plans ensure standardization in teaching quality and provides a clear goal with relevant activities that can help students learn more effectively and achieve curriculum milestones.

## What is a Lesson Plan?

A lesson plan is a description of the instructions for the purpose of teaching the contents of the textbook of a particular subject and achieving Student Learning Outcomes (SLOs).

A lesson plan is the road map for teachers for the achievement of SLOs effectively during class time. The teachers design appropriate learning activities and develop strategies to obtain feedback on students' learning. A carefully constructed lesson plan allows the teacher to enter the classroom with more confidence and maximizes the chance of having a meaningful learning experience with the students.

A successful lesson plan addresses and integrates three key components:

- ♦ Student Learning Outcomes (SLOs).
- ♦ Learning activities.
- ♦ Assessment to check for students' understanding.

## Benefits of Lesson Planning

Most important benefits of lesson planning are to:

- Improve the quality of teaching and learning.
- Establish clarity of purpose.
- Facilitate achievement of student learning outcomes.
- Use available time effectively.
- Develop appropriate materials and ensure their effective use.
- Develop the confidence of teachers.

## Development Process of a Lesson Plan

Lesson plan usually starts with a thinking process. This thinking process is basically completed in four parts.

- **First**, determine the SLO; that is, what the children will learn, what they will be able to do upon completing the activities or work of the lesson.
- **Second**, determine what the students already know, before beginning of the lesson that can lead into a new curriculum of the day.
- **Third**, determine at least one way to assist the students in learning the new curriculum.
- **Fourth**, determine a way to evaluate the learning outcomes of the students.

## Components of a Lesson Plan

Common elements of lesson plans are; unit of study, a title/topic/problem, identification of student learning outcomes (SLOs), a sequence of learning activities including introductory, developmental and concluding activities, list of materials to be used and assessment strategies.

- ♦ **Choosing the Topic.** You can choose any topic from the textbook of the designated grade, a skill such as information gathering, a value such as peace, a current affair topic or an area of special concern such as the environmental pollution etc.
- ♦ **Identifying Student Learning Outcomes (SLOs) from the Curriculum.** The Curriculum has identified the student learning outcomes to be achieved for each topic. Identifying the student learning outcomes will help you to clarify the knowledge, skills, attitudes and values to be developed. Choose only one to three SLOs to develop your lesson (many more for a unit plan).
- ♦ **Material Resources.** A key part of planning is to ensure the identification, adaptation and development of resources required for the lesson for both teachers and students.
- **Development:**
  - ♦ **Introductory Activities:** Introductory activities are designed to introduce the topic, a subtopic or establish connection with the previous lesson. They are designed to build readiness, create interest, raise questions and explore what children already know about the topic, recall relevant information, motivate students and focus their attention on the topic/theme/problem to be studied. Introductory activities can include an arrangement of pictures or activities that stimulate interest and questions. Others may be based on the teacher posing questions, reading a poem or story on the teacher posing questions or reading a poem, story, etc. A test, an inventory, or a quiz may be used to find out what students know in order to build on their existing knowledge.
  - ♦ **Developmental Activities:** Developmental activities should emerge out of the introductory activities. There should be smooth transitions between the activities to provide a smooth learning sequence. These activities are designed to actualize the student learning outcomes. They introduce new concepts, skills and values or build on past learning and should be linked with each other. Applicative or demonstrative activities extend learning and develop the ability to use concepts and skills. Creative and expressive activities enrich learning and develop the ability to improvise and apply learning in original ways.
  - ♦ **Concluding the lesson:** Conclusion includes activities that serve to consolidate, summarize, or facilitate application of knowledge and skills of students to a new situation. They are generally related to the main idea of the lesson. The concluding activities could bring together the different main ideas of the unit. In this case, the emphasis should be on the educational outcomes and not on “putting on a show”.
  - ♦ **Assessment of Learning.** Assessment strategies can tell us how well or to what extent the student learning outcomes have been met. Assessment of learning is important in all phases of the lesson/unit from introduction to conclusion. A variety of tools can be used to assess the realization of the chosen learning outcomes. Some of these will be prepared as part of the learning activities. For example, the drawing and labeling of a map, the checklist for evaluating a discussion or simply asking questions relevant to the day’s topic. Other tools such as tests can be prepared ahead of time as well.
  - ♦ **Follow up/homework task.** This component includes follow up activities or home assignments to be undertaken by students at home.

# PREFACE

The Government of Khyber Pakhtunkhwa, Elementary and Secondary Education Department, is committed to improve the quality of teaching and learning by taking a number of reforms and initiatives for the improvement of quality education in line with the national and international emerging trends. Providing quality education at primary level is the first imperative step towards achieving this goal.

For this purpose, the Directorate of Curriculum and Teacher Education Khyber Pakhtunkhwa, at Abbottabad, has been entrusted the responsibility of developing and reviewing teachers' in-service and pre-service training materials for the improvement of pedagogical skills of teachers.

These quality improving initiatives also include development of teacher's guides of scripted lesson plans at primary level that support teachers to implement new pedagogical methods. These teacher guides are intended to assist teachers with the provision of content, effective teaching methods and tools for measuring what learners have gained. These guides will ensure an effective and participative engagement of teachers with students as activities included in these lesson plans are student-centered.

These teacher guides of Lesson Plans based on Student Learning Outcomes (SLOs) of Curriculum 2006 were developed for the first time in 2013. In 2018–2019, the Directorate of Curriculum & Teachers' Education Khyber Pakhtunkhwa undertook the task to revise and develop the Scripted Lesson Plans for Grade I–III according to the Academic Calendar on missing Students Learning Outcomes (SLOs).

As the Curriculum has been revised and new textbooks are developed in 2020 for Grades Pre–I to V, hence the need has been felt that these Lesson Plans for Grades I to V are to be revised, developed and aligned with the updated Curriculum 2020, accordingly.

The Directorate of Curriculum and Teacher Education Khyber Pakhtunkhwa constituted different committees comprising of Curriculum/Subject experts and teachers for developing these Lesson Plans based on Curriculum 2020. DCTE acknowledges the efforts of these experts for developing and reviewing these scripted lesson plans.

The Directorate of Curriculum and Teachers Education Khyber Pakhtunkhwa is also thankful to the Technical Assistance of Khyber Pakhtunkhwa Education Sector Programme (KESP) in the finalization of these lesson plans.

**Gohar Ali Khan**  
**Director,**  
**Curriculum and Teacher Education**  
**Khyber Pakhtunkhwa, Abbottabad.**

**Month**

**1**

# CHARACTERISTICS OF LIVING THINGS



## STUDENT LEARNING OUTCOMES

- Compare and contrast characteristics that distinguish major groups of living things (plants, animals)

## INFORMATION FOR TEACHERS

- Read the complete chapter and develop an understanding of the concept.
- Know the keywords of the lesson given below.
- Write the Keywords on the chart and display them in the classroom visible to all students.

**Keywords** Animals, plants, respiration, reproduction, growth, Venn diagram.

**Skills** Observation and classification skills should be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Charts of animals and plants pictures
- Flashcards having pictures of animals and plants and new vocabulary of key terms.



## INTRODUCTION

5 MINUTES

Display the charts of animals and plants and ask the following questions.

- Can you tell the names of animals and plants in the given chart?
- Can you tell only one characteristic of each animal and plant in the given chart?
- Can animals and plants increase their numbers?
- How are plants and animals different from each other?



## DEVELOPMENT

20 MINUTES

Having some possible and correct answers from students, the given charts will be divided into animals and plant groups. The students will be asked to identify and count the similarities and differences of the given groups.

### Activity 1:

Draw the Venn diagram on the board and refer to the diagram and Activity 1.1 on page 3 of the textbook. Explain the similarities of plants and animals in Activity 1.1 using a Venn diagram.

## Activity 2:

Discuss the activity “**Do You Know**” given on page 4 of the textbook. To emphasize and recapitulate the **Characteristics of Living things, the Needs of Plants, Animals, and Plants providing oxygen.**



### CONCLUSION / SUM UP

5 MINUTES

1. Summarize the lesson:
2. Living things are divided into two main groups (animals and plants).
  - ◇ The animals and plants have characteristics due to which they are different from non-living things. These include,
  - ◇ All animals can move freely while plants can move upwards or downwards standing in one place.
  - ◇ They can reproduce young ones of their own.
  - ◇ They can both grow.
  - ◇ They can both breathe.
  - ◇ Plants are usually of green colour while animals have different colors.
3. Conclude the lesson with the first three key points given at the end of the chapter on page 16 of the textbook.



### ASSESSMENT

3 MINUTES

Ask the students about their observations on plants and animals in their environment.

1. While coming to school what animals have you seen? Give names.
2. What kind of plants are there on your way to school? Give names.
3. (Develop a chart for these animals and plants)



### HOMEWORK / FOLLOW UP

2 MINUTES

Prepare a chart of animals and plants present in your home and neighborhood to compare it based on similarities with animals and plants given in the textbook.

**Follow up:** An additional period will be required by the teacher for discussing the **Point to Ponder** given on page 2 of the textbook. This is a thinking question for all students to participate in Practice for Venn diagram to be carried out in class under the supervision of the teacher.

# CLASSIFICATION OF ANIMALS



## STUDENT LEARNING OUTCOMES

- Classify animals in terms of vertebrate and invertebrate.

## INFORMATION FOR TEACHERS

The teacher should:

- Read the topic from the textbook in advance.
- Have full command of the content by reading the additional text relevant to the topic
- Prepare a chart having the pictures of vertebrate and invertebrate

**Keywords** Vertebrate, invertebrate, backbone.

**Skills** Observation and classification skills should be emphasized during the lesson



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Charts and flashcards with pictures of vertebrates and invertebrates



## INTRODUCTION

5 MINUTES

- Have you seen an old man placing /putting his hand on his back while walking? Why he does so (to support his backbone)
- Ask each student to move their hand on their back and feel their backbone. Can you name some animals having backbone?
- Do all animals have backbones?
- Can you think of some animals which have no backbone?



## DEVELOPMENT

20 MINUTES

- Paste the charts having the pictures of vertebrate and invertebrate.
- Also, tell the students to look at page 4 of their textbook for vertebrates and invertebrates.
- Ask the students to name the animals on the charts.

### Activity 1:

- Display a chart having various kinds of animals.
- Ask the students to separate vertebrates and invertebrates.
- Write vertebrates and invertebrates in two columns on the writing board with the help of students.

### Activity 2:

1. Divide the class into two groups and give them blank flashcards.
2. Direct them that one group will write the name of vertebrates, and the other group will write the names of invertebrates. As a result, students will get familiar with a variety of vertebrates and invertebrates.



### CONCLUSION / SUM UP

5 MINUTES

1. Tell the students that animals have two major groups based on the backbone.
  - ◊ Vertebrates: the animals which have backbones are called vertebrates: For example, man, cat, dog, horse.
  - ◊ Invertebrates: the animals which have no backbone are called invertebrates, for example, honeybee, butterfly, and mosquito.
2. Sum up the lesson with the key points of the lesson on page 16 of the textbook.



### ASSESSMENT

3 MINUTES

1. Separate vertebrate and invertebrate from the following animals and write it in two columns in your textbook.  
Snake, sheep, goat, cow, mouse, starfish, snail, butterfly.



### HOMEWORK / FOLLOW UP

2 MINUTES

Ask the students to prepare a chart of five vertebrate and five invertebrate animals present in their surroundings, home, school, and community by writing their names

#### Follow up:

1. An additional period to be allocated for discussing Activity 1.2 on page 4 of the textbook. Let the students practically conduct the activity.
2. The teacher to show the pictures of the vertebra for students to draw in their notebooks.

# CLASSIFICATION OF PLANTS



## STUDENT LEARNING OUTCOMES

- Classify plants in terms of flowering and non-flowering with examples and analyze the differences and similarities in flowering and non-flowering plants.

## INFORMATION FOR TEACHERS

- Before starting the class, read the topic and understand biological terminology to be used in the lesson, refer to the glossary at the end of the textbook on page 128-130
- Ask the students one day before to bring one flower each. In this way, various flowers of different colors will be collected. If flowers are not available bring pictures of flowers.

**Keywords** Herbs, shrubs, trees, names of flowering plants and non-flowering plants

**Skills** of classification and observation during the lesson may be emphasized.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Besides, the existing material present in the classroom teacher should prepare a chart with pictures of various plants. If possible, obtain some plants from the surrounding environment to motivate the students towards the topic.



## INTRODUCTION

5 MINUTES

- Ask the students to place flowers on their desks. Ask the students:
  - Do all flowers have the same colour?
  - Do the flowers look alike, or they are different?
  - What is their favorite flower colour?
  - Where does the flower grow?
  - Do all plants have flowers?
- Display a chart having flowers of various colours. Ask each student to write his/her favorite flowers name and colour on flashcards.



## DEVELOPMENT

20 MINUTES

Display the chart having pictures of various plants (flowering and non-flowering plants)

### Activity 1:

- Show the plants collected from the surrounding and ask the students about the names

and some features of these plants.

2. As guided practice:

- ♦ Mix all the samples of the plants that have been collected from the surroundings.
- ♦ Ask the students, to separate flowering plants from non-flowering.
- ♦ If plants are not available, the teacher can make use of pictures of flowering and non-flowering plants.



## CONCLUSION / SUM UP

5 MINUTES

1. Explain that Plants are of two types:

- ♦ **Flowering plants:** plants on which flowers grow are called flowering plants e.g., rose, sunflower, guava, and tulip these flowers are of various colours.
- ♦ **Non-flowering plants** on which flowers do not grow are said to be non-flowering plants for example pine, juniper, ferns, etc.

2. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

3 MINUTES

Ask a few questions to check the students learning.

1. Have you seen roses of different colour?
2. List a single benefit we get from non-flowering plants
3. Which flowering plants grow in your school?
4. Discuss question 1(part iv and v) from the exercise at the end of the chapter.



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Draw a neat diagram of flowering plants from your neighborhood.
2. Also, write the names of non-flowering plants given on page 6
3. Write the similarities and differences of flowering and non-flowering plants Activity 1.4 Venn diagram given on page 6 of the textbook.

### Period 2

#### Follow up:

1. An additional period will be allocated for this topic. With the background information given on flowering and non-flowering plants, continue the lesson in the second period.
2. Take a map of Pakistan to discuss the Interesting Information given on page 6 of the textbook, for students to identify these plants and their location in Pakistan.
3. Students to conduct Activity 1.5 on page 7 of the textbook.

# BIO-DIVERSITY



## STUDENT LEARNING OUTCOMES

- Recognize and appreciate diversity in life (both plants and animals) and identify ways to protect diversity

## INFORMATION FOR TEACHERS

- Read the topic given above and understand biological terms to be used in the lesson
- Know that the beauty of this universe is due to diversity.

**Keywords** Diversity, biodiversity and habitat, climate, extinct, destruction.

**Skills** Observation and classification and identification must be used during teaching.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Charts of various animals and plants. Flashcards: (blank)



## INTRODUCTION

5 MINUTES

- Start the class by writing the word diversity on the board.
- The students will repeat the word and learn the spelling.
- Discuss diversity and its meaning through examples. The importance of diversity will also be discussed by asking questions given below:
  - Do all of you look alike?
  - What would happen if all the people looked the same?
  - Have you seen any two people exactly similar to one another in your community/village?
  - What is the name of the place where animals or plants live?
  - Do animals and plants depend on each other?



## DEVELOPMENT

20 MINUTES

### Activity 1:

- Display a chart having pictures of plants and animals about their structure and functions.
- Students will be asked to observe and describe their structures and function in the environment or community.

3. Explain that the diversity of life is called biodiversity.
4. Ask the students
  - ◇ What elements are necessary for the life of the animals and plants?
  - ◇ Why is Biodiversity necessary?
5. Biodiversity is necessary for the existence and protection of living things. Therefore, each animal and plant should be provided with suitable habitat, climate, air, water, and all other conditions necessary for their life.
6. Further explain that various living things have become extinct due to many factors like the destruction of habitat, change of climate, increase in temperature of the environment and shortage of water, etc.



### CONCLUSION / SUM UP

5 MINUTES

1. Ask the following questions:
  - ◇ Do all living things look alike?
  - ◇ Do all animals and plants have the same structure and functions?
  - ◇ Why do some animals disappear from their habitat?
  - ◇ Why is domestic animal diversity being lost at an alarming rate?
2. Sum up the lesson with the key points given at the end of the chapter



### ASSESSMENT

3 MINUTES

1. Biodiversity has a role to play in the stability of the ecosystem and global climate.
  - ◇ What will happen to the ecosystem by deforestation?
  - ◇ How is biodiversity affected by deforestation?
2. Students may be allowed to take help from one another.



### HOMEWORK / FOLLOW UP

2 MINUTES

Read page 7 of your textbook and write a few lines on the government project about plants, Billion Tree Tsunami. The project will be useful to stop climate change.

### Period 2

#### Follow up:

1. **An additional period for**, written work to be done in class by writing on diversity as they see around them in plants and animals. brainstorm before giving the assignment.
2. If there is a place on the school ground or at home, students can plant trees and water them regularly.

# MAJOR BODY PARTS AND THEIR FUNCTIONS



## STUDENT LEARNING OUTCOMES

1. Identify major parts/organs in animals (teeth, bones, lungs, heart, stomach, muscles, brain)
2. Relate the parts/organs of the body of animals to their functions (e.g., teeth, breakdown food, bones support the body lungs take in air, the heart circulate blood, the stomach helps to digest food, muscles move the body)

## INFORMATION FOR TEACHERS

1. Read the given topic from the textbook in advance
2. Understand the scientific words and definitions; refer to the glossary given at the end of the textbook on pages 128 and 129.
3. Know the processes of circulation, digestion, and breathing.
4. Get familiar with the whole-body diagram and the functions of each organ.

**Keywords** Heart, lungs, bones, stomach, muscles, brain, teeth.

**Skills** Observation and Classification skills need to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Human body charts and models of body parts.



## INTRODUCTION

5 MINUTES

1. Introduce the body organs display a chart of the human body.
2. As a warm-up activity teacher may ask questions like
  - ◇ Name your body parts; write the answers on the board.
  - ◇ How many organs do you have in pairs, give their names (hands, feet, eyes, ear?)
  - ◇ Count the organs which are not in pair in your body (Nose, tongue, head.)
  - ◇ How do you eat your food? (With teeth)



## DEVELOPMENT

20 MINUTES

1. This part contains the main teaching activities. On finding the possible answer to the above questions, announce the topic.
  - ◇ Major body parts and their functions

2. Display a labeled chart of the human body. He will ask the students to show in their own body the same organs which you see in the chart.
3. Thus, with the interaction with students, the following organs will be pointed out
4. Teeth, Bones, Lungs, heart, stomach, brain, muscles, hands, feet, head, liver, kidney, small intestine, large intestine, windpipe, blood vessel.
5. All these organs have specific structures and functions which you can see in the chart and can observe their functions from your body organs.



### CONCLUSION / SUM UP

3 MINUTES

To sum up, ask some questions like:

1. Tell students that in this period, we have learned about the different parts of the body.
2. Name the different parts of the body?
3. Can you tell four organs found in pairs in a human body?



### ASSESSMENT

5 MINUTES

1. Point towards different parts of his/her body and ask students the following question.
  - ◇ What is this (Pointing towards eyes, nose, ear, etc.)



### HOMEWORK / FOLLOW UP

2 MINUTES

Draw the diagram of the human body and label it, which is given on page 8 of your textbook

**\*At this stage the 35 minutes 1 ends. Lesson to be continued in period 2.**

# MAJOR BODY PARTS AND THEIR FUNCTIONS



DEVELOPMENT

25 MINUTES

- Recall to students that in the last period we have learned about the parts of the body and today will discuss different functions of human organs.
- Display a chart of human organs with their relative functions the teacher can ask some questions which can help the students to know the functions of some organs like:
  - ◇ What do you do with your eyes and ears?
  - ◇ What do you do with your arms and hands?
  - ◇ What do you do with your teeth?
  - ◇ What do you do with your legs and feet?
  - ◇ What do you do with your lungs?
  - ◇ What makes the skeleton?
- Prepare a precise chart having the names of organs and their functions.

| Organs             | Functions                      |
|--------------------|--------------------------------|
| Eyes               | To see                         |
| Ears               | To hear                        |
| Feet               | To walk                        |
| Heart              | To circulate blood in the body |
| Brain              | To think                       |
| Bone's combination | To form skeleton               |

## Activity 1:

- Show the picture of a human body given on page 8 of the textbook and point out the cage around the lungs to show the ribs of the body.
- The students may be asked to feel their own ribs also. Students will draw the structure of ribs as shown in the book.

## Activity 2:

- Ask the students, how do we breathe?
- Now ask to breathe and observe the parts of the body involved in breathing. They may look at each other to observe, the chest expands, and they can see air coming in and out.
- The teacher may ask where the air is stored in the body and show them on the chart that the lungs store air. They expand and contract. Refer to the diagram given on page 11.
- Show the rib cage that protects the soft lungs in the body.
- In the same way function of the heart, stomach, muscles, and brain can be explained
- The heartbeats and circulates blood in the body.
- The stomach is a sac that secretes juices and helps in digestion.

### Muscles:

Bones are covered by muscles that protect the bones and they support bones to perform various functions.

### Brain

It is present within our skull and controls all the functions of our body. It collects information and decides what types of response our body should show.



## CONCLUSION / SUM UP

5 MINUTES

1. Ask them questions like:
  - ◇ Where is the brain placed?
  - ◇ Where air goes when we inhale?
  - ◇ How skeleton is formed?
2. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

3 MINUTES

Complete the activity 1.6 given on page 11 of the textbook

| Name of bones | Function |
|---------------|----------|
| Skull         |          |
| Ribs          |          |
| Bones of hand |          |
| Bones of leg  |          |



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Write the functions of various teeth given on page 9 of your textbook
2. Also, draw a labeled diagram of the human skeleton given on page 10 of textbook

# MAJOR BODY PARTS AND THEIR FUNCTIONS



## STUDENT LEARNING OUTCOMES

1. Identify parts of the plant's body (Leaves, stems flowers, seeds, roots)
2. Relate the structure of plants to their functions (i.e., roots absorb water and nutrients and anchor the plants, leaves make food, the stem transports water and food, flowers produce seeds and seeds produce new plants)

## INFORMATION FOR TEACHERS

1. Ask the students one day before to bring some flowering plants present in their homes like a mustard plant, maize, gram, sunflower, and some seeds
2. Read the textbook and understand common scientific terminology like the transportation of water.
3. Refer to Glossary at the end of the textbook on pages 128-130

**Keywords** mustard, maize, gram, sunflowers, and seeds.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Besides classroom materials a chart of plants and their parts should be prepared by the teacher some plants brought by students will be placed on a table for demonstration.



