



Government of Karnataka
Department of School Education



Learning Outcomes Based Question Bank

CURIOSITY

6th Standard

Subject: Science, English Medium



6

Curiosity

2026-27
(Revised)



Department of State Educational
Research and Training

Banashankari 3rd Stage, Bengaluru-560085

Cooperation:

District Institute of Education and Training (DIET),
Chikkaballapura

**Government of Karnataka
Department of School Education**

Learning Outcomes Based Assessment Material

**6th Standard
Subject: Science (English Medium)**

Curiosity

2026-27 (Revised)

**Department of State Educational Research and Training
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Cooperation: District Institute of Education and Training
(DIET), Chikkaballapura

6TH STANDARD SCIENCE Learning outcomes BASED Question bank 2026 – 27

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Director's Note

Science is not merely a collection of facts and information; it is a continuous journey of curiosity, observation, and exploration. Aligned with the NCERT curriculum, the primary school science textbook “Curiosity” has been prepared with the objective of inspiring and encouraging inquiry, creativity, and joyful learning in the minds of children.

To ensure that learning is not confined solely to textbooks but transforms into a meaningful understanding of daily life, the Department of School Educational Research and Training (DSERT) has brought out this Learning Outcomes-Based Question Bank. For the very first time, each chapter and its core concepts have been directly and systematically mapped to specific Learning Outcomes (LOs). This initiative will be immensely helpful in meaningfully assessing children's learning progress, identifying learning gaps, and effectively preparing students for state and national-level competitive examinations such as NMMS, as well as surveys like NAS, CSAS, and PARAKH.

The true success of this curriculum lies in the hands of our dedicated teachers. Teachers should deeply understand these mapped learning outcomes and create an active, activity-based classroom environment. By utilizing this initiative continuously (CCE) at every stage—from classroom processes to assessment—all teachers can play a pivotal role as mentors in fostering scientific temper, logical thinking, and sustained curiosity in every child.

I hope this Learning Outcomes-Based Question Bank serves as an inspiring guide for teachers and becomes a stepping stone towards the academic excellence of our students.

Director

**Department of School Educational Research and Training (DSERT)
Bengaluru, Karnataka**

Guidelines for Teachers

The Grade 6 'Curiosity' science textbook is not merely a medium for imparting information; rather, it is a tool to stimulate a questioning attitude, scientific thinking, and experiential learning in a child. Recognizing the importance given to Learning Outcomes in the current education system, teachers should observe the following points to make classroom instruction more meaningful:

Nurturing Curiosity and Creativity

- Instead of starting every lesson with a direct explanation, it should begin through children's daily life experiences, questions, or small experiments.
- Rather than immediately answering curious questions like 'Why?', 'How?', and 'When?' that arise in children, an opportunity and a creative environment should be built for them to find the answers themselves.
- To prevent the feeling that science is a tough subject, it can be ensured that the learning process flows very easily and accurately through play and activities.

Mapping and Utilization of Learning Outcomes

- For the very first time, the department has mapped each chapter of the textbook, its key learning competencies, and specific Learning Outcomes (LOs) with one another.
- Before teaching, teachers should clearly understand the specific learning outcome that a child needs to achieve from each chapter.
- Classroom processes should not be limited merely to completing the syllabus, but should be supportive in ensuring whether the child has achieved that learning outcome.

Effective Use of Learning Materials and Question Bank

- Continuously utilizing (CCE) the Learning Outcomes-Based Question Bank brought out by DSERT.
- Providing hands-on experiences to children using locally available, no-cost, or low-cost materials.
- Enhancing children's thinking skills by using the diverse types of questions available in the question bank.

Preparation for Competitive Examinations and Assessment (PARAKH, NAS, CSAS, NMMS)

- Understanding that surveys such as PARAKH, NAS (National Achievement Survey), CSAS (State Achievement Survey), and national and state-level examinations like NMMS are designed based on learning outcomes.
- Analyzing children's learning progress continuously based on learning outcomes rather than measuring it solely on the basis of marks.
- Identifying learning gaps found through the analysis and planning remedial teaching measures accordingly.

Teacher's Role as a Mentor

- Teachers should act not just as providers of information, but as motivators and mentors for a child's self-learning.
- Creating equal opportunities and support for every child in the classroom to share their thoughts and conduct experiments.