## INTRODUCTION

5 MINUTES

1. Before starting the lesson, appreciate the students' effort in bringing some plants. He will ask:
  - ◇ What is the colour of the leaves of plants? (Green)
  - ◇ What is the name of the colorful part of a plant (Flower)?
  - ◇ Name part of a plant that stands erect (stem)?
  - ◇ Part of a plant that grows downward (root)?
2. After answering the questions by students, announce the topic, Parts of a plant.



## DEVELOPMENT

20 MINUTES

At this stage, display the chart with a labeled diagram of the plant and its parts and some actual plants already placed on a table before students. explain all the five parts of a plant i.e., Root, stem leaf, flower, seeds with the help of the chart or real plants present in the classroom. The root is usually present under the ground. The stem grows above the ground. A leaf is the green part of a plant and the flower is the reproductive part of the plant.



## CONCLUSION / SUM UP

3 MINUTES

1. Count those plants, whose fruits have only one seed
2. Name the fruits which have more than one seed
3. Which is the non-vegetative part of plants?
4. Which is the non-vegetative part of a peanut?



## ASSESSMENT

5 MINUTES

Make pairs of students and ask them to write five characters of flowering plants in flashcards or piece of paper and show/display it before the class



## HOMEWORK / FOLLOW UP

2 MINUTES

Take an additional period to solve Q3 and Q4 from the exercise at the end of the chapter in class. These are thinking questions and students will discuss their reasoning with their answers.

# MAJOR BODY PARTS AND THEIR FUNCTIONS



DEVELOPMENT

25 MINUTES

To start this lesson, explain the parts of a plant.

**Activity 1:**

1. Take two soft beakers or transparent glass having white flowers for example petunia.
2. Roots will be washed with water
3. In one bottle clean water is taken while in the other bottle clean water is mixed with a few drops of red ink.
4. Leave the beaker/glass having plants till the end of the day or for the next day.
5. Ask the students to observe the plants and write their observations.
6. Ask the students to describe their observations.
7. It is observed that the colored water enters the root and passes through the stem. When the root or stem is cut one will see the coloured water and clean water in the stem. This shows that transportation occurs in the roots and stems of plants. Thus, roots absorb water and stem transport towards leaves.
8. At this point, ask a few questions to check their learning.
  - ◇ Which part of the plant remains underground?
  - ◇ From which part of plant seeds are formed?
  - ◇ What type of colour do you observe in leaves?

**Activity 2:**

1. Before starting this sort of activity, ask some questions about the parts of the plant relating to their functions
  - ◇ Which part of the plant prepares food for the plant?
  - ◇ Where is seed formed?
  - ◇ Where are fruits formed in plants?
2. Explain all the parts and their Functions
  - ◇ **Root:** It is an underground part of the plant which absorbs water and nutrients from the soil in solution form
  - ◇ **Stem:** It grows above the ground it has branches that spread in different directions. Stem absorbs water and minerals from the roots and transports them to the leaves.
  - ◇ **Leaf:** It grows on the stem and is the green part of the plant which prepares food for the plant.
  - ◇ **Flower:** It is a colored part of the plant. It is the reproductive part of the plant.
  - ◇ **Seed:** It is formed in a flower. It is used as a food and used for the reproduction of new similar plants in suitable conditions.

**Activity 3:**

Ask students to perform activity 1.10 given on page 15 of the textbook. Observe the results and write them in notebooks. discuss the results in class.



## CONCLUSION / SUM UP

5 MINUTES

1. Ask the questions:
  - ◇ Which is the reproductive part of the plant?
  - ◇ Which part of the plant absorbs water?
  - ◇ What is the function of leaves?
2. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

5 MINUTES

Ask the student to perform activity no 1.9 on page 14 of the textbook. The student will write observations in notebooks.



## HOMEWORK / FOLLOW UP

5 MINUTES

Draw a neat and labeled diagram of a plant mentioning its various parts and their functions.

**Follow up:** An additional period will be allocated for holding a quiz on the above topic, with Multiple Choice Questions, Fill in the blanks, True and False.

**Month**

**2**

# BALANCED ECOSYSTEM



## STUDENT LEARNING OUTCOMES

- Analyze the way these biotic and abiotic constituents create balance to sustain any ecosystem.

## INFORMATION FOR TEACHERS

- Read the topic to understand the big picture. Know about the environment, ecosystems, and their constituents.
  - Understand the keywords in the lesson, write them down on a chart, and display it in the classroom visible to all students.
  - Use these keywords during the lesson to students.

### Keywords

Respiration, carbon dioxide, biotic, abiotic, environment, forest, pond, energy, light, temperature.

### Skills

Observation and identification skills will be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Textbook, charts, pictures



## INTRODUCTION

5 MINUTES

- At the start, ask the following questions.
  - What is an environment?
  - What are living things?
  - Name nonliving things in your surroundings.



## DEVELOPMENT

20 MINUTES

- After brainstorming about the above questions, display the chart with the pictures of a pond, ocean, forest.
- Ask the students to identify living things and non-living things in these environments. Living things are also called biotic things. All animals and plants are biotic things while light, energy temperature, and soil are non-living things. They are called abiotic. These biotic and abiotic components constitute an ecosystem. All these living and non-living things depend on one another and fulfill their needs.

### Activity I:

1. Ask the students:
2. How is balance maintained in the Ecosystem?
3. Further explain that:
4. Plants are producers. They make their food and oxygen in the presence of sunlight, water, and carbon dioxide and release oxygen gas into the environment.
5. Sunlight + water + carbon dioxide = food + oxygen
6. Animals use this oxygen for respiration and give out carbon dioxide which is used by plants to make food.

Oxygen + food = Carbon dioxide

7. This cycle helps to keep a balanced ecosystem.

**Refer to book page 24**



### CONCLUSION / SUM UP

3 MINUTES

1. To conclude the lesson, ask the students to separate living and non-living things from the given list.
2. Camel, goat, soil, rock, temperature, donkey, rose, rice plant, paper, water.



### ASSESSMENT

5 MINUTES

Write the names of three biotic and three abiotic components of an ecosystem.



### HOMEWORK / FOLLOW UP

2 MINUTES

Ask students to see various ecosystems in the textbook on page 22 and write short notes on them in their notebooks.

### Follow up:

Thinking question **Point to Ponder** on page 24 will be done in class with the teacher and students will give their response in writing.

# ECOSYSTEM, COMPONENTS OF ECOSYSTEM



## STUDENT LEARNING OUTCOMES

- Recognize what is an ecosystem (e.g., forest, ponds rivers, grasslands, and deserts)
- Explain biotic (plants, animals, and humans) and abiotic factors (light, temperature, soil, and water) and their linkages.

## INFORMATION FOR TEACHERS

- Read the complete chapter to understand the holistic picture. In addition, understand the scientific definitions and words of the new terms used in the chapter to familiarize the students with these new words and their spellings.
- Bring a Map of Pakistan showing physical features to show the different ecosystems located in Pakistan. (Deserts of Thar, Cholistan, Mianwali and Bhakkar. Snowy areas of North, Arabian Sea in the south, and plains or grasslands of Punjab).

### Keywords

Ecosystem, biotic and abiotic components, consumer, producer, and decomposer. Habitats, Herbivores, Carnivores, Omnivores.

### Skills

Observation, Classification, are the skills to be emphasized.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Besides, the available resources of the classroom show a chart of some ecosystems given on page 22 of the textbook, charts of different ecosystems, and the map of Pakistan showing physical features.



## INTRODUCTION

5 MINUTES

- After displaying the chart of some ecosystems on page 22 of the textbook ask the students:
  - Name some living and nonliving things which they usually see around them? (variety of living and nonliving things)
  - What are the components of an environment? (Living and nonliving things)
- Ask the students to describe the pictures of different ecosystems.



## DEVELOPMENT

20 MINUTES

After the possible responses of the students, announce the topic, Ecosystem which is formed from living and nonliving things. Discuss some ecosystems which are given in the chart and are also present on page 22 of the textbook. These ecosystems are forest, pond, ocean, snow

region, grassland, and deserts.

### Activity 1:

1. Divide the class into groups and each group will be assigned one ecosystem. They will identify its living and nonliving components.
2. Make a list of both living and nonliving in their notebooks.
3. Ask some questions to elaborate on key points of the ecosystems.
4. Are the living and nonliving things dependent on each other?

### Activity 2:

1. Introduce the map of Pakistan and show the different ecosystems on the map. Deserts, ponds, rivers, plains, forests, and snow-covered peaks are all found in Pakistan.
2. It is a good point to teach the students about the diversity of ecosystems in Pakistan as different animals, plants and lifestyle is seen in each area.
3. All living components in the Ecosystem are called **Biotic components** e.g., animals and plants.
4. While non-living components of an ecosystem are called **Abiotic components** soil, air, temperature, and light, etc.



### CONCLUSION / SUM UP

3 MINUTES

1. Ask a few questions like?
  - ◇ What is an environment?
  - ◇ What are the abiotic components of an Ecosystem?
  - ◇ Snake is biotic or abiotic in nature?
2. Sum up the lesson with the key points given at the end of the chapter.



### ASSESSMENT

5 MINUTES

Name any six ecosystems around you. Develop a chart for anyone ecosystem



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Solve the activity 2.2 on page 22
2. Exercise Question 1 page 29 to be done in notebooks.

### Follow up:

Take an additional period to do written work. Students to draw different Ecosystems on charts for display in class.

# BALANCED ECOSYSTEM



## STUDENT LEARNING OUTCOMES

- Recognize the interaction between animals and plants and the importance of maintaining balance within the ecosystem.

## INFORMATION FOR TEACHERS

- Read the book and highlight and understand all the scientific terminologies used in the lesson.
- Discuss all these scientific words with the students.

**Keywords** Ecosystem, Consumer, Producer, and Decomposer.

**Skills** Observation and Classification are skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Besides, the available resources in the classroom, show a chart of some ecosystems given on page 22 of the textbook.



## INTRODUCTION

5 MINUTES

- After displaying the chart of some ecosystems on page 22 of the textbook ask students the following questions
  - What kind of living and nonliving things they usually see around them? (variety of living and nonliving things)
  - What are the constituents of an environment? (Living and nonliving things)
 (Facilitate students in getting their answer)



## DEVELOPMENT

20 MINUTES

- Here ask a few questions.
  - What are the biotic components of an ecosystem?
  - What are the abiotic components of an ecosystem?
  - How these components interact with one another?

## Activity 1:

- Explain the details of biotic components. To show the balance of an ecosystem and how it is maintained.

2. Write the following terms on the writing board.  
Producers, Consumers, and Decomposers.
3. Ask students the following questions:
  - ◇ What are producers?
  - ◇ What are consumers?
  - ◇ What are decomposers?

#### For teacher's input:

##### Producers:

Producers include plants. Plants prepare food for themselves and animals. Herbs, shrubs, climbers, and trees are the example of producers.

##### Consumers:

They obtain their food from plants directly or indirectly. They cannot make their food; therefore, they are called consumers. All animals are consumers.

##### Decomposers:

These are living things that decompose dead bodies of plants and animals for their food. Bacteria and fungi are their main types.

**\*Refer to book page 23**



#### CONCLUSION / SUM UP

3 MINUTES

1. Sum up the lesson with the key points given at the end of chapter page No 28. Further, ask the following questions.
  - ◇ What are herbivores?
  - ◇ What are bacteria and fungi?
  - ◇ How dead bodies of animals and plants are decomposed?



#### ASSESSMENT

5 MINUTES

For assessment, students will be referred to solve activity 2.3 on page 24 of the textbook.



#### HOMEWORK / FOLLOW UP

2 MINUTES

As reinforcement activity tell the students to solve activity 2.4 on page 25 of the textbook.

#### Period 2

##### Follow up:

1. Discuss the **Point to Ponder** given on page 24 of the GS textbook. Refer to the above lesson plan for the explanation.
2. An additional period will be allocated for written work and students to be divided into three groups to prepare separate charts by drawing or pasting pictures of producers, consumers, and decomposers. Students will present their charts to the class.

# FOOD CHAIN



## STUDENT LEARNING OUTCOMES

1. Describe a few food chains and analyze their structure to understand their function.
2. Describe the roles of living things at each link in a simple food chain (e.g., plants produce their own food, some animals eat plants, while other animals eat the animals that eat plants)

## INFORMATION FOR TEACHERS

1. Read the topic from the textbook. Know about the components of food chains.
2. Familiarize yourself with new terms and definitions and use these terms frequently during the class with the students.

**Keywords** Environment, food chain, producers' consumer, decomposers

**Skills** Observation and classification skills should be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Besides the available resources in the classroom, prepare a simple chart of a food chain.



## INTRODUCTION

5 MINUTES

1. Ask several questions on the food of animals and plants.
  - ◇ What do the plants eat?
  - ◇ What does a man eat?
  - ◇ What does a rabbit eat?
  - ◇ What is the food of a lion?
2. Facilitate students in getting the responses to the questions.
3. After finding the responses to the above questions announce the topic as: "Relationships in simple food chains"



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. Start the lesson by discussing the term food which is essential for animals and plants. display a simple chart having grass, a deer, and a lion. (Pictures may be pasted)
2. Ask the students:

- ◊ Who eats the grass?
  - ◊ Who eats the deer?
  - ◊ What is the lion's food?
3. Discuss the above questions to let the children understand the dependence of animals and plants on each other.
  4. Discuss that the plants prepare their own food. Some animals eat plants and others eat animals as their food. Those animals which use plants as food are called herbivores. Those animals which use other animals as their food are called carnivores. Those animals which eat both plants and animals as food are called omnivores. Thus herbivores, carnivores, and omnivores also form a chain of food.
  5. After this discussion on the food chain and various components involved in the food chain, sum up the lesson for the 1st activity. Ask about some food chains which they locally observe. For example, rabbits and deer, eat grains, vegetables which are obtained from plants, Deer, Rabbits, Deer are eaten by the lion. Thus, a simple food chain is formed.
  6. **The animals and plants depend on one another for their food. This interdependence of animals and plants for food is called a food chain.**

### Activity 2:

1. Discuss the names of herbivores, carnivores, and omnivores animals and will develop the Venn diagram on the board as shown on page 25 of the book.
  - ◊ The first living thing is a producer, plant, and algae.
  - ◊ The second main link is the herbivores; rat, zebra, cow, goat.
  - ◊ The third main link is carnivores for example lion fox and snake.



## CONCLUSION / SUM UP

3 MINUTES

1. Ask questions like:
  - ◊ What is the role of plants in a food chain?
  - ◊ What is the 2nd component of the food chain which eats plants as food?
  - ◊ What is the role of decomposers in the food chain?
2. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

5 MINUTES

Students to solve activity 2.4 on page 25 of the textbook.



## HOMEWORK / FOLLOW UP

2 MINUTES

Solve activity 2.5 on page 26 of your textbook by using the following keywords.

**Plant, mouse, owl, plant/ flower rabbit, fox, lion, grass, grasshopper, frog, eagle.**

### Follow up:

An additional period is given for written work to be done in class, also the students will be divided into groups to prepare charts of pictures given on pages 25 and 26 to be displayed in class.

# PREDATOR-PREY RELATIONSHIPS



## STUDENT LEARNING OUTCOMES

- Identify and describe common predators and their prey

## INFORMATION FOR TEACHERS

- Before starting the lesson, read the topic from the textbook. Write the names of some predators from the surroundings and also note the names of their prey on a chart.
- Make it clear that some of the animals are very dangerous, therefore one should remain away from these animals in your surroundings.

**Keywords** Predator, prey, predation, carnivores, herbivores, omnivores

**Skills** Observation and identification skills need to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Common classroom materials with a chart of predators, prey, and predation. Definitions of these terms to be displayed in the class on a chart for children to learn.



## INTRODUCTION

5 MINUTES

- Ask some questions on the previous knowledge of students to motivate them about the new topic
  - What are carnivores?
  - Name one carnivore which you have seen in the surroundings
  - Name some prey of carnivores.



## DEVELOPMENT

20 MINUTES

- At the opening of the class, display a chart having some pictures of carnivores which will produce curiosity in students.
- A few of them will identify some animals which they have seen in the zoo or their surroundings.
- Explain the term predator, these are animals that eat other animals by killing and hunting them e.g., lion, tiger, snake, etc.
- The animals which are eaten by the other animals are called prey, for example, zebra, goat, sheep.
- The interaction between predator and prey is called Predation.
- Ask the students to identify some predators and their prey from their environment.

### Activity 1:

1. Write randomly the names of some animals and will ask the students to separate predator and prey in a table of two-column.

Lion, zebra, goat, tiger, shark, deer, lizard, snake, sheep, hen

| Predators | Prey  |
|-----------|-------|
| Lion      | Zebra |
| Tiger     | Goat  |
| Lizard    | Deer  |
| Snake     | Sheep |
| Shark     | Hen   |

2. At this stage, make it clear that some predators are also used as prey. For example, the snake is eaten by some carnivores.



### CONCLUSION / SUM UP

3 MINUTES

1. Before closing the lesson, check the students' learning by asking the following questions:
  - ◇ Name an animal that is a predator as well as the prey.
  - ◇ Where do carnivores live?
  - ◇ Which one is predator and prey in cat and mouse?
2. Sum up the lesson with the key points given at the end of the chapter



### ASSESSMENT

5 MINUTES

Taking help from activity 2.5 on page 26 of the textbook, list out which animals can be grouped as predator and prey?



### HOMEWORK / FOLLOW UP

2 MINUTES

Develop a simple chart in your notebook having local predators and their prey of your surroundings.

### Follow up:

Written work to be done in class and discuss **Point to Ponder** given on page 27 of the textbook. Students should be encouraged to give their thoughts on why animals have to be alert. This is a good thinking question.

# COMPETITION AMONG ORGANISMS



## STUDENT LEARNING OUTCOMES

- Recognize and explain that some living things in an ecosystem compete with each other for food and space.
- Recognize the value of a balanced ecosystem.

## INFORMATION FOR TEACHERS

1. Read the textbook for the above topic and bring a chart of an ecosystem.
2. Know the components of an ecosystem.
3. Understand the keywords and use them frequently in the lesson.

**Keywords** Producers, consumers and decomposers, habitat, competition.

**Skills** Observation and identification skills need to be emphasized in the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Besides classroom materials, a chart showing living things in the form of producers, consumers, and decomposers must be prepared by the teacher and displayed in the classroom.



## INTRODUCTION

5 MINUTES

1. As a warm-up activity ask some questions about the environment where we live:
  - ♦ What are the components of an environment?
  - ♦ What will the animals do for their survival?
  - ♦ What are the things needed for the life and survival of animals?



## DEVELOPMENT

20 MINUTES

1. Start the lesson by asking the students what will happen if a hundred students come to this classroom. The teacher asks the following questions from the students.
  - ♦ Will all the students fit here?
  - ♦ Will all the students get a chair and a desk?
2. Students' answers will be written on the board. And a discussion will be held.
3. Correlate this to the ecosystem in the environment.
4. Explain that all living things live in an ecosystem and depend on the resources available to them.

5. If the resources become short (less), then the animals will start a competition for their survival. Each animal tries to compete in the ecosystem for place and food. In this struggle, some animals succeed while others lose their lives or migrate to some other places.
6. Tell them about the migration of birds like cranes during the winter period. They do this for their survival. During summer, these birds again go back to their areas.

### Activity 1:

1. Explain, it is important to maintain a balance in the ecosystem. Nature has built this in the environment.
2. Ask the students to work in pairs and discuss how the interdependence of animals and plants helps in maintains a balanced ecosystem.
3. **\*Hint:** after listening to the student's responses draw their attention to the exchange of gases between animals and plants. Animals need oxygen to breathe which is given out by the plants and human beings give out carbon dioxide which is utilized by the plants to make food. This balance helps to keep the world and its environment healthy, and living is possible for all living things.



### CONCLUSION / SUM UP

3 MINUTES

1. Further, Ask the following questions:
  - ◇ Why do living things compete with one another?
  - ◇ Why are living things essential for one another?
  - ◇ What is the main source of energy of an ecosystem?
2. Sum up the lesson with the key points of the topic discussed above.



### ASSESSMENT

5 MINUTES

What will happen when food resources and places become limited for living things in an ecosystem?

1. Ask students randomly to write the response to the question asked on the writing board



### HOMEWORK / FOLLOW UP

2 MINUTES

Draw a labeled diagram of a balanced ecosystem mentioning each component

### Follow up:

1. An additional period is allocated for discussion on Q3 given in the exercise at the end of the chapter on page 30 under the title Constructed Response Question.
2. After discussion students will write their answers in their notebooks.

# IMPACTS OF HUMAN ACTIONS ON FOOD CHAIN IN AN ECOSYSTEM



## STUDENT LEARNING OUTCOMES

- Interpret those human actions such as urbanization, pollution, and deforestation affect food chains in an ecosystem
- Identify various actions and roles human can play in preserving the various ecosystem

## INFORMATION FOR TEACHERS

1. Read the topic from the textbook.
2. Read more about the topic from other science books available.
3. Write the following keywords on a chart with definitions.

**Keywords** urbanization, pollution, deforestation, and preservation

**Skills** research, investigate, observe, communicate, are the skills to be inculcated among the students.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

Besides, the available resources routinely used in the classroom teacher should prepare a chart having some human actions which are harmful to the food chain in the ecosystem.



## INTRODUCTION

5 MINUTES

1. Before starting the class, revise the term ecosystem by asking questions from the students
  - ♦ Why is the agricultural land becoming less?
  - ♦ What is global warming?
  - ♦ Why global warming is increasing day by day?
  - ♦ What are the main causes of pollution?



## DEVELOPMENT

20 MINUTES

1. After discussing the above questions, display the chart having the definition of urbanization, pollution, deforestation, and preservation.
2. With the help of the chart, relate the role of the above terms with the food chain
3. As the living things depend on one another in the given ecosystem for their needs. Therefore, a balanced food chain is very important for the ecosystem.
4. The ecosystem is comprised of producers' consumers and decomposers. If one of these components is disturbed the whole ecosystem will collapse which will badly affect the

balance of food chains.

5. Due to urbanization, new buildings are formed which pollute the environment, these pollutants enter into ponds, rivers, and oceans and as a result the biotic component of these ecosystems badly suffer. Thus, the food chain, as well as the whole ecosystem, is badly affected by these human actions.
6. Before summing up this activity ask a few questions as a formative checkup of students learning.