The core objective of the 'Curiosity' book is to foster scientific temper in every child. This is possible only through appropriate guidance from teachers and effective implementation of learning outcomes.

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SL.NO	LESSON	PAGE NO	
		QNS.	ANS.
1	THE WONDERFUL WORLD OF SCIENCE	13-15	54-58
2	DIVERSITY IN THE LIVING BEING	16-18	59-61
3	MINDFULL EATING ; A PATH TO A HEALTHY BODY	19-24	62-66
4	EXPLORING MAGNETS	25-27	67-69
5	MEASUREMENT OF LENGTH AND MOTION	28-31	70-72
6	MATERIALS AROUND US	32-34	73-75
7	HEAT AND ITS MEASUREMENT	34-37	75-77
8	A JOURNEY THROUGH STATES OF WATER	38-39	78-79
9	METHODS OF SEPARATION IN EVERYDAY LIFE	40-42	80-82
10	LIVING CREATURES: EXPLORING THEIR CHARACTERISTICS	43-46	83-87
11	NATURE’S TREASURES	46-48	87-89
12	BEYOND EARTH	49-53	90-94
	Model Answers	54-94	

Blueprint , A Framework for Lesson-wise Priority - Science - 6th Grade

When creating a question paper for 100 marks, it is possible to assign a percentage weightage to each lesson. This estimated framework provides the percentage priority, which can be used by teachers for unit tests, projects, formative, and summative assessments.

1. Weightage to Objectives

Sl.No	Objectives	Percentage
1	Knowledge	25
2	Understanding	30
3	Application	25
4	Skill	20
Total		100

2. Weightage to Types of Questions

Sl.No	Types of questions	Marks for each question	No. of questions	Total marks
1	Objective type questions	1	10	10
2	V.S.A	2	10	20
3	Short Answers	3	10	30
4	Long Answer question	4 Or 5	8	40
TOTAL			28	100

3. Weightage to Difficulty Level

Sl.No	Difficulty Level	Percentage	Marks
1	Easy	30 %	30
2	Average	50%	50
3	Difficult	20 %	20
Total		100 %	100

4. Weightage to Content

Sl.No	Lesson	Percentage of marks
1	The Wonderful World of Science	8
2	Diversity In The Living Being	8
3	Mindfull Eating ; A Path to a Healthy Body	10
4	Exploring Magnets	8
5	Measurement Of Length And Motion	8
6	Materials Around Us	8
7	Heat And Its Measurement	8
8	A Journey through States of Water	8
9	Methods of Separation in Everyday Life	8
10	Living Creatures: Exploring their Characteristics	8
11	Nature's Treasures	8
12	Beyond Earth	10
Model Answers		100

Note: All lessons are distributed evenly, allowing teachers to conduct precise assessments based on each learning objective. To evaluate students' varying levels of thinking and comprehension, external, application-based, and analytical questions can be aligned with the design suitable for the CCE (Continuous and Comprehensive Evaluation) process.

List of learning outcomes Mapped

SUBJECT: SCIENCE

CLASS : 6

Curriculum goals	Competencies	Learning Outcomes	Corresponding Lesson Name
1. Explores the world of matter and its constituents, properties, and behaviour.	C-1.1 Classifies matter based on observable physical characteristics (solid, liquid, gas, shape, volume, density, transparent, opaque, translucent, magnetic, non-magnetic, conducting, non-conducting) and chemical characteristics (pure, impure; acid, base; metal, non-metal; element, compound).	Students will, 1. Understand different materials around us, identify their properties, classify them based on those properties and Identify similarities and differences among objects and apply the importance of separation and classification in daily life.	6. Materials Around Us
	C-1.2 Describes physical and chemical changes in matter and uses the particulate nature of matter to explain its properties and transformations.		9. Methods of Separation in Daily Life
	C-1.3 Explains the importance of measurement and measures physical properties of matter (volume, weight, temperature, density) using indigenous, non-standard, and standard units with simple instruments.	2. Identify hot and cold objects and recognize the units and instruments used to measure temperature.	7. Heat and Its Measurement
	C-1.4 Observes and explains the phenomena that are caused due to the differences in pressure, temperature and density such as breathing, sinking and floating, water pumps, cooling processes and wind formation.	3. Identify the different states of water and understand the processes of evaporation and condensation through observation, questioning, and experimentation, and explain the water cycle.	8. A Journey Through the States of Water
2. Explores the physical world in scientific and mathematical terms.	C-2.1 Describes one-dimensional motion (uniform, non-uniform, horizontal, vertical) using measurements of position, speed, and changes in speed through mathematical and diagrammatic representations.	4. Understand the concept of measurement and units, measure the length using appropriate methods, describe position, and observe moving objects to identify different types of motion.	5. Measurement of Length and Motion
	C-2.2 Explains how electricity works by manipulating components in simple circuits and demonstrates the heating and magnetic effects of electricity.		
	C-2.3 Describes the properties of natural and artificial magnets and explains how the Earth is considered as a magnet.	5. Understand the magnetic and non-magnetic materials and explains the properties of magnets. magnetic poles, attraction and repulsion, and methods of finding directions.	4. Exploring Magnets
	C-2.4 Demonstrates rectilinear propagation of light from natural and artificial sources and reflecting surfaces; verifies the laws of		