### CONCLUSION / SUM UP

3 MINUTES

1. Sum up the lesson with the key points given at the end of the chapter.
2. Further ask the questions like:
  - ◇ Tell students that in this period, we have learned about the components of the ecosystem.
  - ◇ What is meant by ecosystem?
  - ◇ Name the components of an ecosystem
  - ◇ What are the components of a food chain?



### ASSESSMENT

5 MINUTES

1. Ask the following questions to check the learning of students
  - ◇ What are the biotic components of an ecosystem?
  - ◇ What are the abiotic components of an ecosystem?
  - ◇ What are human actions that affect the food chains?



### HOMEWORK / FOLLOW UP

2 MINUTES

How the food chain of an ecosystem is in danger. Write a comprehensive note?

# IMPACTS OF HUMAN ACTIONS ON FOOD CHAIN IN AN ECOSYSTEM



## DEVELOPMENT

25 MINUTES

## Activity 2:

- Recall to students that in the last period we have learned about the preservation of the ecosystem.
  - Before starting this activity, ask the students to suggest ways to point out some human actions which are beneficial in preserving the various ecosystems.
  - De-urbanization:** The government, as well as the community, discourages urbanization.
  - Forestation:** the government has already launched a program of Billion Trees Tsunami where the largescale plantation is encouraged. To play one's role in this, even if each child plants one tree, greenery will be increased which will preserve the habitats of living things.
  - All other actions that are harmful to the environment should be discouraged. Pollutants should not be thrown in the water, land, or air.
  - Wildlife parks should be developed in every city as well as town to save and safe the habitats of living things.

## Activity 3:

- Ask the students to talk to their parents and grandparents about their area how it has changed over the last 20 years. Make a list of good and bad changes which have affected the life of the people in the village or community.
- Students will read out their observations and research of their areas.
- No doubt humans have done a lot of damage to the environment, but they are also trying to save the ecosystem as well. If the mentioned points are implemented, we will find once again a safe, clean, and fresh environment suitable for all living things to live in.



## CONCLUSION / SUM UP

3 MINUTES

Sum up the lesson with the key points during the lessons. Further ask the questions like:

- How is urbanization dangerous for the ecosystem?
- How we can keep our environment clean?
- What will happen when the producers of an ecosystem are destroyed?



## ASSESSMENT

5 MINUTES

- What are the main constituents of ecosystems?
- What will happen when consumers are removed from the ecosystem?

The students will write a paragraph on the above question



## **HOMEWORK / FOLLOW UP**

2 MINUTES

Assign the following tasks to students as a homework assignment

- ◇ If the food resources are increased what will be its effect on consumers?
- ◇ How is a balanced ecosystem maintained?

### **Follow up:**

An additional period will be allocated for written work in class.

**Month**

**3**

# SYMPTOMS, TRANSMISSION AND PREVENTION OF COMMUNICABLE DISEASES



## STUDENT LEARNING OUTCOMES

1. Observe and recognize some common symptoms of illnesses (e. g fever, coughing and influenza).
2. Differentiate between contagious diseases e.g., Hepatitis, T.B, Influenza, and non-contiguous e.g. polio, cancer.
3. Relate the transmission of common communicable diseases (e.g., touching sneezing and coughing, human contact).

## INFORMATION FOR TEACHERS

1. Read the topic from the textbook to develop a holistic picture of the topic. Follow/adopt hygienic principles in the class. Have enough knowledge about common diseases and their symptoms and prevention of these diseases.

**Keywords** Vaccination, precaution, washing hands, transmission, diseases, prevention.

**Skills** Observation, prediction, measuring are the skills to be emphasized in the delivery of the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Charts to show or highlight the common diseases, Charts to show contagious and non-contagious diseases. Also, display rules of hygiene and prevention of diseases in the classroom.



## INTRODUCTION

5 MINUTES

1. Ask the following questions about their health:
  - ♦ Is anyone feeling uncomfortable in any way?
  - ♦ Does anyone have a high or low temperature?
  - ♦ What is cough?
2. After discussing the above questions, announce the topic about symptoms of illness and some contagious and non-contagious diseases.



## DEVELOPMENT

20 MINUTES

At the start of the activity, a teacher should display a chart having some common diseases and their symptoms. Tell the students that health is a blessing and it is our responsibility to care for our health and protect it from all types of diseases.

### Activity 1:

1. Ask the students to name some common diseases?
2. Make a cluster on the board with the names of the diseases that students will recall.  
**\*Hint** count common diseases like cough, flu, fever, and headache. Cough is caused by soreness and scratchiness of the throat. At this stage show some pictures from the chart which show symptoms of these diseases.
1. Ask the students what are the causes of these diseases?
2. After getting the responses, list them on the writing board.
  - ◇ Diseases are caused by germs, pollutants, etc.
  - ◇ Unhealthy environment
  - ◇ Scarcity of food
  - ◇ Street food that is not clean
  - ◇ Unhygienic living conditions
  - ◇ Lack of cleanliness of the body
3. Students will write this in their notebooks.
4. If we keep ourselves, our environment, and our food clean and fresh, we can avoid common diseases. Then highlight the following points:
  - ◇ Fever is a symptom of diseases.
  - ◇ The body temperature of the human body is measured in the degree of Fahrenheit which is written as 0F.
  - ◇ The normal body temperature is 98.6 0F.
  - ◇ Coughing removes obstruction of windpipe such as mucus of windpipe.
  - ◇ The viruses and bacteria present in the nose are expelled out due to sneezing.
  - ◇ Flu is a disease as well as a symptom.



### CONCLUSION / SUM UP

3 MINUTES

1. Further, ask the following questions:
  - ◇ Tell students that in this period, we have learned about common communicable diseases.
  - ◇ Why do people sneeze?
  - ◇ What is the normal temperature of the human body?
  - ◇ What are viruses and bacteria?
  - ◇ What is the viral disease that is spreading in the world?
2. Sum up the lesson with the key points given at the end of the chapter of the textbook.



### ASSESSMENT

5 MINUTES

Make a list of five common diseases you are aware of.



### HOMEWORK / FOLLOW UP

2 MINUTES

Observe your home environment and see what could be the causes of unhealthy life which can cause common diseases, make a list in your notebook.

### Follow up:

An additional period allocated for written work on the above topic.

# SYMPTOMS, TRANSMISSION AND PREVENTION OF COMMUNICABLE DISEASES



DEVELOPMENT

25 MINUTES

## Activity 2:

1. Recall to students that in the last period we have learned about the common communicable diseases and today we will try to understand the symptoms and possible ways to cure them.
2. Begin the class by discussing that some diseases are spread from one patient to another if you sit in their company or you come in close contact with them e.g., cough, flu, tuberculosis (TB), hepatitis, and COVID-19. (Contagious)
3. Other types of diseases may be very serious, but they are due to malfunction of the patient's body and do not get transferred to other people e.g., cancer, diabetes, blood pressure, heart disease. (Non-Contagious)
4. Give the definitions of the two diseases **contagious** as well as **non-contagious** diseases to write in their notebooks.
5. At this stage ask the names of some common diseases and their symptoms from students and write on the writing board with the help of the students.

| Diseases | Symptoms                                    |
|----------|---|
| Flu      | Fever                                       |
| Cough    | Soreness of throat                          |
| Diabetes | Feeling hunger and dryness of mouth, thirst |
| Covid 19 | Fever with high temperature                 |
| Polio    | Paralyzes any organ of the body             |

6. After this activity, students will be allowed to discuss symptoms of the above diseases amongst themselves, classify them as contagious and non-contagious diseases

## Activity 3:

1. In this activity, demonstrate how common communicable diseases are transferred through contact of any sort touching, sneezing, and coughing.
2. For this purpose, perform a simple activity with the help of a group of three students. put some glitter on the hand of one student and ask him to rub his hands, observe the glitter on your other hand.
3. In the same way, communicable diseases are also spread and transmitted to one another when you shake hands with someone suffering from a communicable disease.
4. Therefore, to stay safe, we take these precautions.
  - ◇ Restrict close social contact with people.
  - ◇ Wash hands regularly.
  - ◇ Wearing masks.
  - ◇ Vaccines should be used to prevent the transition of diseases.

#### Activity 4:

The teacher may give a demonstration on how to wash hands in the class by bringing a tub and water mug. Refer to page 35 of the text for the steps for handwashing.



#### CONCLUSION / SUM UP

3 MINUTES

1. To conclude the lesson once again define some contagious and non-contagious diseases and their symptoms then ask some questions to review the topic
  - ◇ Which type of diseases are common in winter (flu/ cough)
  - ◇ Which one is a communicable disease among the following: COVID-19, cancer, and diabetes?
  - ◇ What are the common precautions for communicable diseases?
2. Sum up the lesson with the key points given at the end of the chapter.



#### ASSESSMENT

5 MINUTES

Students to list down the benefits of wearing a mask, handwashing, and vaccination.



#### HOMEWORK / FOLLOW UP

2 MINUTES

Make two columns chart in your notebook and write at least five diseases with symptoms. (Textbook pages 33 to 35).

#### Follow up:

An additional period will be allocated for written work on the interesting Information given on page 34.

# SYMPTOMS, TRANSMISSION AND PREVENTION OF COMMUNICABLE DISEASES



## STUDENT LEARNING OUTCOMES

- Explain some methods of preventing common diseases and their transfer (e.g., vaccination, washing hands, wearing a mask)
- Describe the importance of maintaining good health
- Recognize everyday behavior that promotes good health (e.g., a balanced diet, drinking, clean water, exercising regularly, brushing teeth, getting enough sleep)

## INFORMATION FOR TEACHERS

1. Read the topic from the textbook. Have enough knowledge about common diseases and their symptoms. Follow hygienic principles and highlight the keywords to be used in the lesson.

### Keywords

Disease symptoms, vaccination contagious diseases, communicable diseases, washing hands

### Skills

Observation and predicting skills to be emphasised



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIOD**



## MATERIALS / RESOURCES REQUIRED

Besides, the available materials in the classroom teacher should prepare three charts and display these during the lesson:

1. A chart of common diseases and their symptoms
2. A chart of contagious and non-contagious diseases
3. A chart of communicable diseases and their precautions.



## INTRODUCTION

5 MINUTES

At the start of the lesson, display chart of common diseases and their symptoms and will ask the students.

1. Recently who has felt fever from flu?
2. Flu is which type of disease?
3. How will you keep yourself safe from this disease?



## DEVELOPMENT

20 MINUTES

1. After discussing the above questions, display the other charts and will focus the concentration of students on communicable diseases and their prevention.

2. These diseases which easily spread through social contact is said to be communicable diseases they include coughs, flu and even COVID-19. These are diseases a person can 'catch' from another person.
3. The best treatment is a precaution to be adopted by everyone.
4. Cleanliness is another precaution that can minimize the disease
5. We can also take precaution to prevent ourselves from the diseases by washing hands, wearing masks and vaccination.
6. To understand more deeply the students should refer to page 35 of textbook to note seven steps of washing hands. Discuss all those communicable contagious diseases which are common for this purpose, refer the students to page 33 and 34 of textbook for additional learning.



### ASSESSMENT

5 MINUTES

To check the learning of students, they will be asked to solve activity 3.1 on page 37 of the textbook.

#### Activity:

Make a list of ways to live a healthy life. Make a weekly chart and mark it, what you have practiced?



### HOMEWORK / FOLLOW UP

5 MINUTES

Prepare a list of food items which you take daily

#### Follow up:

An additional period is given for written work and discussion on cleanliness habits and maintaining a healthy environment at home and in the community.

Students will be encouraged to prepare posters for the school for cleanliness.

# SYMPTOMS, TRANSMISSION AND PREVENTION OF COMMUNICABLE DISEASES



## INTRODUCTION

5 MINUTES

Since this is the continuation of human health, first revise the previous work and ask questions on how to avoid getting sick. Talk about healthy habits and precautions to be taken to keep good health.

## INFORMATION FOR TEACHERS

1. Brainstorm with the students to identify those activities and actions that they should take for a healthy body and mind. Make a list on the board.



## DEVELOPMENT

20 MINUTES

### Activity 1:

Introduce the topic and will explain the importance of maintaining good health. For this purpose, display charts having some good habits to be adopted by us. Good health can be maintained in the following ways.

1. **Balance diet:** a balanced diet is necessary for our body because it contains all nutrients necessary for good health.
2. **Drinking clean water:** clean water saves life. The human body contains 60 percent water. The water should be boiled or filtered before drinking.
3. **Exercise:** To remain fit and smart exercise is necessary, daily walks, praying and playing sports are some ways to exercise daily.
4. **Brushing teeth:** after taking food, food particles remain in the teeth, to remove these and protect teeth from decaying (rotting) brushing or doing miswak is necessary.
5. **Getting enough sleep:** sound and complete sleep of 8 – 12 hours is necessary for good health.



## CONCLUSION/SUM UP

3 MINUTES

Sum up the lesson with the key points given at the end of the chapter. Further, ask the questions like:

1. What happens when we pray five times?
2. What happens when we clean our teeth with Miswaak during making ablution?



## ASSESSMENT

5 MINUTES

Ask students to write some habits adopted by you which help in maintaining good health.



## HOMEWORK / FOLLOW UP

2 MINUTES

Ask the students to prepare a chart of a balanced diet.

# WAYS OF MAINTAINING GOOD HEALTH



## STUDENT LEARNING OUTCOMES

- Define a balanced diet and explain its components.
- Identify common food sources included in a balanced diet (e.g., fruits, vegetables, grains, milk, and meat group).

## INFORMATION FOR TEACHERS

1. Read the topic from the textbook and be clear about certain terms to be used in the lesson.
2. Highlight the keywords to be used in the lesson and display the new vocabulary in the class.

### Keywords

balanced diet, rice, bread, roti grains, milk, butter, vegetable, fruits, meat, exercise.

### Skills

Observational and identification skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

Besides available resources in the classroom teacher should prepare a chart of food materials which we use daily. A chart of common diseases and their symptoms



## INTRODUCTION

5 MINUTES

1. Before starting to introduce the topic of the lesson either in a descriptive way or putting some questions like:
  - ♦ What do you understand by the word diet? (food material)
  - ♦ Do you eat fruit?
  - ♦ Do you drink milk with your breakfast?
  - ♦ Do you drink any juice?
2. Here announce that the combination of all those things which we use as food is termed as diet.



## DEVELOPMENT

20 MINUTES

Discuss components of a balanced diet. A diet that contains different kinds of food in proper quantities and proportions to fulfill the need of the body is called a **balanced diet**.

### Activity 1:

1. Through the guided activity the students will write names of various food materials in the relative group. All food materials will be divided into four groups as given below:
  - ◇ Milk Group
  - ◇ Meat Group
  - ◇ Grains Group
  - ◇ Fruits and vegetables Group
2. The students in groups will write the name of the food to the suitable group. For this purpose, students will be referred to pages 37 and 38 of the textbook to take help and complete the activity.
3. Activity 2.1 from the book will be discussed in class.



### CONCLUSION/SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about the different ways of maintaining good health.
2. Name the food materials to be included in the milk group.
3. What foods are part of the protein group?
4. Which type of foods are included in the grains group.
5. What are the possible food materials are included in fruit and vegetable groups?
6. What will happen if we only use the milk group and fruit group as food?



### ASSESSMENT

5 MINUTES

Prepare a list of food items as given in activity 3.2 on page 3.7 and point out those items which you take the most and which you take least.



### HOMEWORK / FOLLOW UP

2 MINUTES

Which types of minerals are essential for our growth, where are they found in the given groups; consult page 39 under the heading, Interesting Information?

# WAYS OF MAINTAINING GOOD HEALTH



## STUDENT LEARNING OUTCOMES

- Ask a few questions about the previous lesson
  - What have you eaten in your meal?
  - What will happen to your health if you have less amount of protein in your food?
  - Name the components of a balanced diet?
- Here announce the sources of a balanced diet.

## INFORMATION FOR TEACHERS

- Remind students that in the last period we have learned about the different ways of maintaining good health and today we will learn some more concepts.
- At the start display a chart of various foods and will ask the students that these food materials are filled with the various components like protein, carbohydrates, fats, vitamins, and minerals required for a balanced diet.



## DEVELOPMENT

25 MINUTES

- Students to identify with the help of the teacher the sources of proteins, carbohydrates, fats, vitamins, and minerals.

| Food Groups   | Sources |
|---------------|---------|
| Proteins'     |         |
| Carbohydrates |         |
| Fats          |         |
| Vitamins      |         |
| Minerals      |         |

- To emphasize the quantity and quality of food provide pictures of some humans and animals in their area and compare them with some undernourished humans and animals found in the world. Ask the students why they are so weak?
- Listen to their answers and explain to them that the reason for malnourishment is that they were not getting enough food and their diet was not balanced.



## CONCLUSION/SUM UP

3 MINUTES

- Review the learning progress of students by asking the following questions.
  - What types of food are essential for good health?
  - Which type of food is dangerous for health?
  - Name the foods that help to improve health in undernourished people.



## ASSESSMENT

5 MINUTES

Prepare a chart with the help of students about the food which they have eaten last night. Discuss in class if it is a balanced diet.



## HOMEWORK / FOLLOW UP

2 MINUTES

Students will list down the ways of maintaining good health. Refer to page 37 of the textbook.

### Follow up:

An additional period will be devoted to written work to be done in class on the above topic.

# VALUE OF CLEAN DRINKING WATER, MAKE WATER CLEAN AND SUITABLE FOR DRINKING



## STUDENT LEARNING OUTCOMES

- Understand the value of clean drinking water and inquire about the factors that generally make it unclear.
- Explore a few ways that can help make water clean and suitable for drinking (water filtration and boiling).

## INFORMATION FOR TEACHERS

Read the topic from the textbook, and other resources available.

1. Should know the scientific terminology to be used in the lesson.
2. Use these terminologies during the class for student's understanding.

**Keywords** Clean water, stir, turbid, germs, polluted water, filtration, and boiling.

**Skills** Observation and experimentation skills need to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

Charts, textbook, duster, marker and writing board.



## INTRODUCTION

5 MINUTES

1. In the introduction, start with Activity 3.3 on page 39 of the textbook. In this experiment, the students will identify clean water and polluted water.
2. Discuss the Sunnah of drinking water, first look at the water and see if it is clear, then read Bismillah (بِسْمِ اللَّهِ) and drink water while sitting in three portions. The teacher may give a demonstration of drinking water as mentioned above.
3. Introduce the topic "Value of clean drinking water and make water clean and suitable for drinking".
4. Ask some questions like;
  - ♦ Why do we cover the pots containing water?
  - ♦ Why do we drink clean water instead of polluted water?
  - ♦ What would happen if we drank polluted water?
  - ♦ How much water does the human body contain?
  - ♦ What is the percentage of water on Earth's Surface?



## DEVELOPMENT

25 MINUTES

1. Define clean water.

*Pollution-free water is said to be clean water. The human body contains sixty percent water. Since germs are present in polluted water and blood circulates in all parts of the body for providing oxygen, therefore germs reach all parts of the body. These germs may cause diseases like cholera, typhoid, and hepatitis.*

2. Therefore, clean water is essential for a healthy life. Students will be asked to check the water in their homes to see if it is clean or polluted. Since germs are invisible, water should be checked before drinking. It can be boiled to make it safe as boiling water can kill germs.



## CONCLUSION/SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about the value of clean drinking water.
2. Further, ask the questions like:
  - ◇ Why do we drink clean water?
  - ◇ Why dirty/polluted water is dangerous for health?
  - ◇ What are the factors responsible for making water unclean?
3. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

5 MINUTES

Students will find out the source of water in their homes. Is it fit for drinking or is it purified by some process? Where is the drinking water stored?



## HOMEWORK / FOLLOW UP

2 MINUTES

Students to attempt question 2 from the exercise given at the end of the chapter. They may refer to the book for answers.

### Follow up:

An additional period will be allocated for written work on the above topic for Q3 given on page 43 of the GS textbook. Students to be encouraged for giving their input for answers given in Q3.

# VALUE OF CLEAN DRINKING WATER, MAKE WATER CLEAN AND SUITABLE FOR DRINKING



## DEVELOPMENT

20 MINUTES

## Activity 2:

1. Remind students that in the last period we have learned about the value of clean drinking water and today we will learn about the ways of cleaning water.
2. Review the importance of clean water and discuss how water can be cleaned for drinking.
3. Ask students to suggest ways they think are possible for cleaning the water. After getting answers from the students, give the two procedures which are simple and easy to carry out.
  - ♦ **Boiling:** it is a simple process; water is kept on heating in a pot till boiling. Let the water boil for 5 to 10 min, all germs are killed, and then once cooled it can be used for drinking.
  - ♦ **Distillation** On a large-scale distillation plant is used for cleaning water.
  - ♦ **Filtration:** to remove particles from the water it is filtrated through filter paper as given on page 40 of your textbook in this way clean water is obtained which is used for drinking purposes.

If filter paper is not available at home, they can use muslin (Malmal cloth) for filtering the water.



## CONCLUSION/SUM UP

8 MINUTES

1. Further, ask the questions like:
  - ♦ What is meant by boiling?
  - ♦ Why do we filter water?
  - ♦ What will you call pollution-free water?
2. Sum up the lesson with the key points given at the end of the chapter.



## ASSESSMENT

5 MINUTES

Students will read the topic Factors affecting polluting water on page 40 of the book. And list the factors causing water pollution.



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Ask the students to write a note on the following questions
  - ♦ What are the functions of a filter?
  - ♦ How can germs be killed in water?
  - ♦ How can water be made suitable for drinking?
2. For these questions, they should refer to page 40 of the book.

**Month**

**4**

# PHYSICAL PROPERTIES OF METALS



## STUDENT LEARNING OUTCOMES

- Explore the properties of metals (i.e., appearance, texture, colour, density,)
- Identify the properties of metal (conducting heat and electricity) and relate these properties to the use of metals (i.e., a copper electric wire, an iron cooking pot)

## INFORMATION FOR TEACHERS

1. Before starting the lesson, the teacher must read the chapter and be clear about certain terms used in this lesson. These keywords have a clear definition.
2. Show some real objects like plates, spoons, and any other objects of daily use and guide students to identify the objects made up of metals.
3. Display keywords in the class.

**Keywords** metal, the density of matter, textures of metals, volume, and conductors

**Skills** Observation, classification, and prediction skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

1. Charts showing pictures of iron, copper, gold, silver, etc. or any other item teacher finds can easily bring.
2. Flashcards showing names of metallic elements like copper, silver, iron etc.
3. Show some daily life items which are made up of metals (like a spoon, plates, etc.)