	reflection using mirrors, pinhole cameras, kaleidoscopes and periscopes.		
	C-2.5 Observes and identifies celestial objects such as stars, planets, satellites, constellations and comets and explains their role in navigation, calendars, moon phases, eclipses and life on Earth.	6. Understand celestial bodies such as the Sun, Moon, planets, and stars. The position of the Earth in the Solar System. Develop curiosity about space and understand the importance of space exploration.	12. Beyond the Earth
3. Explores the living world in scientific terms.	C-3.1 Describes the diversity of living organisms in natural surroundings, including insects, earthworms, snails, birds, mammals, reptiles, spiders, plants, fungi and microscopic organisms.	7. Understand the diversity among plants and animals and the importance of biodiversity and learn the measures required for its conservation.	2. Diversity in the Living World
	C-3.2 Distinguishes living organisms from non-living things based on characteristics such as nutrition, growth, respiration, response to stimuli, reproduction, excretion, and cellular organization.	8. Explain the basic characteristics of living organisms such as growth, movement, respiration, and reproduction in living organisms. Compare and classify living and non-living things.	10. Living Organisms: Exploring Their Characteristics
	C-3.3 Analyses the relationships between living organisms with their environment and highlights the interdependence and responses to environmental factors.	9. Understand that science helps us understand the world around us, nature, and the universe. 10. Develop curiosity about objects and nature and cultivate the habit of asking questions. 11. Develop problem-solving skills using scientific methods.	1. The Wonderful World of Science
	C-3.4 Explains the conditions necessary to sustain life on the Earth and correlate with other planets, including atmosphere, suitable temperature and pressure, light and water properties.		
4. Understands the components of health, hygiene, and well-being.	C-4.1 Analyses food components with reference to Indian culinary practices and modern nutrition and explains the effects of nutrition on health.	12. Identify and test the different components of food, Understand the importance of a balanced diet and the nutritional value of millets,	3. A Wholesome Meal: The Path to a Healthy Body
	C-4.2 Examines the diversity of food sources, nutrients, climatic conditions and dietary practices.		
	C-4.3 Describes biological changes during adolescence, including growth and hormonal changes and measures that would be followed for overall well-being.		
	C-4.4 Recognizes and discusses substance abuse and views the school as a safe environment for raising such concerns.		
5. Understands	C-5.1 Illustrates how Science and Technology improve human life in areas such as healthcare, communication, transportation, food security, climate	13. Understand various resources available in nature and their importance and uses of natural resources, the need for	11. Nature's Wealth

nds the interface of Science, Technology, and Society.	change mitigation, resource conservation and satellite applications and also recognizes harmful uses of science in history.	conserving natural resources and learn the measures for their conservation.	
	C-5.2 Shares and discusses views on news and articles related to the mutual impact of Science, Technology, and society.		
6. Explores the nature and processes of Science through engaging with the evolution of scientific knowledge and conducting scientific inquiry.	C-6.1 Illustrates how scientific knowledge and ideas have evolved over time and identifies scientific values such as scientific temper, collaboration, and conservation of biodiversity and ecosystems.		All Lessons
	C-6.2 Formulates scientific questions, identifies possible causes and patterns and collects evidence through observation, simple experiments and scientific instruments.		
7. Communicates questions,	C-7.1 Uses scientific vocabulary accurately in oral, written and visual forms of communication.		
	C-7.2 Designs and builds simple models to demonstrate scientific concepts.		
	C-7.3 Represents real-world events and relationships using diagrams and simple mathematical representations.		