## INTRODUCTION

5 MINUTES

1. Before starting the lesson, an environment should be generated to build interest, so that the students are eager to learn the new topic. They will be asked several questions like.
  - ♦ What is metal?
  - ♦ What is the colour of gold?
  - ♦ When some force is applied to the gold what will happen?
  - ♦ Why iron is hard, and gold is soft?
  - ♦ What is density?
2. After taking the responses/answers from the students, inform of the topic: "The physical properties of metals"



## DEVELOPMENT

20 MINUTES

1. Start the lesson by discussing with students the term properties of metals.
2. List down the properties of metals on the writing board.
  - ◇ Appearance of metals
  - ◇ The texture of metals.
  - ◇ Colours of metals
  - ◇ The density of metals.
  - ◇ Metals as conductors.

### Activity 1:

1. Give five metallic objects to the students in groups, they will write their observations against the properties given above.
2. The students will do the activity after discussing it in the class.
  - ◇ The teacher can show some flashcard with names of metals like sodium, calcium, gold, iron, silver, the teacher can ask about the objects which are used in daily life and made up of metals.
  - ◇ The teacher can show the electricity cables in the class and show that these cables are made up of copper, the teacher must warn the students not to touch bare electric wires to avoid electric shock.
  - ◇ Relate the properties of metals e.g., conduction of heat (this can be done by showing the iron rod and by heating on spirit lamp and by asking students about the results that they observe.
  - ◇ The teacher can take help from activity No 4.11 in General Science Textbook page 50, and Activity 4.12 on page 52.

### Activity 2:

Distribute the class into two groups. Group – 1 will write names of metals mostly present in the class and outside and Group – 2 will write uses of mentioned metals.

## RECAPITULATION

To check the understanding of the students few questions will be asked.

1. What is a metal?
2. Name some properties of metal.
3. Define density?



## CONCLUSION / SUM UP

3 MINUTES

Before concluding the day, ask a few questions to check the student learning.

1. What are the properties of metals?
2. Can anybody mention the names of some coloured metals?
3. Define density.
4. What will happen if a metal is heated?



## ASSESSMENT

5 MINUTES

Make two columns with names and uses of metals in daily life in the class. Invite students voluntarily to fill the two columns on the writing board and discuss with the whole class.



Assign the following tasks to students as a homework assignment.

1. The students may be guided to solve Q.3 and 4 of the exercise sections on page 55 of the textbook.

### **Period 2**

#### **Follow up:**

An additional period for written work will be given for a short quiz and solve Q3 Investigate given on page 55 of the textbook. Students to discuss amongst themselves in pairs and write their answers. Teacher to check and give the correct answers.

Students must conduct Project-5 activity on page 55 of the textbook in the exercise section and record observations in their notebooks.

# STATES OF MATTER AND ITS CHARACTERISTICS



## STUDENT LEARNING OUTCOMES

1. Describe characteristics of each state of matter with examples.
2. Compare and sort objects and materials based on physical properties (e.g., mass, volume states of matter, ability to float or sink in water).

## INFORMATION FOR TEACHERS

1. Read the complete chapter and develop an understanding of the big picture /concept.
2. Clear the concept by showing the concrete example of each state and use the material given in the textbook. Display and discuss the new terms used in this topic for students to learn.

**Keywords** mass, volume, shape, density, definite, inflated, particles, conclusion

**Skills** Classification, observation, prediction, and communication, are the skills to be emphasized during the lessons.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Books, table, chair, water, juice, filled balloons



## INTRODUCTION

5 MINUTES

1. Ask the following questions
  - ◇ What is matter?
  - ◇ Is water a matter?
  - ◇ Show a filled balloon and ask, is it also a type of matter?
2. Facilitate students while taking their responses)
3. Take their responses and announce the topic "State of matter and its characteristics"



## DEVELOPMENT

20 MINUTES

1. Introduce the students to the new terms Mass, Shape, and Volume.
 

**Mass:** quantity of matter in a body is called mass

**Volume:** Space that an object occupies is called volume.

**Shape:** The figure of the body is called shape mass.
2. Give examples of each for students to understand and apply to different states of matter.

### Activity 1:

1. Press table, writing board, or wall and ask the students, what they have observed? any change in their states?
2. Do these things change shape after pressing?
3. Show that no change occurs in their shape and volume, so solids have a definite shape and definite volume.
4. Demonstrate activity 4.1 on page 45 in the textbook and infer that water changes its shape, but its volume remains the same.
5. Demonstrate activity 4.3 on page 46 in the textbook and ask students to observe.
6. Does the shape of the balloon remain the same?
7. What do you conclude from this activity?
8. To enhance their understanding share; gases have no definite shape and volume.

### Activity 2:

1. Display a chart or draw a diagram of an arrangement of particles in three states of matter. OR
2. Ask students to concentrate on three diagrams given in the textbook on pages 48 and 49. Explain the arrangement of particles in three states based on the force of attraction



### CONCLUSION / SUM UP

3 MINUTES

Sum up the lesson by asking students to draw three columns in their copies and write the names of at least 5 solids liquids and gases in each column.

| <b>Solids:</b> have definite and definite shape volume | <b>Liquids:</b> have definite volume but their shape is indefinite | <b>Gases:</b> have an indefinite shape and indefinite volume |
|--|--|--|
|  |  |  |



### ASSESSMENT

5 MINUTES

Ask the following questions:

1. In which state of matter particles are strongly attached to each other?
2. What is the arrangement of particles in gas?
3. What difference do you observe in the arrangement of particles in liquid as compared to solid and gas?



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Ask students to perform the following:
  - ◇ Draw the diagram of three states of matter showing the arrangement of particles in each state. Consult Textbook pages 47-49
2. To be continued in period 2

**Follow up:** An additional period is given for holding a quiz on the terms introduced in the above lesson. Multiple choice, fill in the blanks, True and False answers to be checked in class.

# STATES OF MATTER AND ITS CHARACTERISTICS



## DEVELOPMENT

25 MINUTES

**Activity 3:**

Remind students that in the last period we have learned about the states of matter and today we will learn about the characteristic of matter.

1. Place a tub filled with water on the table.
2. Ask one student to come and put various things like a pebble, coin, iron rod, plastic bottle, piece of paper, and wooden piece.
3. Ask them to observe and write the names of floating and sinking objects in two columns in their notebooks.
4. Explain to students: The objects that allow heat to pass are called conductors.

**Examples:** iron, silver, copper, etc.

The objects that do not allow heat to pass are called nonconductors.

**Examples:** wood, rubber, plastics, etc.

5. Introduce the characteristic of matter to **conduct** heat.

**Activity 4:**

1. Demonstrate activity 4.9 given on the textbook page 49.
2. Draw a table on board given on page 49
3. Call one student to write his observation on the table.
4. Explain to students that the objects that allow heat to pass are called conductors, for example, iron, silver copper, the objects that do not allow heat to pass are called non-conductors for example wood and rubber.
5. Ask; why the handles of a pressure cooker are made up of plastic?



## CONCLUSION / SUM UP

3 MINUTES

1. Which states of matter do we find in steam?
2. Which state of matter adopts the shape of the container?
3. Why do gas particles move easily in all directions?
4. Separate the conductors of heat from the given list: coin, eraser, paper clip, steel ruler plastic ruler, iron nail, rubber band, and steel spoon.



## ASSESSMENT

5 MINUTES

Ask the students to solve question 1 of the exercise given at the end of the chapter on the textbook page 54.



## **HOMEWORK / FOLLOW UP**

2 MINUTES

Ask students to perform the following:

1. Write the names of objects in the kitchen that can conduct heat energy.
2. Identify from your surrounding sinking and floating objects.

### **Follow up:**

An additional period will be given for a Quiz on characteristics of matter and the arrangement of particles.

# STATES OF MATTER AND ITS CHARACTERISTICS



## STUDENT LEARNING OUTCOMES

- Describe matter and its states (Solid, Liquid, Gas)

## INFORMATION FOR TEACHERS

Read the chapter in the textbook before starting the class and have more information about the topic from the additional resources available. Consult Glossary at the end of the textbook.

**Keywords** Matter, state of matter, volume, mass.

**Skills** Observation and classification are the skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Writing board, charts, duster marker, etc.
- Liquid's water, milk, juice, ice, books, chair, desk, gas balloons, or any other items teacher finds easy to bring.



## INTRODUCTION

5 MINUTES

- Ask the following simple questions to judge the previous knowledge of students
  - What is matter?
  - How many states of matter are there?
  - What are the names of different states of matter?
  - Identify the substances related to different states of matter.
- After discussing these questions, announce the topic as "States of Matter and its characteristics".



## DEVELOPMENT

20 MINUTES

- Place some solids, liquids, and gases objects for students to identify the difference in the three states of matter.
- Introduce some objects of different physical states and ask the students about their state (book, spoon, chair, etc.)
- Solids are hard things with their shape and volume are fixed for example chair, table, book, pen, car, etc. Now ask the students to give examples of solids. Write them on the

writing board.

4. Make use of activities No 4.1, 4.2, and 4.3 in the textbook on pages 45, 46, and demonstrate these in class.
5. The teacher may show articles of different sizes in the class so that the idea of volume and mass is cleared.



## CONCLUSION / SUM UP

3 MINUTES

Before concluding the lesson ask a few questions to check the students' understanding.

1. What is matter?
2. What are the different states of matter?
3. Name different states of matter from their surroundings?



## ASSESSMENT

5 MINUTES

Exercise questions 2, part (i, ii, iii,) at the end of the chapter to be done in the class orally and students should be asked to write the answers to those questions at home.



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Students should be asked to define some keywords as homework
2. Each student should collect the names of different things and place them in the column of solid, liquid, and gas.

### Follow up:

An additional period will be allocated for written work which will be done in class. **Point to Ponder** given on page 46 of the General Science textbook will be discussed and students will write their answers in the notebooks.

# SOURCES OF ENERGY



## STUDENT LEARNING OUTCOMES

1. Identify sources of energy (e.g., the sun, flowing water, wind, coal, oil, gas).
2. Recognize that energy is needed to do work (e.g., for moving objects), heating and lighting.

## INFORMATION FOR TEACHERS

1. Read the chapter to develop a holistic picture of the theme of energy. Identify the keywords and highlight the new vocabulary for the class.
2. The ability to do work is called energy. Energy is used in the movements of humans and animals, light in the bulb, heat in a heater, and the sound of the school bell.

**Keywords** work, energy, light, heat, movement.

**Skills** Observation, communicating, interpreting, forming a conclusion are the skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Candle, torch, a piece of coal, a piece of wood, the battery of mobile cell



## INTRODUCTION

5 MINUTES

1. To create the interest of students, perform the following actions:
  - ◇ Pick up school bag.
  - ◇ Walk in the classroom
  - ◇ When you write with a pencil on paper.
  - ◇ When you open or close the door.
2. Now after performing the above following ask students:
  - ◇ What do we need to perform these actions?
3. Conclude the discussion by telling us that we need the energy to do all the above-mentioned actions. Announce the topic that today we will discuss "Common sources and uses of energy"?



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. Ask a student to come and push a chair.
  - ◇ What have you observed?
  - ◇ Explain when we apply a force and move the object work is done.
  - ◇ When we ride bicycles, we do work
  - ◇ To do work we need energy.
  - ◇ Ask: How is energy produced?
    - Body's movement, walking, talking, etc.
    - Heat houses and other buildings.
    - Illuminate light.
    - Power phones, computers, and television.

### Activity 2:

1. Talk about the sources of energy by asking the students some questions and showing some pictures given in the book or if available on a chart.
  - ◇ What is the basic source of energy on earth?
2. Show the pictures of sources of energy given in the textbook on page 57 and tell the students that we get energy from different sources, as we get light and heat energy from the sun.
3. Show the objects like a candle, torch, piece of coal, and battery of mobile.
4. Ask:
  - ◇ Are all these sources of energy?
  - ◇ Which type of energy do we get from each source?
5. Ask students to make a column in a notebook under the heading sources and type of energy we get from each source and write the all source you see in the classroom.



## CONCLUSION / SUM UP

3 MINUTES

Share the key points given at the end of the chapter in the textbook on page 63.



## ASSESSMENT

5 MINUTES

1. From where do plants get energy for growth?
2. Which energy runs a ceiling fan?
3. From where do we get the energy to do work?
4. Which energy does the sailboat use?
5. From where do the vehicles get energy?



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Write the name of energy sources you see at home.
2. Which type of energy is used more at your home?

### Follow up:

An additional period will be given for written work to be done in class under the supervision of the teacher. Q3 and Q4 given at the end of the chapter on pages 65 and 66.

# TRANSFORMATION OF ENERGY



## STUDENT LEARNING OUTCOMES

- Describe and demonstrate the transformation of energy

## INFORMATION FOR TEACHERS

- Go through the chapter to become familiar with certain keywords and the general outline.
- Quote some examples from daily life in which the transformation of energy takes place.
  - How does the bulb light up when we switch the button on?
  - How do fans run?

**Keywords** Energy, forms of energy, and transformation of energies.

**Skills** Observation, prediction, and inferring skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Writing boards, chalk, marker, and duster
- Charts clearly showing one form of energy are converting into another form, e.g. glowing torch and small toys working on cells, etc. or any other items teacher finds suitable to bring to the class relevant to the topic



## INTRODUCTION

5 MINUTES

- Before starting the lesson, an environment should be created to build up the interest of students in the new topic. They will be asked the following questions
  - What is energy?
  - Is it possible to convert one form of energy to another form of energy?
  - Name different forms of energy?
- Facilitate students in getting their responses
- After discussing these questions, announce the topic as "How energy changes from one form to another form (Energy transformation)".



## DEVELOPMENT

20 MINUTES

Start the lesson with the term transformation of energy, with the help of a chart showing different objects which transform energy e.g., television, fan, windmill, torch, small toys picture.

With the help of these charts, the teacher records the response of students one by one. Revise the keywords like energy, forms of energy, the transformation of energies.

### Activity 1:

1. Start the class with the Quick Quiz on page 57 in the General Science textbook's previous knowledge of the students.
2. Show the chart in which water flows from some height to the ground. The same activity may be performed under teacher supervision by the students by taking two beakers connecting with pipes one beaker at some height and the other at the ground, the teacher then asks students to record their observations on their notebooks and write their inferences.

### RECAPITULATION:

To check the understanding of the student the following questions will be asked from students

1. What happened to the water in the two beakers placed at the same position?
2. What happens to the water in the two beakers placed at different positions?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the day's lesson, ask a few questions to check the students learning
2. Light up the bulb in the class and ask the following questions.
  - ♦ What happens to the bulb?
  - ♦ How many forms of energy are there?
  - ♦ Which energy is converted to light up a bulb?
  - ♦ What is meant by the transformation of energy?
3. Facilitate students in getting their responses.
4. Sum up the lesson with key points at the end of the chapter.



### ASSESSMENT

5 MINUTES

Exercise Q2 (iv) at the end of the chapter should be done in the class. Ask students to exchange copies for checking the answers in class and help the students in writing correct answers.



### HOMEWORK / FOLLOW UP

2 MINUTES

Ask students to perform a project on page 66 of the textbook as a homework assignment response.

### Follow up:

1. An additional period for written work will be given written work on the following;
  - ♦ 'Let's Think: Which energy is changed to hydroelectricity', given on page 58.
  - ♦ 'Task To Do', given on page 59 of the textbook.
  - ♦ 'Do you know', given on page 59 of the textbook.
2. Encourage the students for their input to develop scientific thinking.
3. They will write the correct answers in their notebooks.

# CONSERVATION OF ENERGY



## STUDENT LEARNING OUTCOMES

1. Understand the importance of the conservation of energy.
2. Recognize the role and responsibility of humans to conserve energy resources

## INFORMATION FOR TEACHERS

1. Have an idea of energy conservation by studying Chapter 5 in the General Science textbook and other relevant material available in the school to know the different ways of conserving energies.
  - ♦ Identify keywords in the lesson and use them frequently in the class.
  - ♦ Discuss conservation of energy with few examples.
2. Teacher to carry out discussion on conservation with examples.

**Keywords** Conservation, Transformation

**Skills** Observation and analysis are the skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

1. Writing board, charts, markers, and real objects, cell, torch, bulb.
  - ♦ Chart with clear pictures of appliances and their use of energy.
  - ♦ Filament bulb and LED bulb.
  - ♦ Bulbs with high voltage 50 W and 100 W
2. Or any other items teacher finds, easy to bring to the class relevant to the topic



## INTRODUCTION

5 MINUTES

1. Before starting the lesson, an environment should be created to build the interest of the students so that they are eager to learn the new topic.
2. They will be asked several questions on energy conservation.
  - ♦ What are the ways, in which we use energy?
  - ♦ Why do we use LED bulbs nowadays?
  - ♦ What is the importance of saving energy?
  - ♦ What are the steps required in the conservation of energy?
    - Always switch “off” extra bulbs in-home/school.
    - Use the appliances of low energy demand
    - Working with hands must be encouraged at homes to save energy

- Use solar / wind energy

3. After discussing these questions, announce the topic as, "Conversation of energy"



## DEVELOPMENT

20 MINUTES

1. Start the lesson by considering the word conservation of energy.
2. Discuss some examples from daily life. For example, the use of LED bulbs in homes and the uses wind / solar energy.
3. The teacher can explain the use of petrol in vehicles and how we can avoid excessive use
  - ◇ What is the disadvantage of using too much petrol?
  - ◇ What type of problems will we face when we do not conserve energy?
  - ◇ Give some ideas to conserve energy e.g.
    - Why should we prefer to walk or ride in bicycle instead of driving a car?
    - Why should we prefer energy saver bulbs?
    - Why we prefer to use solar appliances instead of electrical appliances?

### Activity for students:

Make a chart and mention five ways of conserving energies.



## CONCLUSION / SUM UP

3 MINUTES

To check the student learning teacher can ask the following questions

1. What is meant by energy conservation?
2. Why do we conserve energy?



## ASSESSMENT

5 MINUTES

1. Assign a chart and ask the students to collect information from their home and school on the use of energy.
2. Name of items
  - ◇ Bulb
  - ◇ Washing machine
  - ◇ Television
  - ◇ Computer
3. Take their responses to the following questions in the class.
4. The students will write answers in their notebooks.
  - ◇ Which appliances need more energy?
  - ◇ Which appliances are used more in your home?
  - ◇ How can the use of electric appliances be minimized?
  - ◇ What will happen if we use all appliances at a time?
5. Facilitate students in getting their responses.



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Ask students to make a chart of two columns showing the name of appliances and their frequency of use in the home, and answers the questions at the end of the table in their notebooks

| Item's name     | Use       |
|-----------------|-----------|
| Bulb            | Daily     |
| TV              | Daily     |
| Washing machine | Week      |
| Iron            | Daily     |
| Fans            | In months |

2. Which appliances use more energy?
3. What students have deduced from the use of these appliances?

#### **Follow-up:**

An additional period for written work on conservation, since there is little material given in the book the teacher may prepare, additional examples for the students.

# LIGHT AND REFLECTION OF LIGHT



## STUDENT LEARNING OUTCOMES

- Relate familiar physical phenomena (i.e., shadows, reflections, and rainbows) to the behaviour of light.

## INFORMATION FOR TEACHERS

Read the chapter of the textbook to have a holistic picture. Also, use additional resources for classifying the following concepts.

- Light is a form of energy that helps us to see objects around us. It travels in straight lines.
- When light cannot pass through an object, it forms a shadow.
- When light strikes the shiny and smooth surface of the mirror, it bounces back. It is called the reflection of light.

**Keywords** Shadow, reflection, artificial, bouncing back, rainbow

**Skills** Observation, prediction, classification are the skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Torch, candle, prism, plastic toy, small mirror



## INTRODUCTION

5 MINUTES

- Start the class by asking the following questions:
  - Can we see in the dark?
  - What thing enables us to see things around us?
  - Is light a form of energy?
- After discussion, announce the day's topic as "Light"



## DEVELOPMENT

20 MINUTES

### Activity 1:

- Take students out of the class to observe light sources around the school.
- Ask them to identify things that make light in the classroom
- Back in class ask them which is the biggest natural source of light?
- Instruct them to make two columns in a notebook and write the names of natural and

artificial (man-made) sources of light.

5. Observe and correct if needed when they are writing the names of sources.
6. Conclude the activity by saying that light helps us to see things and we get light from different sources.

#### Activity 2:

1. Make classroom environment dark.
2. Turn on the torch.
3. As students observe the path of light.
4. Which path is followed by light?
5. Let the students identify the path of light. Give their observation about the path of light.
6. Infer from the observation that light travels in a straight line.

#### Activity 3:

1. Turn on the torch and place a book or plastic toy in the front of the torch.
2. Ask students; is light passing through a book or a toy?
3. Share that light cannot pass through an object; a shadow of that object is formed behind it with them.

#### Activity 4:

1. Formation of shadow.
2. Do activity 5.1 given in the textbook on page 60.
3. Bring your hand near the lamp and ask; how is the size of shadow affected?
4. Ask them, "Does the shadow on the wall look like your hand?"
5. Let the students observe the size of the shadow and give their observations. They will infer after seeing the distance when the object is near to the source its shadow is large, and small for far objects. Explain the size of the shadow depends on the distance between the object and the source of light.



#### CONCLUSION / SUM UP

3 MINUTES

Tell students that in this period, we have learnt about the concept of light.

Sum up the class with the key points used during the lesson.



#### ASSESSMENT

5 MINUTES

Ask students the following questions:

1. What things help us to see things in our surrounding?
2. How does light travel?
3. Which factor causes the size of the shadow to appear small or large?



#### HOMEWORK / FOLLOW UP

2 MINUTES

Ask students to observe the shadow size of a tree at home or surrounding during the morning, noon, and afternoon on holiday.

# LIGHT AND REFLECTION OF LIGHT

**DEVELOPMENT**

25 MINUTES

Remind students that in the last period we have learned about the concept of light and today will learn some more related concepts.

**Activity 5:**

1. Why do we use the mirror?
2. How is an image formed on the mirror?
3. Discuss the formation of images by using diagrams on the writing board.
4. Share with students when light strikes the shiny and smooth surface of the mirror it bounces back which is called reflection of light.

**Activity 6:**

1. Ask students about what a rainbow is?
2. Demonstrate the activity 5.2 given in the textbook on page 60.
3. Tell them, after rain some drops of water are suspended in the air when sunlight passes through these water droplets, they split light into seven colours, it is called a rainbow.

**CONCLUSION / SUM UP**

3 MINUTES

Ask the following questions from students:

1. Can light pass through a wooden table?
2. Do the shadows look like the object?
3. What is the reflection of light?

**ASSESSMENT**

5 MINUTES

Ask students to open the book on page 64 and select the correct option of Q1: iii and iv

**HOMEWORK / FOLLOW UP**

2 MINUTES

Draw and colour the rainbow in the notebook.

**Follow up:**

An additional period will be given for written work on the topics given above.

1. Reflection of light
2. Rainbow

# SOUND ENERGY



## STUDENT LEARNING OUTCOMES

- Relate familiar physical phenomena (i.e., vibrating objects, echoes) to the production and behavior of sound.

## INFORMATION FOR TEACHERS

- Before starting the lesson, the teacher should read the chapter given in the textbook and have an understanding about terminologies to be used in this lesson.
- Check the students' knowledge about these words. Refer to the glossary at the end of the textbook. For vibrating bodies and sound production, the teacher can use familiar examples of a school bell. Discuss ways of producing sounds by different objects and observe whether they are vibrating or not?

**Keywords** sound, vibrating bodies, medium, echoes, reflection

**Skills** Observation and communication skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Ruler, paper box with a rubber band, school bell, tuning fork, small drums, or any other items that teacher finds easy to bring to the class relevant to the topic.



## INTRODUCTION

5 MINUTES

- Before starting the lesson, an environment should be generated to build interest so that the students are eager to learn the new topic.
- They will be asked the following questions on sound energy and the students will raise their hands to answer these questions.
  - What is sound?
  - How do you come to know that the period is over?
  - Identify/name some sounds in their environment.

## Activity 1:

- Hold down one end of the ruler to the bench and flick the other end of the ruler and ask the following questions.
  - Do you hear a sound?
  - What is happening to the ruler (moving, trembling, vibrating)
- Then take a start from the word vibrating body and ask these questions.
  - Define sound?

- ◇ What does vibrate mean?
  - ◇ Do you observe some sounds when coming from home to school?
3. Facilitate students in getting their responses.
  4. After discussing these questions, announce the topic as “Sound Energy”.



## DEVELOPMENT

20 MINUTES

1. Start the lesson by reviewing the word sound energy and develop the lesson by considering activity 5.3 of the General Science textbook page 61.
2. Now after performing the activity, the terms sound, vibrating objects, reflecting of sound (echoes) should be explained.
  - ◇ Discuss the traveling of sound by asking simple questions.
  - ◇ How does sound travel?
3. Why don't we hear the explosions of the sun on earth?
4. Students will answer these questions and clarify that sound needs some medium to travel, it cannot travel in space. **Interesting information** in the textbook on page 61.

## RECAPITULATION

The teacher may use the following questions to check the understanding level of students.

1. What is sound?
2. How sound is produced?
3. What are echoes?
4. What does sound need to propagate?



## CONCLUSION / SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about the production of sound.
2. Before concluding the day's lesson, ask a few questions
  - ◇ How sound is produced?
  - ◇ What is an echo?
3. Sum up the lesson by discussing the key points at the end of the chapter.



## ASSESSMENT

5 MINUTES

Exercise Q 2 part (iii) of textbook page 65 should be done in the class and students should be asked to share their answers with each other.



## HOMEWORK / FOLLOW UP

2 MINUTES

Students may be directed to write the answers to the following questions in their notebooks

1. Define sound?
2. How sound is produced?
3. Why sound cannot travel through space?

### Follow up:

1. An additional period will be given to cover thinking questions given on page 61 of the textbook.

- ◇ Do you know 3 questions
  - ◇ Interesting Information 2 questions
2. Students to write the answers in their notebooks. These questions will help develop scientific thinking in students.

## HEAT



## STUDENT LEARNING OUTCOMES

1. Recognize that warmer objects have a higher temperature than cooler objects.
2. Investigate the changes that occur when a hot object is brought in contact with a cold object.

## INFORMATION FOR TEACHERS

1. Before starting the lesson, the teacher must read the whole chapter in the textbook and be clear about certain terms to be used in the lesson. The keywords have a clear definition like heat, temperature.
2. Practical examples of hot and cold bodies should be used, e.g., hot water, ice cream, warm tea, ice, etc.
3. The teacher can ask about different hot and cold bodies from the students. Name a thing that is very cold and hot and check the students' familiarity with the concept. Consult glossary given at the end of the textbook

**Keywords** Temperature, heat, hot object, cold object.

**Skills** Observation and classification skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

1. Showing two columns of the hot and cold chart of real objects.
2. Cold liquids like water, milk, juices, cold items like ice and ice cream, hot water, warm tea, etc., or any other items teacher find easy to bring to the class relevant to the topic. Flashcards showing different hot and cold objects



## INTRODUCTION

5 MINUTES

1. Before starting the lesson, use different methods and approaches to develop the interest of students for that he may ask some questions like.
  - ◇ Name some hot objects.
  - ◇ Name some cold objects.
2. With the help of the following activity, the teacher will proceed.



## DEVELOPMENT

20 MINUTES

## Activity 1:

1. Divide the class students into two groups and then provide a set of prepared cards to

each group to arrange the cards in hot and cold.

2. Now introduce a chart with column hot objects and cold objects and call students one by one from the groups to paste the card on the right column on this chart, ask the rest of the class to check, if any student place the objects in the wrong column, ask them to put it on the right place. After performing the activity, announce the topic as **"Heat"**

### Activity 2

1. Start the lesson by reviewing the term, 'heat and its transformation'. Place two glasses of water one with cold water and the other with hot water and ask students, to touch the glass and record the responses of the students.
  2. After this, place cold water on the flame in a beaker or glass and record the responses of the students with an interval of time and ask the following questions.
    - ◇ What did you feel when you touched the water the first time in the glass beaker?
    - ◇ What do you feel when you touch water after 5 minutes?
    - ◇ How did water become hot?
    - ◇ What is the difference between cold objects and hot objects?
  3. Now define heat and explain with examples (hot objects and cold objects)
- Students make a chart of hot and cold objects in the class from daily life experience

### RECAPITULATION

To check the understanding of the students, ask some questions:

1. Define heat?
2. Why we avoid touching hot objects?
3. What will happen if we use cold water and cold drinks frequently?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask some questions.
  - ◇ How is heat used in our daily life?
  - ◇ What is meant by the hotness and coldness of a body?
2. Further, concentrate on the key points 8 and 9 given at the end of the chapter



### ASSESSMENT

5 MINUTES

1. Why does the hot tea become cold after some time?
2. Can heat travel from one object to another?

The students will record the answer in the class in their notebooks under teacher supervision



### HOMEWORK / FOLLOW UP

2 MINUTES

Students are directed to write the answers to the following questions in their notebooks.

1. What do you feel when you touch the body of a person suffering from fever?
2. What is the purpose of placing cold water on the heat source?

### Follow up:

An additional period will be required for discussing and writing the answers to Q3 part i and ii "Constructed Response Questions" given in Exercise on page 65.

# HEAT THERMOMETER AND DIFFERENT UNITS OF TEMPERATURE



## STUDENT LEARNING OUTCOMES

- Identify ways to measure temperature and understand its unit of measurement.

## INFORMATION FOR TEACHERS

- The teacher should read the whole chapter to have a holistic picture of the chapter. The teacher can also use additional material available in the school for concept clarification.
- Measuring the hotness or coldness of an object is called temperature. The instrument used to measure temperature is called a thermometer.
- These are two types of thermometers.
  - Laboratory thermometer
  - Clinical thermometer
- There are two scales of thermometer
  - Celsius or Centigrade scale (°C)
  - Fahrenheit scale (°F)
- Laboratory thermometer generally measure temperature from 0°C to 100°C

**A Clinical thermometer measures** the temperature from 35°C to 42°C OR 95 °F to 108°F

**Keywords** Thermometer, celsius, centigrade, fahrenheit, clinical , laboratory.

**Skills** Observation, measuring, analyzing, predicting are the skills to be emphasized.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Laboratory thermometer
- Clinical thermometer



## INTRODUCTION

5 MINUTES

Before starting the lesson, ask some questions to build interest so that students are eager to learn the new topic

- What do you feel when you touch the body of a person suffering from fever?
- How can we measure temperature?
- How can we measure body temperature?
- After discussion, inform students that we will be studying the topic "Temperature, thermometer and different units of Temperature".

**Opening Activity:**

1. Start the class by asking the following questions to the students:
  - ◇ During an illness what does a patient feel like?
  - ◇ How did you know you had a fever?
  - ◇ Which instrument is used to measure the temperature?
  - ◇ Have you all seen a thermometer?
2. Take a thermometer to the class, to make students familiar with the instrument.
  - ◇ Draw the diagrams of the laboratory thermometer and clinical thermometer on the writing board.
  - ◇ Now explain its parts, scales on it, and how to take the readings.
    - Divide the class into two groups.
    - Provide laboratory thermometer to group 1 and Clinical or Medical thermometer to group 2
    - Ask one student of each group to hold the thermometer bulb in hand for 1 minute.
    - Ask the remaining students in each group to observe the expansion of liquid/mercury in a thermometer.
    - Ask them, "What have you observed?"
    - Ask them now to hold the thermometer from the upper side and the remaining students observe the liquid/contraction of mercury in the thermometer,
    - Explain to students the thermometer which does not have a narrow part near the bulb liquid mercury comes down rapidly and is called laboratory thermometer and in the clinical thermometer the mercury does not come rapidly back to the bulb
    - Divide the class into suitable groups. Provide a clinical thermometer to each group.
    - Select one student from each group. Instruct them to keep the thermometer carefully under their arm for two minutes, Take the reading and note the temperature and pass the thermometer to the next child to observe the reading. (students to wash the thermometer before using it for another student).
    - In the end, conclude and inform students that the body temperature of a healthy person is 98.6°F.

**Activity 2:**

1. Take tap water in a glass/beaker and put a laboratory thermometer in it.
2. Ask two students to come and note the temperature.
3. Then add ice cubes in water and note temperature, continue this activity for 10 minutes
4. Draw the following table on the board and ask the students to observe the reading and write temperature against the time column.

| Time | Temperature |
|------|-------------|
|      |             |
|      |             |

5. Ask students when we add more ice cubes to water what will happen to temperature?



## CONCLUSION / SUM UP

3 MINUTES

Share: we can measure the temperature of the human body and other objects by using a thermometer. Cold objects show low temperature while hot objects show high temperature.



## ASSESSMENT

5 MINUTES

Solve the Q3 (ii) given in exercise of the textbook page 65.



## HOMEWORK / FOLLOW UP

2 MINUTES

Assign the following tasks to students as homework / Follow up

1. Write the name of those cities of Pakistan where the temperature is most high and most low.
2. Measure and note the temperature of your family members in your notebook.
3. Draw and label the diagram of a thermometer.

### Follow up:

An additional period will be given for practical demonstration and practice of the students in measuring temperature from clinical and laboratory thermometer.

**Month**

**5**

# ELECTRICAL ENERGY AND SIMPLE ELECTRIC CIRCUIT



## STUDENT LEARNING OUTCOMES

1. Describe and demonstrate that electrical energy in a circuit can be transformed into other forms of energy (e.g., heat, light, sound).
2. Explain and provide reasoning that a simple electric circuit requires a complete electrical pathway.

## INFORMATION FOR TEACHERS

1. The teacher should read the whole chapter from the textbook to develop an understanding of the chapter.
2. Consult additional resources to classify the concept of keywords used in the chapter.
3. Different devices convert electrical energy to different forms of energy. Like heater, electric iron, water heating rod converts electrical energy to heat energy. In a loudspeaker, the electrical energy changes into sound energy. Electric bulbs and tube lights convert electrical energy to light energy.
4. When the switch is turned "ON" the electric circuit is called a closed circuit.

**Keywords** generator, electric circuit

**Skills** Observation, designing an experiment, inferring, and interpreting are the skills to be emphasized.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Cell, LED bulbs, wires, and switch.



## INTRODUCTION

5 MINUTES

1. Before starting the lesson teacher will ask the following questions:
  - ♦ Turn the switch "ON". Does the bulb get lighted?
  - ♦ When we press the cloth with electronic iron what makes it hot?
  - ♦ Which energy runs a fan?
2. Conclude the discussion by telling all the above things that require electrical energy to do work and tell the students that today we will discuss "Electrical Energy & Simple Electric Circuit"



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. To develop the understanding of students, read and explain the topic of electrical energy given in the General Science textbook on page 62.
2. Divide students into three groups.
3. Give the following instructions to each group:

#### Group 1:

Discuss and write the names of devices that convert electrical energy into heat energy.  
(Heater, iron, electric stove, heating rod)

#### Group 2:

Discuss and write the name of devices that convert electrical energy into light energy.  
(Bulb, lamp, LED, tube light)

#### Group 3:

Discuss and write the name of devices that convert electrical energy into sound energy.  
(Loudspeaker, computer, laptop, television) Invite one student from each group voluntarily to read the name of the devices loudly for the whole class.

- ♦ Facilitate and guide each group to complete the task.



## CONCLUSION / SUM UP

5 MINUTES

- Tell students that in this period, we have learned about the conversion of electrical energy.
- Sum up the lesson by making the students identify the key point of how electrical energy is converted to different forms. Thus, the students will get a complete understanding from the group work done above.



## ASSESSMENT

5 MINUTES

Ask students the following questions:

1. Into which two forms, the electrical energy is transformed in a television?
2. Which instruments convert electrical energy into light energy?

#### Follow Up:

Ask the students to complete the following table:

| S. No | Instruments   | Convert electrical energy into |
|-------|---------------|--------------------------------|
| 1.    | Electric bulb |                                |
| 2.    | Iron          |                                |
| 3.    | Loudspeaker   |                                |
| 4.    | Heating rod   |                                |

# ELECTRICAL ENERGY AND SIMPLE ELECTRIC CIRCUIT



## DEVELOPMENT

25 MINUTES

**Activity 2:**

Remind students that in the last period we have learned about the conversion of electrical energy and today it is the time to learn about the circuit.

1. Draw the diagram of an electric circuit on a writing board to develop an understanding of a circuit.
2. Divide the students into suitable groups.
3. Provide bulb, wires, battery, and switch to each group.
4. Instruct them to make a circuit. Refer to activity 5.4 in the textbook on page 63.
5. Facilitate the groups.

After completing the activity ask the following questions:

1. Does the bulb give light when we turn the switch "OFF"?
2. What passes through the wires to light the bulb?
3. From where do we get electricity in the circuit?
4. Does electricity pass when the circuit is open?
5. Does electricity pass when the circuit is closed?

Facilitate the students in getting their responses



## CONCLUSION / SUM UP

3 MINUTES

The path of current is called a circuit. Electrical current can pass when the circuit is closed. Sum up the topic by revising the Key Points given at the end of the chapter.



## ASSESSMENT

5 MINUTES

Ask students the following questions.

1. Which form of energy is produced by LED from electrical energy?
2. What is a circuit?
3. What are the components of a simple electric circuit?



## HOMEWORK / FOLLOW UP

2 MINUTES

Do the activity given in the General Science textbook on page 66.

**Follow up:**

An additional period will be added for practical work in class; assign Q4 in the exercise on page 66.

# FORCE, MOTION



## STUDENT LEARNING OUTCOMES

- Describe force and motion with examples from daily life.

## INFORMATION FOR TEACHERS

- Before teaching the lesson, the teacher should read the whole chapter and be clear about keywords to be used in this lesson.
- Discuss different examples of push and pull and guide students to differentiate between pull and push.
- Keep practical examples of force and motion given in the book on hand.
- Consult glossary at the end of the book.

**Keywords** Force, motion, friction, static object.

**Skills** Observation, inferring, and measuring are the skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Charts, real objects (coin, pencil, book, desk, chair, and bag), or any other items that are relevant to the topic and that the teacher can easily bring to the class.



## INTRODUCTION

5 MINUTES

- To develop interest and make the environment favorable for this activity ask the following questions:
  - What is push?  
(Ask a student to demonstrate push)
  - What is pull?  
(Ask a student to demonstrate pull)
  - What is force?
  - What happens if we pull or push the bag?
- Ask students how they felt when they were pushed and pulled. After discussing these questions, the teacher will announce that the topic is "Force and Motion".



## DEVELOPMENT

20 MINUTES

Start the lesson by reviewing the terms force, motion, push and pull.

## PRESENTATION:

With the help of activity 6.1 in the textbook page 69, discuss force, pull, and push.

### Activity 1:

1. Perform the activity with the help of the students. ask one student voluntarily to put his bag on the table and push it and then ask:
  - ◇ What happened when you pushed the bag?  
(The teacher asks another student to pull the bag)
  - ◇ What happened when you pulled the bag?  
(Call another student to open the door of the classroom)
  - ◇ Did you apply any force on the door?  
(Now call another student to close the door)
  - ◇ Did you exert any force on the door to close?
2. Explain the force used for pushing and pulling and will relate this to motion and movement.

## RECAPITULATION:

To check the understanding of the students, ask the following questions:

1. How was the bag moved?
2. How did the door open?
3. What is motion/movement?
4. What is needed for movement?



### CONCLUSION / SUM UP

3 MINUTES

Before concluding the day's lesson, ask a few questions to check the students' Level of learning. Key points 1 and 2 on page 77 of the textbook will be discussed.

1. What is force?
2. What are pull and push?
3. How does force produce motion in static objects?



### ASSESSMENT

5 MINUTES

Exercise 1.2 (i and ii) of the textbook on page 78 at the end of chapter – 6 to be done in class. Students will be asked to exchange copies for checking the answers in class, while facilitating them with, the correct answer.



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Ask the students to collect pictures that clearly show push, pull, force and motion.
2. Draw a three-column table with the title push, pull, force, take responses of the students on a chart, and record for clarifying the topic of motion, the teacher can take help from activity 6.2 on page 70 of the textbook.

## GRAVITY



## STUDENT LEARNING OUTCOMES

- Identify gravity as a force that draws objects to Earth.

## INFORMATION FOR TEACHERS

- Read the topic from the textbook and other related documents. Know terms such as gravitational force and be clear about the impact of the force.
- Gravity is the force that causes a ball to come down after throwing it in the air and the force that causes a car to move downhill even when you are not stepping on the gear, etc.

**Keywords** Gravity, friction, motion

**Skills** Observation, inferring, practical investigation, communicating are the skills to be emphasized.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Pencil, ball, coin, empty plastic bottle



## INTRODUCTION

5 MINUTES

- Ask the following questions from students:
  - Why do the leaves of a tree fall to the ground after leaving the branches?
  - Why does the water from a fountain fall on the ground?
  - Why does a ball when thrown up in the air return to the ground after reaching a certain height?
- After discussing the above questions, the teacher will announce the day's topic as "Gravity".



## DEVELOPMENT

20 MINUTES

## Activity 1:

- Ask students to drop different things like a ball, pencil, empty plastic bottle, coin from a certain height.
- Ask them to observe the motion of falling objects.
- Ask them as to why all the falling objects move towards the ground?
- Explain to students that the Earth pulls objects towards itself with a force which is called

gravity of Earth or gravitational force.

### Activity 2:

1. Divide the students into groups.
2. Instruct them to do activity 6.3 given in the textbook on page 71.
3. Ask students to write their observations.
4. Prompt students to state their inferences from these observations. After sufficient discussion, explain to them that all things fall due to the attraction of earth. Explain that the reason for the pencil falling towards the ground is gravity.



### CONCLUSION / SUM UP

3 MINUTES

Conclude the lesson by discussing the key features of gravity as a force.



### ASSESSMENT

5 MINUTES

Look at your surroundings, pick up five examples that show the action of gravity as a force. Write them in your notebooks.



### HOMEWORK / FOLLOW UP

2 MINUTES

Ask students to describe gravity by giving examples from their daily lives and to write these in their notebooks.

# FRICTION; ADVANTAGES OF FRICTION



## STUDENT LEARNING OUTCOMES

- Investigate that friction works against the direction of motion
- Provide reasoning with evidence that friction can be either harmful or useful under different circumstances.

## INFORMATION FOR TEACHERS

- Before teaching the lesson, the teacher should read the chapter given above and be clear about terms and keywords to be used in this lesson. These keywords have clear definitions in the glossary at the end of the textbook which the teacher should consult.
- Use these keywords frequently during your lesson.

**Keywords** Friction, rough and smooth surfaces

**Skills** Observation and prediction are the skills to be emphasized in the lesson.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Writing board, charts, markers, chalks, etc.
- Show some items like paper, oil, tissue paper, rough surfaces, or any other items that the teacher can easily bring to the class.



## INTRODUCTION

5 MINUTES

- Before starting the lesson, build the interest of students so that they are eager to learn the new topic.
- Ask some questions on friction and students will raise their hands to answer the questions.
  - When you kick a football, it stops after covering a certain distance, why does it stop?
  - When we rub one hand with the other hand it gets warm, why?
  - Why do drivers face difficulty when driving vehicles on rough surfaces?
  - After discussing these questions, announce the topic as "friction".



## DEVELOPMENT

20 MINUTES

The teacher will start the lesson by discussing the term "friction" and its advantages and disadvantages.

## PRESENTATION

1. Elaborate on the topic by showing pictures on page 72 of the textbook.
2. Clarify the topic with the help of activity 6.4 on page 73., take responses of different students, and record on the writing board.
3. Now explain the word friction and take examples from daily life. ask students:
  - ◇ Why is it difficult to walk on a slippery surface?
  - ◇ Why is heat produced when one surface is rubbed with the other?
  - ◇ If we put oil on a smooth surface what will happen when walking on such a surface?

### Activity 1:

The teacher can perform the activity by asking students to first walk on the dry surface and then on the wet surface and ask other students to record observations and infer from the activity.

## RECAPITULATION

To check student understanding teacher will ask questions like:

1. Why do vehicles slip on the road in the rain?
2. Do you think that friction is playing a role in walking?
3. What are the advantages of friction?



### CONCLUSION / SUM UP

3 MINUTES

Before concluding the day's lesson, ask a few questions to check the learning of the students.

1. What is friction?
2. What is a rough surface?
3. What is a smooth surface?
4. What are the advantages and disadvantages of friction?
5. At the end summarize the lesson by discussing the main points about the day's topics.



### ASSESSMENT

5 MINUTES

Exercise Q2 part (iii) on page 78 of the textbook at the end of chapter – 6 should be done in class. Students will be asked to exchange copies for checking the answers in class, while the teachers will facilitate them.



### HOMEWORK / FOLLOW UP

2 MINUTES

Students will be asked to solve question 3 on page 79 of the textbook and write their responses in their notebooks.

## SIMPLE MACHINES



## STUDENT LEARNING OUTCOMES

- Recognize that simple machines, (e.g., levers, pulleys, gears, ramps) help make motion easier (e.g., make lifting things easier, reduce the amount of force required, change the distance, or change the direction of the force).

## INFORMATION FOR TEACHERS

The teacher should read the chapter on this topic in the textbook. Teacher should:

- Understand the idea of work and operation of various machines.
- Understand the key terms used in the lesson, write on chart/writing board and use these terms frequently during the lesson.