observati ons, and conclusi ons related to Science.			
8. Understa nds and apprecia tes the contribut ion of India through history and the present times to the overall field of Science, including the disciplin es that constitut e it.	C-8.1 Explains the significant contributions of India to scientific concepts, explanations, methods, and discoveries integrated within the curriculum.		
9. Develops	C-9.1 States concepts that reflect the current scientific understanding of the topics being studied, appropriate to the developmental stage of learners.		

awareness of the most current discoveries, ideas, and frontiers in all areas of scientific knowledge in order to appreciate that Science is ever evolving and that there are still many unanswered questions.	C-9.2 Identifies and states questions within the curriculum for which current scientific understanding remains incomplete or inadequate.		
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CHAPTER – 1

THE WONDERFUL WORLD OF SCIENCE

Learning outcomes: Understand that science helps us understand the world around us, nature, and the universe.

10. Develop curiosity about objects and nature and cultivate the habit of asking questions.

11. Develop problem-solving skills using scientific methods.

I. Fill in the blanks with suitable words.

1. Exploring and questioning start from _____ stage. (Easy)
2. The most wonderful thing about science is that it is _____. (Average)
3. Science is like a giant and unending jigsaw _____. (Easy)
4. New discoveries often _____ our understanding of the world. (Average)
5. In winter _____ water bath is comfort. (Easy)
6. The process of finding answers through experiments is called _____. (Easy)
7. _____ is the act of watching things closely. (Difficult)
8. A _____ is a testable explanation. (Average)
9. The _____ is a place where we do experiments. (Easy)
10. Science help us to solve _____. (Easy)
11. Scientists use the _____ method to understand nature. (Easy)
12. In Science ideas are tested by doing _____. (Easy)
13. Many scientists work in _____ to solve big problems. (Easy)
14. Anyone follows the scientific method is working like a _____. (Average)

II. Find the odd one out from the following.

15. Food, Air, Mobile, Water (Easy)
16. Water, Ice, Water Vapour, Smoke (Average)
17. Scale, Petrol, Metal Key, Rubber (Average)
18. Sun, Moon, Star, Earth (Difficult)
19. Bottle, River, Tree, Sheep (Difficult)
20. Observation, Hypothesis, Belief, Experiment (Average)

III. Match the column A with the column B.

- | | | |
|-------------------|---|-------------|
| 21 A | B | (Easy) |
| A. Seed | 1. Cow | |
| B. Calf | 2. Butterfly | |
| C. Caterpillar | 3. Chick | |
| D. Egg | 4. Plant | |
| 22. A | B | (Difficult) |
| A. Evaporation | 1. Water droplets from clouds | |
| B. Condensation | 2. Water gathers in river, lake and sea | |
| C. Precipitation | 3. Water vapour rises up | |
| D. Collection | 4. Rain and snow falls | |
| 23. A | B | (Average) |
| A. Observation | 1. Testing the idea | |
| B. Hypothesis | 2. Final decision based on evidence | |
| C. Experiment | 3. Making a guess assumption | |

D. Conclusion

4. Watching carefully

IV. Choose the correct option from the following.

24. Curiosity makes us ask

A) Answer B) Story C) Question D) Opinion (Easy)

25. What does Science help us to understand

A) Art B) Nature C) Music D) Dance (Easy)

26. Water is found in

A) River B) Lake C) Pond D) All of these. (Easy)

27. Which subject is helpful to understand and explore about the world

A) Social Science B) Science C) Kannada D) Mathematics (Easy)

28. Science is based on

A) Opinions B) Superstitions C) Experiments D) stories (Difficult)

29. The only planet that supports life

A) Mars B) Jupiter C) Mercury D) Earth (Easy)

30. Earth gets light and heat from

A) Sun B) Moon C) Satellite D) Star (Difficult)

31. Things needed for a seed to grow into plant

A) Soil B) Air C) Nutrients D) All of the these (Average)

32. Water turns into ice on

A) Heating B) Boiling C) Cooling D) None of these (Easy)

33. Which one of the following is not a natural phenomenon

A) Rainbow B) Lightning C) Pollution D) Rain (Average)

34. Which of the following is not a step in scientific method

A) Hypothesis B) Conclusion C) Dream D) Question (Average)

35. What does the scientific method involve

A) Guess Work B) Superstition C) Systematic investigation D) Random Trials (Difficult)

V. Mark T if the statement is True and F if it is False.

36. Restart asking questions after we join school. (Easy)

37. Asking questions is encouraged in science. (Average)

38. There is a limit to innovations in science. (Average)

39. The variety of nature evokes curiosity in us. (Easy)

40. The stars shine. (Easy)

41. Air is not necessary for breathing. (Easy)

42. Water turns into steam when cooled. (Average)

43. Scientific enquiry starts by asking what, why and how? (Average)

44. Hypothesis is a conclusion. (Average)

45. A scientist always believes in evidence and logic. (Difficult)

46. Science is based on superstitions. (Easy)

47. Science is only useful for scientists. (Easy)

48. Repeating experiments ensures the accuracy of results. (Difficult)

VI. Answer one-mark questions.

49. What is the first step that inspires to study science? (Easy)

50. What is the core activity involved in the scientific process. (Easy)

51. What is science mainly about? (Average)
52. Mention any one thing science help us understand. (Average)
53. Why is curiosity important in science? (Difficult)
54. Define curiosity? (Easy)
55. Why is science compared to a Puzzle? (Difficult)
56. Name a field of science that studies celestial bodies. (Average)
57. What are the fundamental needs of all living organisms? (Easy)
58. What is the first step in the scientific method? (Easy)
59. What is meant by hypothesis? (Difficult)
60. What is the role of experiments in science? (Difficult)
61. What is meant by inference? (Average)
62. Give one example where scientific method is used in daily life. (Easy)
63. Why do we learn science? (Easy)
64. What do scientists use to test a hypothesis? (Easy)
65. Why scientists repeat experiments? (Difficult)
66. What is the role of questions in the study of science? (Average)

VII. Answer 2 marks questions

67. What is science? (Easy)
68. How does curiosity help in learning science?
69. Science is everywhere. What is it means? (Difficult)
70. What will be explore with the help of this book? (Average)
71. Why is science called an adventure? (Difficult)
72. What is meant by scientific method? (Easy)
73. How can we try to find answers to our questions on our own? (Average)
74. Explain the role of observation in science. (Difficult)
75. State the difference between observation and inference. (Easy)
76. Write two examples where you use the scientific method in daily life. (Easy)
77. How does learning science help us became better problem solver? (Average)
78. How do scientists solve problems using the scientific method? (Average)
79. How is teamwork useful in scientific research. (Easy)
80. Draw any two simple tools used by scientists and label them. (Easy)

VIII. Answer 3 marks questions

81. How is science connected to our daily life? Give examples. (Easy)
82. Why is the Earth considered a special planet? (Average)
83. Draw a flowchart showing the steps involved in the scientific method. (Easy)
84. Explain the importance of the scientific method in daily life with an example. (Difficult)
85. What makes the study of science enjoyable? (Easy)
86. Why should one cultivate the quality of asking 'Why' in order to become wise? Explain. (Easy)

IX. Answer the following questions. 4-marks

87. Explain the importance of curiosity and Exploration in Science with examples. (Difficult)
88. In what ways does science help us understand the environment and our role within it? (Average)
89. Sketch a diagram showing the stages of the water cycle. (Difficult)
90. Write a short note on how science builds knowledge and encourages collaboration. (Easy)

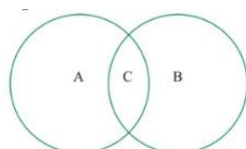
91. How does the nature's variety build scientific thinking in children? (Easy)
92. Suppose your television suddenly stops working. Apply the scientific method to find out the cause and solution. (Average)

CHAPTER – 2

DIVERSITY IN THE LIVING BEING

Learning outcome: Understand the diversity among plants and animals and the importance of biodiversity and learn the measures required for its conservation.