**Keywords** lever, pulley, wheelbarrow, bottle opener, inclined plane

**Skills** Observation, prediction, and classification are the skills to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Scissor, bottle opener, trolley bag, and other simple machines which are easily available.



## INTRODUCTION

5 MINUTES

- Ask the students the following questions:
- What is a machine?
- Name some machines which are commonly used.
- Write these names on the writing board.
- How do these machines help you?
- Do they make your work easy?



## DEVELOPMENT

20 MINUTES

After discussing the above questions the teacher will announce the topic as "Simple Machines".

## Activity 1:

- Show a plastic sheet and ask the students; can you cut the plastic sheet into two equal parts with hands?  
(Call one student to do this).

- ◇ Now ask the same student to cut it with scissors.
- ◇ Ask; why is it easier to cut with scissors?

**Answer:** Scissor makes it easy, which is a simple machine.

### Activity 2:

1. Show a glass bottle with a soft drink to students that is closed with a cap.
2. Give it to a student and ask the student to open the bottle cap with his/her hands.
3. Give him a bottle opener and ask him to open it with the help of the bottle opener.
4. Ask students; why is it easier to open the cap now?

**Answer:** Bottle opener makes it easy, which is a simple machine and works on the principle of the lever.

### Activity 3:

1. Ask a student to walk while carrying a bundle of books.
2. Instruct the student to put the books in a trolley bag and carry them now.
3. What is an easier way to bring books or any other heavy load?
4. What makes it easier?

**Answer:** The trolley bag has wheels and is a simple machine that makes our work easier.



### CONCLUSION / SUM UP

3 MINUTES

- Tell students that in this period, we have learned about simple machines.
- Discuss the Constructed Response Question from the General Science textbook on page 79.



### ASSESSMENT

5 MINUTES

Assess students using key points given in the textbook on page 77 for comprehension.

1. What is a machine?
2. Which machine is used to open the bottle cap of a soft drink?
3. Which machine is used to carry a heavy load?



### HOMEWORK / FOLLOW UP

2 MINUTES

Ask students to read pages 73 – 75 of the textbooks and note their observations in their notebooks.

# SIMPLE MACHINES

**DEVELOPMENT**

25 MINUTES

1. Recall with students that in the last period they have learned about the simple machines and today they will observe their usage in routine life.
2. Ask questions on gears and bicycles.
3. Note their responses on the writing board.

**Activity 4: 25 Minutes**

1. What increases or decreases the speed of bicycles?
2. Draw a diagram of a gear and explain the construction and function of the gear given in the textbook on page 76.

**Activity 5:**

1. Demonstrate the activity 6.5 given on page 75 in the textbook.
2. Explain the terms fulcrum, effort, and load to students.

**Activity 6: (Pulley)**

1. Ask the student: How is the flag hoisted in the morning assembly?
2. Explain to students that the pulley is used to hoist the flag, when we pull the rope down, the flag moves upwards.
3. Show the different uses of the pulley from page 75 of the textbook.
4. Explain if we want to move heavy objects upward, we apply force in the downward direction.

**Activity 7: (Ramp or inclined plane)**

1. Ask students: Which simple machine is used to move heavy objects from bottom to top?
2. Explain to students that a ramp or inclined plane is used to move heavier objects.
3. Show the figure of an inclined plane from page 76 of the textbook.
4. Laborers use this while loading/unloading flour bags on trucks and taking cement up to the roof for construction.

**CONCLUSION / SUM UP**

3 MINUTES

What have we learned from today's activities? Students' responses will be written on the writing board.

**ASSESSMENT**

5 MINUTES

Ask students to:

1. Name some simple machines that they use in daily life. Write in your notebooks.

**HOMEWORK / FOLLOW UP**

2 MINUTES

1. What is a machine and how does it work?
2. Make a list of simple machines that are used in your home.

**Month**

**6**

# EARTH AND ITS PHYSICAL CHARACTERISTICS



## STUDENT LEARNING OUTCOMES

- Recognize that The earth's surface is made up of land and water and is surrounded by air.

## INFORMATION FOR TEACHERS

- The teacher should read the chapter for developing a holistic picture of the content.
- Understand the keywords (consult the glossary at the end of the textbook).
- Write the keywords on a chart and display it in the classroom so it is visible to students.

### Keywords

Earth, air, wind, physical characteristics, natural resources, substitute natural resources, cultivated land and non-cultivated land.

### Skills

Students will practice the skills of observation, inference, and predicting.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Globe, plastic bottle, balloon, nail, tape or glue, thread. Any other thing which teacher considers necessary for delivering the lesson.



## INTRODUCTION

5 MINUTES

- Before introducing the topic, the teacher can generate the interest of students by showing a globe or a world map and asking some simple questions about earth, land, water, and air.
  - Where is Earth?
  - Have you seen the globe?
  - Can you locate the land on the globe?
  - Can you identify the water on the globe?
  - Can you tell which part covers the largest area of Earth?
  - What is air?
  - Where is the air?
- After getting feedback from the students, the teacher will now announce the topic that today we will discuss and talk about "Earth and its Physical Characteristics".

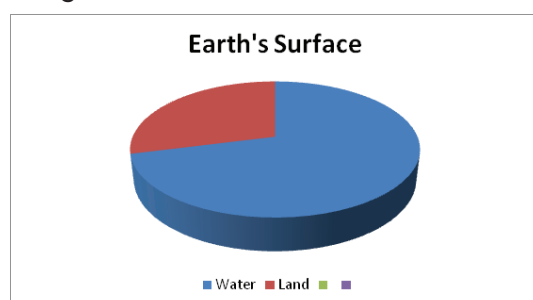


## DEVELOPMENT

20 MINUTES

- Start the lesson, with the help of the globe:
  - Place the globe in front of the students, where it can be seen clearly.
  - Show the surface on the globe representing water.
  - Show the surface on the globe representing land.

- ◇ Tell them about the percentage of water and land on Earth. The teacher should draw a pie chart on the writing board and show that 71% of the earth's surface is covered by water and the remaining 29% is land.



2. Show pictures of wind blowing and pictures of wind not blowing, students to differentiate between two.
3. Students will identify the presence of air in the second picture.
  - ◇ Explain what is air?
  - ◇ Explain what is wind?
  - ◇ Differentiate between wind and air.

### Activity:

Perform activity 7.1 on page 82 in the General Science textbook for Grade 4 and elaborate the concept of air to students.

### FORMATIVE ASSESSMENT:

Check the understanding of students by asking some questions, during the lesson.

1. What is air?
2. What is wind?
3. What is the percentage of water on the earth's surface?
4. What is the percentage of land on the earth's surface?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask few questions to check the student's learning.
  - ◇ Can you identify the different parts of the earth's surface?
  - ◇ What is the percentage of water on the earth's surface?
  - ◇ What is the percentage of land on the earth's surface?
2. Sum up the lesson by discussing the key points of the lesson with students.



### ASSESSMENT

5 MINUTES

1. Students to attempt Question 1 (ii) from the exercise at the end of chapter page 91.
2. Ask students to exchange notebooks for checking the answers in class, while facilitating them and write the correct answers on the writing board at the end of the period.



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Assign the activity below to students:
2. Use the plastic ball and color pencils to make a model of the earth and identify the water and land on it.

# DISTRIBUTION OF WATER ON EARTH'S SURFACE



## STUDENT LEARNING OUTCOMES

- Recognize that water in rivers and streams flows from mountains to oceans or lakes.

## INFORMATION FOR TEACHERS

- The teacher should read the chapter for developing a holistic picture of the content.
- Identify and understand the keywords.
- Write keywords on a chart and display them in the class, visible to all. Since it is new vocabulary, students should learn the spellings of keywords and understand their meanings.

**Keywords**      Glaciers, rivers, streams, lakes, oceans, snow, and ice.

**Skills**            Students will practice the skills of observation, inference, and classification.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Ice, jug of water, water glass, pictures/charts of mountains and rocks, glaciers, and lakes.
- Any other thing which the teacher considers necessary for delivering the lesson.



## INTRODUCTION

5 MINUTES

- Before introducing the topic, generate the interest of students by showing pictures of water bodies like springs, lakes, oceans, and rivers.
- Now ask the following questions from students:
  - What is water?
  - Where does water come from?
  - Where do we get drinking water from?
  - What is snow?
  - Are snow and ice the same? (Differentiate the concepts of snow and ice to students.)
  - Why does water flow and snow does not?
- After getting feedback from students, announce the topic that we will discuss today is **"Distribution of water on Earth's Surface"**.



## DEVELOPMENT

20 MINUTES

Start the lesson, with the help of charts/pictures of mountains, glaciers, lakes and:

- Explain what are glaciers ?

2. what are rivers and streams ?
3. what are lakes and oceans ?
4. Differentiate between snow and ice.

### Activity:

1. Put some water in a jug
2. Take an empty glass
3. Add some water from the jug to the glass
4. Ask the students, what do you observe?
5. How does water move from the jug to glass? show the property of the flow of water.

### Guided Practice

1. Draw two columns on the board titled 'flow' and 'cannot flow'.
2. Assign rivers, glaciers, streams, rainwater, snow, lakes, and oceans to either of the two columns.

| Flow | Cannot Flow |
|------|-------------|
|      |             |

3. Check the understanding of students by asking questions, during the lesson. Preferably using a physical features map to show water bodies on the surface of the earth.
  - ◇ What is rain?
  - ◇ How does rainwater flow from mountains to steam?
  - ◇ What is snow?
  - ◇ What is a lake?
  - ◇ How are lakes formed?
  - ◇ How does water move from mountains to oceans?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask few questions to check the students learning.
  - ◇ What are the different forms of water on the earth's surface?
  - ◇ Can you name at least three different forms of water?
  - ◇ How do we get drinking water?
2. Sum up the lesson by discussing the key points about the lesson.



### ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 2 (iii) page 91 from the exercise at the end of the chapter.
2. Students exchange copies for checking the answers in class, while the teacher facilitates them and writes the correct answers on the board at the end.



### HOMEWORK / FOLLOW UP

2 MINUTES

Assign the activity to students as homework. In the given map using color, pencils differentiate between land and the distribution of water on it.

# EARTH'S RESOURCES



## STUDENT LEARNING OUTCOMES

- Identify some of the earth's natural resources (e.g., water, wind, soil, forests, oil, natural gas, minerals) that are used in everyday life.

## INFORMATION FOR TEACHERS

- The teacher should read the chapter for developing the big picture of the content.
- The teacher should understand the keywords, display these in class, and use them frequently during the lesson.

**Keywords** Earth's resources, soil, forests, coal, crude oil (natural oil), natural gas, minerals

**Skills** Students will practice the skills of observation and inference.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Water in a jug, Hand fan, Gas cylinder, Minerals (different salts)
- Any other thing which teacher considers necessary for delivering the lesson



## INTRODUCTION

5 MINUTES

- Before the introduction of the topic, the teacher should generate the interest of students by showing pictures of some natural resources and asking the following questions.
  - What are resources?
  - What are natural resources?
  - Why is water necessary for living things?
  - What is soil?
  - What are forests?
  - What are minerals?
- After getting feedback from students, announce the topic that we will discuss today is **"Earth's Resources"**.



## DEVELOPMENT

20 MINUTES

Start the lesson, with the help of charts/pictures of forests, coal, natural gas, minerals and explain the following concepts:

- Earth's resources.
- Soil.

3. Forests.
4. Coal.
5. Crude oil (natural oil).
6. Natural gas.
7. Minerals.

### Activity:

Perform activity 7.2 on page 84 in the General Science textbook and elaborate the concept of earth's resources to students.



### CONCLUSION / SUM UP

3 MINUTES

#### Summative:

1. Before concluding the lesson, ask a few questions to check the students learning.
  - ◇ Name few natural resources that we use in our daily life?
  - ◇ Can you tell at least three different uses of water?
  - ◇ What is soil?
  - ◇ What are minerals?
  - ◇ How do we get petrol, kerosene oil, diesel, and oil?
2. Sum up the lesson by discussing the key points of the lesson.



### ASSESSMENT

5 MINUTES

Check the understanding of students, by asking the following questions, during the lesson.

1. Why do living things need water?
2. Why is air important for the survival of life on earth?
3. What are forests?
4. What is coal?
5. What is crude oil?



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Assign the following homework to students:
2. Write down the name of natural resources and minerals that are used in your home in your notebooks.

# EARTH'S RESOURCES, FOSSILS



## STUDENT LEARNING OUTCOMES

- Recognize that some remains (fossils) of animals and plants that lived on the Earth, a long time ago are found in rocks, soil and under the sea.
- Differentiate between renewable and non-renewable resources.

## INFORMATION FOR TEACHERS

1. The teacher should read the chapter for developing a holistic picture of the content.
2. The teacher should understand the keywords, write these on a chart to display in the classroom and use these frequently during the lesson.

**Keywords** Fossils, preserved marks, renewable resources, non-renewable resources

**Skills** Students will practice the skills of observation and classification.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

1. Charts showing pictures of renewable resources i.e., fossils of plants and animals' natural gas, coal, petrol.
2. Charts showing pictures of solar energy, wind energy, water energy.
3. Any other thing that teacher considers necessary for delivering the lesson that is relevant to the topic.



## INTRODUCTION

5 MINUTES

1. Before the introduction of the topic, the teacher shall generate students' interest in the topic by showing pictures and asking the following questions:
  - ♦ What are preserved objects on earth?
  - ♦ Have you seen any preserved objects?
  - ♦ What are fossils?
  - ♦ How are fossils formed?
  - ♦ How can we find/ discover fossils?
  - ♦ Are all the remaining plants and animals' fossils?
2. Clarify the word fossil to the students using pictures.
3. After getting feedback from students, announce the topic that we will discuss today is **"Earth's Resources, Fossils"**.



## DEVELOPMENT

20 MINUTES

1. Start the lesson, with the help of the charts/ Textbook and explain the concepts given below:
  - ◇ Place the fossils (picture hang) in front of the students, where they can be seen clearly.
  - ◇ Define and explain fossils.
  - ◇ Explain how fossils are formed.
  - ◇ Explain where we can find fossils.
  - ◇ Recognize fossils, i.e., fossils of animals and plants.
  - ◇ Identify the fossils in rocks, soil, and water in the sea.

### Activity 1:

Perform activity 7.4 on page # 86 in the General Science textbook for Grade 4.

### Activity 2:

Perform activity 7.5 on page # 87 in the General science textbook and explain the concept of fossils to students.

## FORMATIVE ASSESSMENT

1. Check the understanding of students by asking some questions, during the lesson.
  - ◇ What are fossils?
  - ◇ How are fossils formed?
  - ◇ Do all plants and animals become fossils?



## CONCLUSION / SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about the resources of the earth.
2. Summarize the day's lesson by discussing the key points.
3. Before concluding the lesson, ask a few questions to check the students learning.
  - ◇ There are some remains of plants and animals, but these are not fossils why?
  - ◇ Is it possible to make fossils of everything?
  - ◇ Can we recognize the fossils under the rocks, soil, and sea?
4. Sum up the lesson by discussing the key points of the lesson



## ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 1 (iii), Question No. 2 (i) and Question No. 3 (i) and (ii) from exercise at the end of the chapter.
2. Students to exchange copies for checking the answers in class while writing the correct answers on the writing board.



## HOMEWORK / FOLLOW UP

2 MINUTES

Assign the following activity to students as homework: Students to carry out Activity 7.5 on page 87. Bring their results to the class.

# EARTH'S RESOURCES, FOSSILS



## DEVELOPMENT

25 MINUTES

Recall to students that in the last period we have learned about the resources of the earth and today we will learn about the types of these resources in detail.

1. Start the lesson, with the help of the charts/pictures from the textbook and explain the concepts given below.
  - ◇ Place the pictures of coal, natural gas cylinder, etc. in front of the students, where they can be seen clearly. Explain to students:
  - ◇ Nonrenewable resources
  - ◇ Renewable resources
  - ◇ Differentiate between Renewable and Non-Renewable resources

### Activity: Teacher demonstration:

- ◇ Take a candle
- ◇ Burn the candle
- ◇ Leave it for some time to burn.
- ◇ Ask the students can they reuse this candle.?
- ◇ The answer will be No. From this activity, elaborate the concept of non-renewable resources to the students.

## FORMATIVE ASSESSMENT

1. Check the understanding of students, by asking some questions during the lesson on page 88 of the General Science textbook.
  - ◇ What are non-renewable resources?
  - ◇ What are Renewable resources?
  - ◇ Can a non-renewable resource be a renewable resource? If not, why not?
  - ◇ Why are renewable resources better?



## CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask a few questions to check the students learning.
  - ◇ Why are non-renewable resources limited?
  - ◇ Why are non-renewable resources consumed quickly?
  - ◇ Why is renewable resource unlimited?
  - ◇ Why are renewable resources not consumed quickly?
2. Sum up the lesson by reviewing/ discussing the key points given at the end of the chapter in the textbook with the students.



## ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 1 (v), Question No. 2 (ii) & (v), and Question No. 4 (iii) from exercise at the end of the chapter.

2. Students will exchange copies for checking the answers in class while facilitating them and will write the correct answers on the writing board at the end.



## **HOMEWORK / FOLLOW UP**

2 MINUTES

Assign the activity to the students.

### **Activity:**

Name the items, which you use in your home and classify them as non-renewable resources and renewable resources.

# EFFECT OF HUMAN ACTIVITIES ON NATURAL RESOURCES



## STUDENT LEARNING OUTCOMES

- Investigate the impact of human activities on the earth's natural resources.

## INFORMATION FOR TEACHERS

- The teacher should read the chapter for developing a holistic picture of the content.
- Understand the keywords, write the keywords on a chart and display them in the classroom, use the keywords frequently during the lesson.

### Keywords

Human activities, Irreparable damage, Environment, Fossil fuels, Excessive fossil fuels, Deforestation, Pollution, Climate, Conservation, Recycling, Renewable resources

### Skills

Students will use the skills of observation and inference.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Charts/ pictures of forests on earth, Charts/pictures of deforestation, pollution (air, water, etc.), Charts/ pictures of water, energy saving, Charts/pictures of recycling of objects such as paper.
- Any other thing which teacher considers necessary for delivering the lesson



## INTRODUCTION

5 MINUTES

- Before the introduction of the topic, generate students' interest by showing pictures and asking the following questions:
  - What is climate?
  - Why do we cut our forests?
  - What are climatic changes?
  - How can we reduce the effect of human activities on natural resources?
  - How can we conserve natural resources?
- After getting feedback from students, announce the topic for the day as **"Earth's Resources / Effect of Human Activities on Natural Resources and Conservation of Natural Resources"**.



## DEVELOPMENT

20 MINUTES

- Start the lesson, with the help of the charts/pictures from the textbook and explain the concepts given below.
  - Hang the charts/ pictures in front of the students, where they can be seen clearly.
  - Show pollution (air, water, land).
  - Show charts representing the forests on earth.

- ◇ Tell them about the percentage of forests on earth and barren land.
- ◇ Explain human activities and irreparable damage.
- ◇ Define and explain pollution and deforestation.
- ◇ Explain fossil fuels and excessive use of fossil fuels.
- ◇ Define climate and conservation of natural resources.
- ◇ Explain the recycling of things.

### Activity:

1. Make a group of 5 students.
2. Put a chair in the class.
3. Ask the 5 students to go sit on the chair by counting down- '3,2,1 and go'
4. Each of the five students will try to sit on the chair.
5. Only one student will manage to sit on the chair and the remaining students will be left standing.
6. Repeat the same practice twice.
7. From this activity, elaborate the concept of growing population and use of natural resources to the students.

### FORMATIVE ASSESSMENT

1. Check the understanding of students by asking questions during the lesson.
  - ◇ What is irreparable damage?
  - ◇ What is deforestation?
  - ◇ What is pollution?
  - ◇ How can we keep the drinking water clean?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask a few questions to check the students' learning.
  - ◇ What are renewable resources?
  - ◇ How can natural resources be preserved??
  - ◇ How can we reduce climate change?
  - ◇ What is the recycling of items?
2. Sum up the lesson by discussing the key points of the lesson.



### ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 1 (iv) and question No. 4 (iii) from the exercise at the end of the chapter page No 91- 92.
2. Students will exchange copies for checking the answers in class, while facilitate and write the correct answers on the board:



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Assign the following activity to students:
2. Collect the pictures of the following processes:
  - ◇ Deforestation
  - ◇ Air Pollution
  - ◇ Land pollution
  - ◇ Water pollution
  - ◇ Recycling of items
3. Label and paste these pictures into your notebooks.

# CONSERVATION OF NATURAL RESOURCES



## STUDENT LEARNING OUTCOMES

- Suggest the ways to conserve the natural resources.

## INFORMATION FOR TEACHERS

1. The teacher should read the chapter in the textbook.
2. Understand the keywords, write these on a chart and display them in the classroom, use keywords frequently throughout the lesson.

**Keywords** Conservation, Oxygen, Recycle, Renewable resource, Wind energy, Solar energy

**Skills** Students will practice the skills of observation and interpretation.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

1. Some plant seeds, disposable cups/ bottles, color papers/stickers, pictures of recycling papers, glasses, etc.
2. Any other thing which teacher considers necessary for delivering the lesson



## INTRODUCTION

5 MINUTES

1. Before the introduction of the topic, the teacher shall generate the interest of students by showing them certain items and pictures of natural resources and asking the following questions.
  - ♦ Why do we need plants?
  - ♦ If we throw paper or glass pieces, what will be its effect?
  - ♦ How can we save water and electricity?
2. After getting feedback from students, announce the topic **“Conservation of Natural Resources”**.



## DEVELOPMENT

20 MINUTES

1. Start the lesson, with the help of the charts/pictures from the textbook (page 89) and explain the concepts given below.
  - ♦ Hang the pictures of recycling paper/ glass in front of the students, where it can be seen clearly.
  - ♦ Place the other materials like rubber, plastics, wood pieces, in front of the students, where they can be seen clearly
  - ♦ Define and explain the conservation of energy.

- ◇ Explain the recycling of different things.
- ◇ Use and importance of renewable resources such as
  - Wind
  - Solar energy
  - Tree plantation
  - Saving water

### Activity:

1. Divide the whole class into 3 groups.
  - ◇ Group-1: Plantation
  - ◇ Group-2: Saving / conserving water
  - ◇ Group-3: Recycling

### Assign tasks:

#### Group 1:

1. Cut the color paper and mark the badges for the students "Green group"
2. Take some soil in a disposable cup/ bottle etc.
3. Plant some seed in it.
4. Add water to it and observe it daily.
5. Mark a label showing the name of that group of students.