I. Choose and write the most appropriate answer from the four options provided for each question.

- The number of legs in Ant
A) 2 B) 4 C) 6 D) 8 (Easy)
 - Choose a word that does not belong to the group
A) Plants B) Insects C) Birds D) Mountains (Easy)
 - The unpleasant characteristic that helps to group the plants
A) Tallness /shortness of the stem B) Usefulness of plants
C) Shape of the stem D) Venation of the leaf (Average)
 - In the given figure if region A -represents aquatic animals, region – B represents terrestrial animals then the kind of animals will represent region – c is
A) Terrestrial Animals B) Aquatic animals
C) Sky dwellers D) Amphibians (Average)
- 
- The type of plant which are having a typically small, with soft and green stem.
A) Herb B) Tree C) Climbers D) Creepers (Average)
 - The plants having weak stem and take support on neighbouring structures to climb are called.
A) Creepers B) Climbers (c) Both (A) & (B) D) None of these (Easy)
 - The in-correct match among these
A) Gram – Parallel venation B) wheat – Parallel venation
C) Maiz– Parallel venation D) Ragi – Parallel venation (Average)
 - Lateral roots are found in
A) Taproots B) Fibrous roots (c) Both (A) and (B) D) None of these (Average)
 - choose the correct option using given two statements
P : Maize is a monocot.
Q : Maize has parallel venation.
A) Both P and Q are true. B) P is true, but Q is False.
C) P is False, but Q is true. D) Both P and Q are false. (Difficult)
 - Adoption factors that help Camel to survive in desert environment.
A) Having long legs. B) Excreats small amount of urine and dry dung.
C) Having a soft and broad feet. D) All the above. (Average)
 - The specific characteristics or habits that help any plants and animals to live naturally in its surroundings are called.

- A) Living B) Adaptation C) Breathing D) None of the above. (Easy)
12. The habitation that is not the type of terrestrial habitation.
A) Forest habitat B) Grassland habitat C) Desert habitat D) Lake habitat (Easy)
13. Plants and animals in a habitat are
A) Organic components B) Inorganic components
C) Both A and B D) None of the above (Easy)
14. Thorns of cactus are a modified structure of this part of the plant
A) Leaf B) Flower C) Root D) Stem (Average)

II. Correlate the following and answer.

15. Tomato : Herb. :: Rose plant : (Easy)
16. Pigeon : Wings :: Fish : (Easy)
17. Fish : Swims :: Snake : (Easy)
18. Leaves of banana : Parallel venation: Banyan tree leaf : (Easy)

III. Fill in the blanks suitable answer.

19. Rose plant is an example for type of plants. (Easy)
20. weak stemmed plants that need support to climb and grow are called (Easy)
21. The pattern of veins on the leaf is called (Easy)
22. Dicots typically exhibit Venation in the leaf and possessroots. (Average)
23. Monocots generally exhibit Venation in the leaves and possessroots. (Average)
24. The method of arranging things into groups based on their features is called..... (Easy)
25. The place where plants and animals live are called (Easy)
26. The plants and animals that live on land are said to live in habitats. (Easy)
27. The plants and animals that live in water are said to live inhabitats. (Easy)
28. The animals that can live both in water as well as on land are called (Difficult)

IV. Match the column A with column B.

- | | | | |
|-----|--------------|---------------------|-----------|
| 29. | A | B | (Average) |
| | i) Camel | (a) Forest | |
| | ii) Lion | (b) mountain region | |
| | iii) Yak | (c) grassland | |
| | iv) Elephant | (d) desert | |

V. Answer the following questions (1Mark)

30. Name the diverse qualities you observed in plants. (Average)
31. Justify with an example “the variety of plants and animals found in a particular region contributes to the diversity of that region”. (Difficult)
32. You are given a wheat grain and a gram grain. With out seeing the plants describe the root systems and venation of that plants. (Difficult)

VI. Answer the following questions. (2Mark)

33. Give reason, why we have to group the plants and animals. (Average)
34. How many groups of plants are there based on the height, nature of the stem ? Which are those ? (Easy)
35. List the features of tree. (Easy)
36. Differentiate between taproot system fibrous root system. (Average)
37. Draw the diagram of taproot and fibrous root. (Average)

38. Draw the diagrams of (a) Reticulate venation and (b) Parallel venation of leaves. (Difficult)
39. How can you decide the type of root system of a plant without uprooting the plant ? (Average)
40. Write differences between a shrub and a tree based on the characteristics of the stem. (Easy)
41. what are the atmospheric conditions in hot desert? (Easy)
42. How does the conical shape and sloping branches help the deodar tree to live naturally in mountain regions ? (Average)
43. List some terrestrial habitats. (Easy)
44. Give some examples for aquatic habitations. (Easy)
45. What are the differences between the camel that living in hot desert and the camel living in cold desert ? (Difficult)
46. Give an example for a plant and an animal living in hot desert. (Easy)
47. How does the body structure of the camel helps it to service in desert environment ? (Average)
48. Why, “frogs are called as amphibians” ? (Easy)
49. Name the functions of organs of the given living beings.
- (i) Duck - web feet. (ii) Fish – Gill (iii) Mountain goat – hairs on the body. (iv) Tiger – fong
(v) Camel – humps (vi) Deodar tree – sloping branches. (vii) Cactus – thick and fleshy stem. (Easy)

CHAPTER 3: MINDFULL EATING ; A PATH TO A HEALTHY BODY

Learning outcome: Identify and test the different components of food, Understand the importance of a balanced diet and the nutritional value of millets,

I. Fill in the blanks with suitable answers for the following.

1. Among, Jowar, wheat, ragi and groundnut, one which is the non-native crops of Punjab ____ (Easy)
2. The state where people consume food items like rice, yellow peas, wheat, singju, and kengsoy is ____ (Difficult)
3. The most commonly consumed food item in all parts of our country is ____ (Easy)
4. The choice that can vary according to the cultivation, taste preference, culture and traditions of food crops in different regions of India is ____ (Easy)
5. What is seen when looking at the adjacent picture is that _____ has changed over time. (Easy)



6. The substances we eat that provide energy to our body, help in the growth and repair of the body and maintain health is called as ____ (Easy)
7. Drinking glucose solution before and after the race gives a marathon runner immediate ____ (Easy)
8. The simplest carbohydrate ____ (Difficult)
9. An example of a complex carbohydrate ____ (Difficult)
10. Unused carbohydrates are stored in our body in the form of ____ (Average)
11. The main nutrient in the food we consume ____ (Average)
12. The nutrient, which is rich in, Cereals like rice, ragi, wheat, jowar; vegetables like potatoes, tubers; and fruits like banana, pineapple, mangoes is ____ (Difficult)
13. "Nutrients found in sugar, honey, and cane milk is ____ (Average)
14. The nutrient that must be present in sufficient quantity in the food for the muscle development of athletes and growing children is ____ (Difficult)
15. The nutrient that is abundant in edible mushroom is ____ (Difficult)
16. Water removes waste from our body in the form of ____ and ____ (Easy)
17. The vitamin that doctors recommend for a person with weak bones to utilize more calcium is ____ (Average)
18. In 2002, the Midday Meal Program was launched to provide balanced nutrition in government and aided schools in India, playing a significant role in improving the health and nutritional levels of millions of children. The name of the scientist who conducted research and surveys related to nutrition that contributed to the implementation of the PM Poshan initiative is ____ (Average)
19. The vitamin that is naturally produced in our body when exposed to sunlight is ____ (Easy)

20. The government agency that regulates food quality in India is _____ (Difficult)
21. Two examples of fortified (value added) foods are _____ and _____ (Difficult)

II. Choose the most appropriate answer from the four alternatives given to each of the given questions.

22. On this day, Raju had upma, Ravi had idli, Namita had chapati, and Navya had vegetable pulao. From this, what can be inferred?
A) There is unity in the food we consume.
B) There is similarity in the food we consume.
C) There is diversity in the food we consume.
D) All of the above statements are correct. (Easy)
23. In different states of our country, people commonly consume various food items, and the reasons for this are:
i) The food habits are influenced by the climatic conditions of the region.
ii) The availability of food varies in different areas.
iii) The culture of each region determines the food habits.
A) Only i is correct B) Only i and ii are correct
C) Only i and iii are correct D) All of the above statements are correct. (Difficult)
24. The following are rich in proteins necessary for body growth and repair.
A) Peas and fish B) Rice and ghee C) Corn and eggs D) Millet and lentils (Easy)
25. The right instruction you can give to a person who sees that the glands in the neck are swollen is
A) Green leafy vegetables should be consumed as the soil and water in the surroundings are high in iron content.
B) Citrus fruits should be consumed as the soil and water in the surroundings are low in iron content.
C) Sea fish, ginger, spinach should be consumed as the soil and water in the surroundings are low in iodine content.
D) Fruits and vegetables should be consumed. (Difficult)
26. Nutrients rich in sprouted beans and moong are
A) Simple protein B) Carbohydrates C) Minerals D) Lipid (Difficult)
27. Which of the following is a fibre-rich substance
A) Butter B) Meat C) Rice D) Moringa (Easy)
28. If two to three drops of dilute iodine solution is applied on a piece of mango, the result will be:
A) purple colour appears because starchy is present.
B) purple colour appears because there is no starch.
C) There is red colour because there is no starch.
D) The colour has not changed because there is sugar content. (Difficult)
29. In a test tube, when 5 ml of a solution 'Y' is taken and 2 drops of copper sulfate solution and 10 drops of caustic soda solution are added, the color changes from blue to purple. Therefore, the solution 'Y' contains:
A) protein B) glucose C) fat D) starch (Difficult)
30. When an egg yolk is taken in a test tube and two drops of copper sulphate solution and 10 drops of caustic soda solution are added to it, the result is
A) purple colour appears because starchy is present.
B) purple colour appears because there is no starch.
C) purple colour appears because there is protein.