#### Group 2:

1. Cut the color paper and mark the badges for the students Saving water group
2. Students to stand where the water is used.
3. The student instructs the other students to "Save water"

#### Group 3:

1. Cut the color paper and make the badges for the students "Recycling group"
2. Instruct the students to collect the waste papers and empty bottles
3. Put the paper in the dust bin and ask the students how to reuse the empty bottles to learn the concept of recycling. encourage the students to write a letter to the municipality to install a recycling plant in their area.
4. All groups to present their work to the whole class.
5. After performing these activities elaborate on the concept of conservation of natural resources to the students. explain the benefits of trees in the environment. Also, encourage the students to plant trees in the school and their neighborhood.
6. Check the understanding of students, by asking questions, during the lesson.
  - ◇ How can we conserve natural resources?
  - ◇ How can we clean the air?
  - ◇ How can we save water and energy?



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, the teacher will ask few questions to check the students learning.
  - ◇ Can we reuse a thing?
  - ◇ How can we use renewable resources?
  - ◇ How can we increase the amount of oxygen?
2. Sum up the lesson by discussing the key points of lessons

**ASSESSMENT**

5 MINUTES

1. Students to attempt Question No. 1 (iv), Question No. 4 (ii), and (iii) from exercise at the end of the chapter page No 91-92.
2. Students will exchange copies for checking the answers in class, while facilitate and write the correct answers on the writing board at the end.

**HOMEWORK / FOLLOW UP**

2 MINUTES

1. Assign the following activity to students:
2. Make a drawing and show the importance of the conservation of natural resources.
3. The best drawing should be displayed in the classroom with the tagged name of the students.

# DIFFERENCE BETWEEN WEATHER AND CLIMATE



## STUDENT LEARNING OUTCOMES

- Understand the difference between weather and climate

## INFORMATION FOR TEACHERS

- The teacher should read the chapter in the textbook.
- Understand the keywords, write these on a chart and display them in class, use them frequently during the lesson.

### Keywords

Atmosphere, environment, weather, pressure, humidity in air, precipitation, climate

### Skills

Students will practice the skills of observation and inference.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Pictures/charts of Sunny day, Rain, Storm / windy day, Cloudy day.
- Any other thing which teacher considers necessary for delivering the lesson



## INTRODUCTION

5 MINUTES

- Before the introduction of the topic, generate the interest of students by asking the following questions.
  - What is a sunny day?
  - What is a rainy day?
  - Why does the wind blow on some days and not others?
  - Do you observe the daily change in the conditions such as hot, cold, cloudy, rainy?
  - What are these conditions generally called?
- After getting feedback from students, announce the topic for the day as **"Difference between weather and climate"**.



## DEVELOPMENT

20 MINUTES

- Start the lesson, with the help of charts and pictures.
- Let the students give their observations.
- Relate the pictures to hot and cold days.
- Ask the students about their observations on their eating dressing and activities in the two kinds of weather.
- Let the students give their observations about the sunny and warm days and cold and windy days.

6. How they feel on such a day, what do they like to wear and eat on such days?
7. Now introduce weather and climate to the class, by describing the weather in terms of temperature, humidity in the air, precipitation, clouds, and winds in a particular location. While climate the general and long-lasting conditions of an area like hot or cold.

### Activity I:

1. The class will perform activity 8.1 on page 95 General Science Textbook G. IV and elaborate the concept of:
  - ♦ **Weather:** Short duration conditions of an environment, e.g., Yesterday the weather was a little cold.
  - ♦ **Climate:** Average long duration conditions of weather, e.g., this year, it is expected that monsoon rains will begin earlier.
  - ♦ The difference between weather and climate to be discussed with more examples from daily life.
  - ♦ Teacher to discuss Do You know? given on page 94. which describes how climate affects the living conditions (food, clothing, etc) of the area.
  - ♦ Discuss Interesting Information on page 95 to introduce different instruments used to describe weather conditions.

### FORMATIVE ASSESSMENT

1. Check the understanding of students, by asking questions, during the lesson.
  - ♦ Why some days are sunny and others cloudy?
  - ♦ Why does it rain sometimes while other times it is dry?
  - ♦ Why some months of the year are cold while others are warm?
  - ♦ Is it possible that the climate of two cities such as D.I Khan and Abbottabad is the same? If not, why?
  - ♦ What is the difference between weather and climate?
2. After asking the above questions the topics will be cleared to the students.



### CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask few questions to check the students learning.
  - ♦ Name some instruments used to describe the weather?
  - ♦ What do we call a weather expert?
  - ♦ Differentiate between weather and climate.
2. Teachers may show some charts to highlight how the weather changes during the day, morning may be sunny, but the afternoon can become cloudy.
3. Sum up the lesson by discussing the key points given at end of the chapter with students.



### ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 1 (i), question No. 2(i), and question No.4, from exercise at the end of the chapter of textbook page 98- 99.
2. Students will exchange copies for checking the answers in class while writing the correct answer on the writing board



## **HOMEWORK / FOLLOW UP**

2 MINUTES

1. Divide the class into two groups and assign the groups with the two projects given on page 99 of the General Science Textbook Grade 4.  
Group A, Project 1; Construct a simple wind vane.  
Group B, Project 2; Make a simple rain gauge
2. Student groups will present their projects and discuss them in class.

## LESSON

## 52

# WEATHER AND CLIMATE, RELATIONSHIP BETWEEN GEOGRAPHICAL LOCATION AND CLIMATE



## STUDENT LEARNING OUTCOMES

1. Relate weather (i.e., daily variation in temperature, humidity, precipitation in the form of rain or snow, clouds and wind) changes with changing geographical location.
2. Recognize that average temperature and precipitation can change with seasons and location.

## INFORMATION FOR TEACHERS

1. The teacher should read the chapter in the textbook, understand key terms, highlight the key terms in class and use them frequently during the lesson.

### Keywords

Geographical location, temperature (recap) pressure (recap) air pressure, average temperature, precipitation (rain or snow)

### Skills

Students will practice the skills of observation and inference.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

1. Hand fan, Water in a glass, Globe, Pictures of earth showing zones (i.e., Tropical zone, Temperate zone & Polar Zone), Picture/chart of temperature, and Picture/chart of pressure
2. Any other thing, teacher considers necessary for delivering the lesson



## INTRODUCTION

5 MINUTES

1. Before the introduction of the topic, the teacher shall create an environment to develop the interest of the students by showing them a map, highlighting different zones, and make them eager to learn the new topic by asking the following questions:
  - ♦ What is temperature?
  - ♦ What is air pressure?
  - ♦ How does the weather/climate change from place to place?
  - ♦ How the weather/climate (temperature hot and cold) change from one city (Peshawar) to another (Abbottabad)?
2. After getting feedback from students, announce the topic for the day as **"Weather and Climate / Relationship between Geographical Location and Climate"**.



## DEVELOPMENT

20 MINUTES

1. Start the lesson, with the help of charts/pictures of mountains, glaciers, lakes and explain how geographical location affects the climate. Other factors that affect the climate are
  - ◇ Air pressure
  - ◇ Average temperature
  - ◇ Explain temperature, average temperature, and air pressure
2. Discuss the geographical location on the map to show the different zones based on the climate in General Science Textbook Page 96.
  - ◇ Tropical Zone
  - ◇ Temperate Zone
  - ◇ Polar Zones
  - ◇ Explanation of the Region (using globe and charts)
3. Discuss the additional factors, affecting the climate of any geographical location.
  - ◇ Humidity (Rain and snow)
  - ◇ Explain the Wind (speed, direction) and humidity (rain and snow)
  - ◇ Explain the change in precipitation from season to season and from location to location

### Activity:

1. Divide the class into 4 groups
2. Perform activity 8.2 on page 97 General Science Textbook and elaborate the relationship between geographical location and climate to the students.

## FORMATIVE ASSESSMENT

1. Check the understanding of students, by asking few questions, during the lesson.
  - ◇ How do the weather and climate change from place to place?
  - ◇ What factors affect weather and climate change?
  - ◇ What is a polar zone?
  - ◇ How does the weather change with seasons?
2. After asking the above question, clarify the topic to students.



## CONCLUSION / SUM UP

5 MINUTES

1. Before concluding the lesson, ask a few questions to check students' learning.
  - ◇ How does the climate and weather change with the region?
  - ◇ On what basis is the earth divided into zones?
  - ◇ Which zone is the coldest?
  - ◇ How many types of weather are there on the moon? Does the moon also have storms, rains, and snowfall like Earth? What is your opinion about the climate of the moon?
2. Sum up the lesson by discussing the key points given at end of the chapter with students.



## ASSESSMENT

5 MINUTES

1. Students to attempt Question No. 1(ii), (iii), (iv) and (v), Question No. 2 (ii), (iii), (iv) and (v) from exercise at the end of the chapter page No 98-99.
2. Students will exchange copies for checking the answers in class while writing the correct

answers on the board.

## Period 2

### Follow up- practical period

Teacher to conduct QNo.3, Q4, and Q5 by helping students to respond to Constructed Response Questions as mentioned on page 99 in General Science Textbook Grade IV. Encourage students to give their opinion on Q4. Students to work on Q5 project in groups, teacher to supervise.

**Month**

**7**

# SOLAR SYSTEM



## STUDENT LEARNING OUTCOMES

- Describe and demonstrate the Solar System with the sun at the center and the planets revolving around the sun.
- Identify the sun as a source of heat and light for the Solar System

## INFORMATION FOR TEACHERS

- The teacher should read the chapter in the textbook, understand keywords, write these on a chart and display them in the classroom, and use these frequently during the lesson.

**Keywords** Sun, names of the planets, solar system, earth, etc

**Skills** Students will practice the skills of observation, interpretation and prediction.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Grains, walnuts, marbles, basketball
- Any other thing which the teacher considers necessary for imparting the lesson



## INTRODUCTION

5 MINUTES

- Before the introduction of the topic, the teacher shall generate the interest of students by discussing the interesting facts given on page 101, of the GS textbook.
  - Do you know?
  - Points to Ponder.
  - Do you know?
- The teacher can continue by asking the following questions.
  - Why do we see things during the daytime?
  - Why do we not see things during the nighttime?
  - Can you tell where the sun is?
  - What is a solar system?
- After getting feedback from the students, the teacher will announce the topic of the day as "**Solar System**".



## DEVELOPMENT

20 MINUTES

- Start the lesson, with the help of a chart of the solar system. A short poem about planets

will make it easy for children to learn the names of the planets.

2. Explain the concepts given below with the help of the textbook:
  - ◇ Explain the sun, location, size, energy
  - ◇ Define and explain planets
  - ◇ Explain and define Solar System
  - ◇ Explain earth (recapitulation)

### Activity 1:

1. Demonstrate Activity 9.1 on page 101 G. Sc. textbook Grade IV and elaborate the concept of the Solar System to the students.
2. To create a joyful experience for the students, the class can sing this song on planets with the teacher.
3. The sequence of the planets will be easy for the students to remember by this poem.

The **sun** a star, a center point  
It shines its golden rays beyond  
A place, in space, so far away  
**Nine planets** revolving dusk till dawn  
**Mercury** is first inline  
**Venus** known for its bright shine  
**Earth** a world that's yours and mine  
That will bring us right to **Mars, Mars, Mars**  
**Jupiter**, so big indeed  
**Saturn** with its many coloured rings  
Uranus is greenish blue  
**Neptune** is the same size this is true  
Now you know where planets are  
And that will bring us back to sun, sun, sun

### Activity 2:

1. Students will label different Planets on cards and each student will pin the cards on their shirts and will move around the sun in the center.
2. This will clear the concept of the movement of the planets in their orbits.



### CONCLUSION / SUM UP

3 MINUTES

Sum up the lesson by discussing the following key points:

1. Sun is the center of the solar system.
2. The solar system consists of planets, which revolve around the sun.
3. The planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
4. The closest star to earth is the sun. Therefore, we can see the sun during the daytime.



### ASSESSMENT

5 MINUTES

1. Check the understanding of students, by asking questions, during the lesson.
  - ◇ What is the sun?

- ◇ What is a planet?
- ◇ Name the planets of the solar system.
- ◇ Name the planet closest to the sun.



## **HOMEWORK / FOLLOW UP**

2 MINUTES

Ask students to write the answers to the following questions in their notebooks.

1. What is the Solar System?
2. Write the name of planets in the Solar System?

## MOON



## STUDENT LEARNING OUTCOMES

- Recognize that the earth has a moon that revolves around it, and from earth, the moon looks different at different times of the month.

## INFORMATION FOR TEACHERS

- The teacher should read the chapter in the textbook.
- Understand keywords, write keywords on a chart to display in the classroom, and use the keywords frequently during the lesson. The teacher should use the following information given at the bottom of page 102, of the Grade 4 general science textbook:
  - Interesting information
  - Do you know?

## Keywords

Satellite, natural and artificial satellite, revolution around the earth, crescent, celestial bodies, lunar month, ebb and flow of the moon

## Skills

Students will practice the skills of observation, inference and classification.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Chart showing pictures of the moon, ebb and flow of the moon.
- Any other thing which the teacher considers necessary for imparting the lesson



## INTRODUCTION

5 MINUTES

- The teacher may start the class with a quick quiz given on page 103 of the textbook to revise the previous learning.  
**“What are the names of the planets?”**
- Before the introduction of the topic, the teacher shall generate the interest of the students by showing pictures of the moon and asking the following questions:
  - What is the moon?
  - What is the size of the moon?
  - Does it remain uniform throughout the month?
  - Have you observed the daily change in the moon?
  - Does it remain the same every day?
- After getting feedback from students, announce the topic for the day as **“Moon”**.



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. Start the lesson, with the help of charts and pictures and explain the concepts given below.
  - ◇ Display the pictures/charts in front of the students, where they can see clearly.
  - ◇ Show the picture of the moon, ebb, and flow of the moon on page 104 of G.Sc textbook grade 4.
  - ◇ Discuss and explain the ebb and flow of the moon
  - ◇ Explain crescent and celestial bodies
  - ◇ Explain the lunar month.
  - ◇ Show the picture of the moon representing the shapes of the moon seen from the earth.
2. Include the following information given at the end of page 103 of the textbook:
  - ◇ Interesting Information
  - ◇ Do you know?
3. Now introduce the term Satellite and describe the Natural Satellite and Artificial satellite with examples given in the textbook of G.Sc IV page 103.
  - ◇ Explain what a Satellite is?
  - ◇ Define and explain natural and artificial satellites.

### Activity 2:

1. Each student will make the shape of a moon on Page 104 G. Sc. Textbook Grade IV and elaborate the concept.
  - ◇ Each student will draw one shape (size)
  - ◇ Make the necessary corrections needed.
  - ◇ Arrange the student in the elliptical circle with their shapes in their hands
2. From this activity, give the concept of ebb and flow of moon as shown in the textbook page 104.

## ASSESSMENT

Check the understanding of the students, by asking questions,

1. How many days does the moon take to complete one revolution around the earth?
2. What is a crescent?
3. Why does the shape of the moon change?



## CONCLUSION / SUM UP

3 MINUTES

1. Before concluding the lesson, ask a few questions to check students' learning.
  - ◇ What are celestial bodies?
  - ◇ Why do we sometimes see a very thin moon and at other times a full moon?
  - ◇ What is a lunar month?
  - ◇ Define the ebb and flow of the moon.
  - ◇ What does the dark side of the moon mean?
  - ◇ Why does the moon disappear at some time of the month?
2. Sum up the lesson by discussing the key points of the lesson with the students.



## ASSESSMENT

5 MINUTES

1. Students to attempt Question No 2 (i), and question No3 (ii), from exercise at the end of the chapter page No 109 -110.
2. Students exchange copies for checking the answers in class, while writing the correct answer on the writing board.



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Assign the following activity to students as homework:
2. Draw different sizes (shapes) of the moon in the notebook and write their names.

## LESSON

## 55

# ROTATIONAL MOVEMENT OF EARTH

## ANNUAL ROTATION OF EARTH AROUND THE SUN



## STUDENT LEARNING OUTCOMES

- Investigate and describe how day and night are related to the earth's daily rotation about its axis
- Describe how seasons in Earth's Northern and Southern hemispheres are related to Earth's annual movement around the Sun

## INFORMATION FOR TEACHERS

- Read the chapter in the textbook.
- Understand the keywords, write the keywords on a chart, and display it in the classroom, use keywords frequently during the lesson.

**Keywords** Planets, solar system, revolution, seasons

**Skills** Students will practice the skills of observation, inference, prediction, and interpretation



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Pictures/charts, Top, Rope, Torch, Globe, and any other thing the teacher considers necessary for delivering the lesson.



## INTRODUCTION

5 MINUTES

To create motivation among students about the topic teacher should perform the following activity:

## Activity 1:

- Take a top and ask three or four students to spin it on the floor of the classroom.
- Ask the students; carefully observe the spinning movement of the top.
- Now ask students:
  - What is spinning movement?
  - Does any other thing also have spinning movement?
- After the last question, tell the students that the earth is also moving around its axis. This

spinning movement of the earth is called rotation. Today we will discuss: “**Rotational Movement of Earth**”.



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. Perform activity 9.2 on page 105, G. Sc. Textbook G. IV. Students observe the formation of day and night.
2. Discuss the following information given on page 105, of the textbook to make the topic more interesting for the class.
  - ◇ Interesting information
  - ◇ Do you know?

### Activity 2:

1. Based on the Annual Rotation of Earth around the sun, draw and explain the diagram given on page 106 of the textbook General Science (IV) to show the concept of equal day and night.



## CONCLUSION / SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about the rotational movement of the earth.
2. Conclude the activity that when part of the earth comes in front of the sun, it is a day in that part of the earth, while it will be night in the part of the earth that is behind the sun.



## ASSESSMENT

5 MINUTES

1. Ask the following questions from students in a class to see the comprehension of the students.
  - ◇ What is spin movement?
  - ◇ How do day and night occur?



## HOMEWORK / FOLLOW UP

2 MINUTES

1. Assign the following task to students as homework:
2. Exercise at the end of the chapter Question No 1 parts ii, iii, IV, and v. page No 109

# ROTATIONAL MOVEMENT OF EARTH

## ANNUAL ROTATION OF EARTH AROUND THE SUN

**DEVELOPMENT**

25 MINUTES

Recall to students that in the last period we have learned about the rotational movement of the earth and today we will focus on the Annual Rotation of Earth around the Sun.

1. Ask the following questions from students to connect the current topic with the previous one.
  - ◇ What is a revolution?
  - ◇ What are the two types of movement of earth?
2. After these questions tell the students that, we will discuss "Annual Rotation of Earth around the sun" today.

**Activity 1:**

1. Take a half-meter long rope and tie some object to it.
2. Revolve the rope around the top.
3. Tell the students to observe the movement of the rope.
4. Now tell the students that just like the rope movement, the earth is also moving around the sun in its fixed orbit/path.
5. When the sun rays fall vertically on the earth's surface, the earth's temperature becomes high and gets warm.
6. When the sun's rays fall on the earth's surface horizontally, the earth's temperature is low and becomes cold.

**Activity 2:**

1. Conduct activity 9.4 on page 106 of the General Science Textbook Grade – 4.
2. This activity will help the students to understand that the annual rotation of the earth and the tilt in its axis causes changes in seasons.

**CONCLUSION / SUM UP**

3 MINUTES

Conclude the topic by discussing the key points of the lesson.

1. The earth has two types of movement
2. The spin movement of the earth is called rotation.
3. Spin movement (rotation) of the earth produces day and night.
4. While when the earth revolves around the sun in its fixed path/axis it is called revolution, this revolution causes seasonal changes in the earth.



## ASSESSMENT

5 MINUTES

Ask the following questions from the students to see the comprehension oral assessment.

1. What is spin movement?
2. What is a revolution?
3. How day/night occur?
4. How seasonal changes occur on the earth?



## HOMEWORK / FOLLOW UP

2 MINUTES

Give the students the task of preparing the earth revolution diagram around the sun on page 106 of G. Sc. Textbook Grade 4.

# SOLAR AND LUNAR ECLIPSES



## STUDENT LEARNING OUTCOMES

- Illustrate and explain how solar and lunar eclipses occur.

## INFORMATION FOR TEACHERS

- Before the lesson, read the whole chapter in the textbook in advance and be clear on the concept of eclipses.
- Write the meaning/definition of the key terms on charts and display them in the classroom.

**Keywords** Satellite, planets, lunar eclipse, solar eclipse

**Skills** Observation, manipulation, drawing and prediction are the skills to be emphasized.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIOD**



## MATERIALS / RESOURCES REQUIRED

- Torch, football, tennis ball



## INTRODUCTION

5 MINUTES

Ask the following questions to prepare students for the current lesson.

- How are shadows of objects formed?
- What is the natural satellite of the earth?
- How many days does the moon take to complete? One revolution around the earth?
- Do you know what an eclipse is?



## DEVELOPMENT

20 MINUTES

After the last question announces the day's topic: "solar and lunar eclipses".

### Activity 1:

Perform activity no. 9.5 at page 07 G. Sc. textbook Grade IV. Tell students that in this activity the tennis ball acts as the moon, football as earth, and torch as the sun.

### Activity 2:

Draw the diagram of the lunar eclipse on the board to demonstrate and explain the concept of the lunar eclipse from textbook page 107.

### Activity 3:

Draw the diagram of the solar eclipse on the board to demonstrate and explain the concept of a solar eclipse (Page 107 of the textbook).



#### CONCLUSION / SUM UP

3 MINUTES

1. Discuss with students that:
  - ◊ When the earth comes between the sun and the moon, the sunlight does not reach the moon. Therefore, a shadow of the earth is formed on the moon and it looks dark and is known as a lunar eclipse.
  - ◊ When the moon comes between the earth and the sun, in this condition, the sun is hidden behind the moon and is not visible from the earth. A shadow of the moon falls on the earth and is called a solar eclipse.
2. Discuss the constructed response questions on page 110 of the textbook to sum up the lesson.
3. Now summarize the lesson by discussing the key points given at the end of the chapter with students.



#### ASSESSMENT

5 MINUTES

To recapitulate the topic teacher should ask the following questions. Oral assessment for seeing the comprehension of the students.

1. How does a lunar eclipse occur?
2. What is a solar eclipse?
3. In how many days moon completes one revolution around the earth?

#### Period 2



#### HOMEWORK / FOLLOW UP

2 MINUTES

### Project work:

Give students the task of preparing the model/chart of lunar and solar eclipses, given on page - 111 of the General Science (iv) textbook.

# BASIC CRAFT MAKING



## STUDENT LEARNING OUTCOMES

- Practice techniques of folding, cutting, tearing and pasting papers and cardboard to make objects and patterns

## INFORMATION FOR TEACHERS

- Before starting the lesson, thoroughly read the chapter and be clear about certain terms to be used in this lesson.
- Learn about the practical examples of folding, cutting tearing, and pasting given in the book should be handy.
- Students may be encouraged to bring old greeting cards like wedding cards from home for these activities.
- Demonstrate these actions and techniques in class, before starting the lesson, students must be familiar with these terms.

**Keywords** Craft making, folding, cutting, tearing and pasting

**Skills** Observation and classification skills to be emphasized during the lesson



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Writing board, chart, duster chalk, different paper with different colors, cardboard, greeting cards, plastic sheets, glue, thread, scissor cutter.



## INTRODUCTION

5 MINUTES

- Before starting the lesson, students' interest will be built by asking:
  - Do you know the uses of paper? (writing)
  - Besides writing, we use paper for other purposes. Please mention those uses.
- Now use activity 10.1 of General Science Textbook page 115 and will explain the process of folding.
  - What is folding?
- Facilitate students in getting their responses.

## Activity 2:

- Paper can be cut easily by using a paper cutter or a knife
- Introduce cutting of paper and cardboard through activity 10.2 of General Science Textbook page 115.

### Quick Quiz:

Why is it better to use a paper cutter instead of scissors?



#### DEVELOPMENT

20 MINUTES

Start the lesson by reviewing the terms basic crafts, folding, cutting tearing, and pasting.

#### PRESENTATION

1. Divide the class into pairs and with the help of different materials, the students will learn to fold and cut.
2. Call students to do the folding and cutting of different articles like; paper plastic, cardboard, greeting cards in pairs.

#### RECAPITULATION

To recall the lesson revise some of the important words like folding, cutting, and crafting.



#### CONCLUSION / SUM UP

3 MINUTES

1. Tell students that in this period, we have learned about craft making.
2. Before concluding the day's lesson ask a few questions to check the students learning
  - ◇ What is folding?
  - ◇ What is cutting?



#### ASSESSMENT

5 MINUTES

Exercise Q2 (iii) at the end of chapter 10 on page 126 of the General Science textbook to be done in class. Students will exchange copies for checking answers in class while writing the correct answers on the writing board.



#### HOMEWORK / FOLLOW UP

2 MINUTES

Ask the students to use low-cost materials like newspaper, cardboard, and plastic for cutting and folding and paste them into their notebooks.

**Month**

**8**

# BASIC CRAFT MAKING



## DEVELOPMENT

25 MINUTES

1. Recall to students that in the last period we have learned about craft making and today we will do some practical activities as follow on this topic.
2. Ask about the word tearing and take a response from the students, meanwhile, he/she will show low-cost material (newspaper) for tearing.

### Activity 1:

1. Perform activity 10.3 of the General Science, Textbook grade – 4 Page no 116 to further explain the tearing
2. After the practical demonstration of tearing, ask some questions about pasting.
  - ◇ What is pasting?
  - ◇ How do you paste something?
  - ◇ What are the basic materials required for pasting?

### Activity 2:

Now with the help of activity 10.4 of General Science textbook page 116 explain and demonstrate pasting.

## RECAPITULATION

To check the understanding of the students few questions will be asked

1. What is tearing?
2. What is pasting?
3. Take an example from daily life showing pasting.
4. Why is pasting important?



## CONCLUSION / SUM UP

3 MINUTES

Conclude the word folding, cutting, pasting tearing with the help of some questions

1. Differentiate between cutting and tearing?
2. Do you think glue is needed for pasting?



## ASSESSMENT

5 MINUTES

Ask students to make a chart with pictures to show the cutting, folding, tearing, and pasting steps of the techniques



## HOMEWORK / FOLLOW UP

2 MINUTES

Students should collect low-cost materials from homes for folding, cutting tearing, and pasting in the class.

## LESSON

## 60

# BASIC CRAFT MAKING, MAKING A PAPER BAG, MAKING ENVELOPE, MAKING A GREETING CARD, MAKING A MASK



## STUDENT LEARNING OUTCOMES

- Design paper bags, envelope, cards and face mask.

## INFORMATION FOR TEACHERS

- Before starting read the chapter thoroughly.

**Keywords** Paper bag, envelope, greeting card, and face mask.

**Skills** Observation, manipulation and measuring to be emphasized during the lesson.



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Different kinds of paper, scissors, glue, or any other item that teacher finds easy to bring. Some face masks if available.



## INTRODUCTION

5 MINUTES

- Before starting the lesson, an environment will be created so that students become eager to learn the new topic.
- They will be asked several questions on the making of a paper bag, envelope, card, and face mask:
  - How is folding important in making a bag?
  - Do you think a paper bag is environment friendly?
  - What are greeting cards?
- After discussing these questions teacher will announce the topic as making of a paper bag, envelope, greeting cards, and mask



## DEVELOPMENT

20 MINUTES

Instruct the students on how to make a paper bag, he/she may bring different types of paper bags to show to the students.

### Activity 1:

#### Making a paper bag

1. To clear the topic the teacher can use activity 10.5 with the help of students of General Science Textbook page 117. Students can use plain brown paper sheets for making paper bags.
2. Discuss the importance of paper bags as compared to polythene bags on page 117 of the textbook.

### Activity 2:

#### Making an envelope

1. Complete activity 10.6 on page 117 of the General Science textbook.
2. Students bring different types of colored paper to make the envelopes and discuss the uses of these envelopes in their daily life.



### CONCLUSION / SUM UP

3 MINUTES

1. Since this is a practical exercise, ask the students what precautions they will take while making envelopes.
2. Discuss the key points given at the end of the chapter regarding basic craft making.



### ASSESSMENT

5 MINUTES

Exercise Q2 (iii) at the end of chapter 10 on page 126 of the General Science textbook to be done in class. Students will exchange copies for checking answers in class while writing the correct answers on the writing board.



### HOMEWORK / FOLLOW UP

2 MINUTES

Students should make some sample bags and envelopes at home.

## LESSON

## 61

# BASIC CRAFT MAKING, MAKING A PAPER BAG, MAKING ENVELOPE, MAKING A GREETING CARD, MAKING A MASK



## DEVELOPMENT

25 MINUTES

**Activity 3:****Making greeting cards**

1. Similarly, for making greeting cards, the teacher asks the students one day earlier to bring some old greeting cards from home as samples.
2. Discuss different occasions when greeting cards are exchanged.
3. Students may be asked to design Eid cards, Birthday cards and thank you cards.

**Activity 4:****Making face masks**

4. Discuss face masks and how to make them through activity 10.8 given on page 119 of General Science Textbook Grade 4.
5. Discuss the interesting information given on page 119 about the use of masks in the pandemic.
6. Students to make masks of different cartoon characters that they like.

**Guided practice:**

Constitute three groups of the class and assign work as:

1. Group A to make bags
2. Group B to make cards
3. Group C to make masks

**Recapitulation:**

To check the understanding of the students a few questions will be asked:

1. How do you prepare a paper bag?
2. What is a mask?
3. What is the use of paper bags?



## CONCLUSION / SUM UP

3 MINUTES

Before concluding the day's lesson, ask some questions

1. How do you find the making of a bag?
2. What is a greeting card?
3. What kind of masks have you seen in the market?



## ASSESSMENT

5 MINUTES

A student with help of writing the answer to the following questions

1. What is a greeting card?
2. What is a mask used for?
3. Why is it important to wear a mask nowadays?
4. How can you convert plain paper into a bag?



## HOMEWORK / FOLLOW UP

2 MINUTES

A student should design and make a greeting card for her/his headteacher and favorite teacher and present them in the morning assembly.

# PREPARATION OF CLAY FOR MAKING MODELS



## STUDENT LEARNING OUTCOMES

1. Design model of sphere, cube, prism, cylinder, and come with clay or play dough
2. Design hammer, wheels, rollers and gears using clay or play dough

## INFORMATION FOR TEACHERS

1. Read the relevant chapter in the textbook.
2. Read and be clear about geometrical concepts and shapes.
3. Know the structure of the sphere, cylinder, prism, and cone and their functions.
4. Teachers should also know the shape, structure of the hammer, wheels rollers and gears and their uses.
5. Know the definition of the keywords and write these on the board for students to see.

### Keywords

1. **Cube:** A cube is a three-dimensional square with six equal sides  $L = B = H$
2. **Cylinder:** A cylinder is a three-dimensional solid that holds two parallel bases joined by a curved surface, at a fixed distance. These bases are normally circular in shape (like a circle) and the center of the two bases are joined by a line segment, which is called the axis.
3. **Prism:** A prism is a 3-dimensional shape with two identical shapes facing each other. Their identical shape is called "bases". A triangular prism is on a three-dimensional shape made up of two triangular bases and three rectangular sides.
4. **Cone:** A cone is a distinctive three-dimensional geometric figure that has a flat surface and a curved surface, pointed towards the top. The pointed end of the cone is called the apex, whereas the flat surface is called the base.
5. **Sphere:** A sphere is a solid that is round in shape defined in three-dimensional space. This content is called the radius and the common point is the center of the sphere.

### Skills

Observation, technical, and geometrical skill should be emphasized during the lesson



**DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIOD**

(Since this is a practical activity teacher should try to arrange 2 continuous periods for working with the students to prepare models.)



## MATERIALS / RESOURCES REQUIRED

- This lesson is more practical; therefore, a lot of materials will be required like scissors, scale geometry box, pencil, rubber, drawing papers, clay, paper-knife, cutter, a chart of various models, low-cost materials like plastic bottles, etc.



## INTRODUCTION

5 MINUTES

1. Before starting the lesson, display the chart having various shapes and models in front of the class.
2. Before starting the class, check previous knowledge about the concept of model designing.
3. Ask the students:
  - ◇ What is a sphere?
  - ◇ How many spheres have you seen?
  - ◇ How is a cylinder formed?
  - ◇ Have you seen a hammer, wheels, roller, and gear?
  - ◇ What are the functions of a wheel?
4. Discuss the shapes given on page 119 of the General Science textbook.
5. The students will write the definitions and draw the shapes in their notebooks.



## DEVELOPMENT

40 MINUTES

Put the things to be used on the table in front of students and will tell them that these low-cost materials can be used to make models.

### Activity 1:

20 Minutes

1. Since the students have to learn to make models, they have to first learn to make the material for the models which is clay.
2. Using activity 10.9 on page 119 of the General Science Textbook.
3. Demonstrate how clay can be prepared for model making.
4. Now ask students to make models of their own choice from the clay. Monitor and facilitate them.

### Activity 2:

20 Minutes

1. Demonstrate how a cylinder can be made from a cold drink bottle.
2. Take a bottle and will cut the bottom portion to get the sphere by using a cutter. In the same way, she/he will cut the upper portion of the bottle to get the cylinder from the bottle.
3. Similarly, demonstrate how a cube can be made from an empty box.
4. Using drawing paper, a model of a cone and prism can be formed which prepare with the students.
5. Now ask the students to design the models of a hammer, wheel, gears and roller on the drawing sheet as shown in the book on page 120 and present them to the class.



## CONCLUSION / SUM UP

10 MINUTES

Ask the students about their technical skills and ask questions like:

1. Why do you use a paper-knife instead of an iron knife?
2. Can you make a cylinder from any other bottle?
3. Can you make a sphere from the bottom of the drink bottle?

**ASSESSMENT**

10 MINUTES

Divide students into 4 groups and asked to design the given models on drawing sheets.

**HOMEWORK / FOLLOW UP**

5 MINUTES

Students will be asked to conduct activity 10.10 on page 119 of the textbook, taking help from their brother or sister at home. Encourage students to practice making models with friends at home.

# USE OF MOBILE PHONE



## STUDENT LEARNING OUTCOMES

- Operate tablets / mobile phones for use of a calculator, alarm clock and calendar.

## INFORMATION FOR TEACHERS

- Before the lesson, read the chapter regarding the topic in the textbook.
- Understand the key terms used.
- Write the definition and meaning of the key terms on the chart and display it in the classroom with pictures.

**Keywords** Smartphone, applications, alarm clock, calendar, camera, android.

**Skills** Measuring, Observing, inferring



## DURATION / NO OF PERIODS: 70 MINUTES / 2 PERIODS

(This is a practical activity teacher should try to arrange 2 continuous periods for working with the students to prepare models.)



## MATERIALS / RESOURCES REQUIRED

- Android mobile, picture/chart, writing board



## INTRODUCTION

5 MINUTES

- While teaching the topic, show the android mobile to the students and ask the following questions.
  - Have you seen an android mobile?
  - What are the functions of the android mobile?
  - Besides calling and texting, what else can the android mobile be used for?
- After this, announce that our topic for the day is “use of mobile phone”.



## DEVELOPMENT

25 MINUTES

### Activity 1:

- Divide the class into an appropriate number of groups.
- Bring the first group to the table.
- Ask students if they have used an android mobile.
- Ask the students if they can use a calculator, alarm clock and calendar, on the mobile phone.

5. Demonstrate to students the various functions (addition, subtraction, multiplication, division) of the calculator in the android mobile.
6. Ask 2-3 students to use the calculator on the mobile phone. Guide them if needed.
7. Now demonstrate to students how to fix the alarm for SALAAT (prayer) time.
8. Practice randomly with another 2-3 students.
9. Tell the students that we can also find out the date, month, and years in the calendar of the android mobile.
10. We can also use the calendar to find out day/week etc. on previous dates and in the future.
11. The same demonstration will be performed with the remaining groups of the class.



### CONCLUSION / SUM UP

3 MINUTES

Now summarize the activity that we can perform functions like mathematical operations (addition, subtraction, division, and multiplication), setting an alarm clock, and use of a calendar with the help of android mobile.



### ASSESSMENT

5 MINUTES

Invite students randomly and give them the task of performing arithmetic calculations, setting the alarm clock, and use of the calendar on the mobile phone. Check their level of understanding through exercises.



### HOMEWORK / FOLLOW UP

2 MINUTES

Give students the following arithmetic operations and asked them to perform these operations using their parents' mobile.

$$\begin{array}{r}
 3 \quad 4 \quad 3 \\
 + \quad 1 \quad 5 \quad 3 \\
 \hline
 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 6 \quad 9 \\
 \times \quad 3 \\
 \hline
 \\
 \hline
 \end{array}$$

$$\sqrt[5]{65}$$

In the end, announce that we will continue this topic in the coming period.

# USE OF MOBILE PHONE



## STUDENT LEARNING OUTCOMES

- Operate mobile phones for taking snapshots



## DEVELOPMENT

25 MINUTES

- Recall to students that we have learned about the use of mobile phones in the last period. Today we will learn to operate it.
- Tell the students that we have discussed mathematical operations, setting an alarm clock, and using the calendar on the mobile
- Also, ask students randomly that how they can identify what the day was on 25/12/1876 (Birth anniversary of Quaid-e-Azam Muhammad Ali Jinnah)
- After recapping the previous topic tell the students that today we will discuss technical activities, (taking snapshots using an android mobile)

### Activity 2:

- Tell the students that:
  - We can also perform functions like taking pictures, audio, and video recording.
  - We can also share these videos, pictures audio with our friends/relatives.
- Now practice the above task with students randomly for understanding.



## CONCLUSION / SUM UP

3 MINUTES

- Tell the students that besides calculations, setting an alarm clock, and use of the calendar, we can also use android mobile for taking pictures, audio/ video recording, and sharing the snapshots with friends/relative
- Sum up the lesson by discussing the key points given at end of a chapter with students.



## ASSESSMENT

5 MINUTES

Activity 10.12 on page 120 of General Science textbook grade – 4 to be done in the class under the supervision of the teacher.



## HOMEWORK / FOLLOW UP

2 MINUTES

Tell the students to perform the task of taking pictures, audio/video recording by their parents' mobile, and repeat the practice to reinforce the concept

# ITEMS OF A FIRST AID BOX



## STUDENT LEARNING OUTCOMES

1. Recognize the items of first aid box

## INFORMATION FOR TEACHERS

1. The teacher should read the chapter for developing a holistic picture of the content. Prepare a simple first aid box to demonstrate in class.
2. Understand the keywords. Write the keywords on a chart and display them in the classroom at a visible place.

### Keywords

First aid box, items in first aid box, Handbook of first aid box, Medicines, creams  
Instant cold pack, Thermometers, Medical tape

### Skills

Students will practice the skill of observation, prediction and inference.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Bandages, Gauze, Medical tape, Methylated spirit, Instant cold pack, Thermometers (thermal gun). Any other thing which teacher considers necessary for delivering the lesson.



## INTRODUCTION

5 MINUTES

1. Before the introduction of the topic, create an environment to develop the interest of the students and make them eager to learn the new topic by asking the following questions.
2. What is the first you need when someone got injured?
3. Show them the first aid box and ask do they know about this box?
4. What is the purpose of this box?
5. What items are present in this box?
6. When do we use these items?
7. After getting the feedback from the students, announce the topic that today we will discuss **"Elementary first aid/ first aid box"**.



## DEVELOPMENT

20 MINUTES

### Activity 1:

20 Minutes

1. Start the lesson, with the help of the First Aid Box and explain the concepts given below.
  - ◇ Place the box in front of the students, where it can be seen clearly.

- ◇ Show the different items of the first aid box to them.
- ◇ Tell them about the handbook of the first aid box.
- ◇ Explain the tweezers and scissors.
- ◇ Show the instant cold pack to reduce the pain.
- ◇ Tell them about methylated spirit and cotton.
- ◇ Perform activities:
  - ◇ Bandage the arm of the student.
  - ◇ Use methylated spirit and gauze to bandage the arm.

2. By performing these activities and elaborate the concept of first aid to the students.



## CONCLUSION / SUM UP

3 MINUTES

1. To conclude the lesson, ask the following questions:
  - ◇ Can you identify the scissor?
  - ◇ Show me the bandage?
  - ◇ What is gauze and what is its use?
  - ◇ What do we do with the thermometer?
  - ◇ What is an instant cold pack?
2. Sum up the lesson by discussing the key points given at end of the chapter with students.



## ASSESSMENT

5 MINUTES

1. Check the understanding of students, by asking the following questions, during the lesson:
  - ◇ Show the items in the first aid box and ask the name of these items one by one.
  - ◇ Ask about the usage of any two/three items.
2. After asking the above questions the topic will be cleared to the students.



## HOMEWORK / FOLLOW UP

2 MINUTES

Assign the activity 10.13 page 122 General Science Textbook Grade IV to students as homework.

# MEASURING BODY TEMPERATURE USING FIRST AID BOX



## STUDENT LEARNING OUTCOMES

1. Use digital and clinical thermometer externally to measure body temperature.

## INFORMATION FOR TEACHERS

1. Body temperature indicates whether a person has a fever or not.
2. Clinical thermometers and thermal strips are used to measure body temperature.

**Keywords** temperature, thermometer, clinical

**Skills** Practical investigation, observation and measuring



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Thermal strips and clinical thermometer.



## INTRODUCTION

5 MINUTES

Ask the students:

1. What do you feel when suffering from fever?
2. Which instrument do we use to measure the body temperature?
3. Take their responses and announce the topic "Measuring body temperature using thermometer and thermal strips".



## DEVELOPMENT

20 MINUTES

### Activity 1:

1. Demonstrate the activities 10.14 and 10.15 given in Grade IV General Science Textbook on page 123.
2. Now:
  - ◇ Divide students into four groups.
  - ◇ Provide thermal strip to groups 1 and 3 and clinical thermometer to groups 2 and 4.
  - ◇ Instruct two students from each group to measure the body temperature of each other by using the given instrument.
  - ◇ Record the body temperature
  - ◇ Pass the instrument to the next one and continue the activity till everyone measures and record their body temperature.



### **CONCLUSION / SUM UP**

3 MINUTES

1. Conclude the activity by sharing that for accurate measurement of body temperature we use a clinical thermometer.



### **ASSESSMENT**

5 MINUTES

1. What is the body temperature of a healthy child?
2. How did you check the temperature of your fellow?



### **HOMEWORK / FOLLOW UP**

2 MINUTES

Measure the body temperature of your family member and record it in your notebook.

## CHECKING BLOOD PRESSURE



## STUDENT LEARNING OUTCOMES

1. Check blood pressure by digital blood pressure monitor.

## INFORMATION FOR TEACHERS

2. Blood pressure: The pressure of the blood in the circulatory system is often measured for diagnosis. It is closely related to the force and rate of heartbeat and the diameter and elasticity of the arterial walls.
3. Blood pressure is expressed as a measurement with two numbers, one number on top (systolic) and one on the bottom (diastolic), like a fraction for example 120/80 mm Hg. The top number refers to the amount of pressure in arteries during the contraction of heart muscles.

**Keywords** Blood pressure, systolic, diastolic circulatory system.

**Skills** Observation, practical reasoning, communicating.



**DURATION / NO OF PERIODS: 35 MINUTES / 1 PERIODS**



## MATERIALS / RESOURCES REQUIRED

- Digital Blood pressure monitor.



## INTRODUCTION

5 MINUTES

1. Do you know the term blood pressure?
  - ◊ If students are unable to respond, explain that the **pressure of blood in our vessels is called blood pressure.**
  - ◊ Then announce the topic today we will learn how to check blood pressure.
2. Two types of instruments are used for measuring blood pressure.
3. Digital Blood Pressure Monitor
4. Manual Blood Pressure apparatus



## DEVELOPMENT

20 MINUTES

## Activity 1:

20 Minutes

1. Explain how to use a digital Blood Pressure Monitor.
2. Describe the concept given in Grade IV General Science Textbook on page 125.
3. Demonstrate the activity on how to use digital blood pressure monitor given in Textbook on page 124.

4. Ask students to observe the reading on the screen of the blood pressure monitor.
5. Explain the normal blood pressure in adults is 120/80 mm Hg.



### CONCLUSION / SUM UP

3 MINUTES

1. Tell students that we can also check the blood pressure using the analog monitor, as you have seen in hospitals but that requires expertise.
2. Ask, why should the blood pressure remain within a limit? And deduce the answer “for human health”.



### ASSESSMENT

5 MINUTES

1. Select the correct option of Q1 (i and vi) given to the textbook on page 126.
2. Check the responses of the class and rectify if needed.



### HOMEWORK / FOLLOW UP

2 MINUTES

1. Write 3 readings to show high, normal and low blood pressure.
2. If you have blood pressure apparatus at home check the blood pressure of your parents.



# قومی ترانہ

پاک سرزمین شاد باد      کشور حسین شاد باد  
تو نشان عزم عالی شان      ارض پاکستان!  
مرکز یقین شاد باد

پاک سرزمین کا نظام      قوت اخوت عوام  
قوم، ملک، سلطنت      پائندہ تابندہ باد  
شاد باد منزل مراد

پرچم ستارہ و ہلال      رہبر ترقی و کمال  
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