D) purple colour appears because lipid is present. (Difficult)

31. Food items that give a positive result in protein test

- i) Milk ii) Banana iii) Oil iv) Gram flour
A) i and iii B) ii and iv C) i and iv D) i, ii and iv (Difficult)

32. When the groundnut seed is wrapped in a small sheet and then crushed, the oil stain on the paper sheet indicates the presence of this nutrient.

- A) Protein B) Starch C) Fat (lipid) D) Vitamin (Easy)

33. Junk foods like pani puri, chips etc should not be consumed too much, because these are

- A) Only protein-rich foods B) Only protective nutrients.
C) These are very expensive food items. D) Low nutrient food items. (Easy)

34. Which of the following is an incorrect statement

- A) Cooking not only makes the food tasty but also easily digestible.
B) Overcooking leads to the destruction of nutrients.
C) If a large amount of water is used while cooking and then drained the water, a considerable amount of protein and minerals are lost.
D) Vitamins are not easily destroyed by heat while cooking. (Easy)

III. Match and write.

35. Match the following states and their common food items . (Difficult)

- | | |
|-------------------|----------------|
| i) Karnataka | a) Dokla |
| ii) Gujarat | b) Parotta Dal |
| iii) Rajasthan | c) Idli |
| iv) Uttar Pradesh | d) Kachori |

36. Match the vitamins and their deficiency diseases correctly and write them down. (Easy)

- | | | |
|----------------|---|-----------------|
| i) Vitamin A | - | Berry Berry |
| ii) Vitamin B1 | - | Night blindness |
| iii) Vitamin C | - | Rickets |
| iv) Vitamin D | - | Scurvy |

IV. Answer the following questions in one sentence. 1 mark questions

37. Mention the major traditional local crops of Karnataka. (Easy)

38. Name the important traditional food items of the state of Karnataka. (Easy)

39. Mention the main food items traditionally consumed by the people of the state of Punjab. (Easy)

40. Name two substances which are components of food but are not nutrients. (Easy)

41. Which vitamin is rich in tomatoes, amla, lemon, orange, guava, green chillies, etc? (Easy)

42. What information should packaged food items contain on the top of their packet? (Average)

V. Answer the following questions in one or two sentences. 2 marks questions

43. Give a scientific reason: In our country India, a variety of food crops are grown. (Difficult)

44. State any two differences between traditional and modern cuisines. (Difficult)

45. What are the factors that may have contributed to the change in cuisines over time? (Difficult)

46. What are nutrients? (Easy)

47. State the importance of fibre and water, which are components of food but not nutrients. (Difficult)

48. Name any four carbohydrate rich food items. (Easy)

49. Choose the one that is different and give reasons: (Easy)

- i. Jowar, Bajra, Ragi, Chana

ii. Rajma, Moong Dal, Soyabean, Rice

50. We consume laddus as part of our daily traditional diet during winters. Why? (Difficult)
51. List any four plant and animal sources of fat for each. (Easy)
52. State the importance of storing enough fat under their skin in polar bears. (Difficult)
53. Name any four plant and animal sources of proteins for each. (Easy)
54. List any four good sources of fibre. (Easy)
55. Mention any four food items that are rich in vitamin A. (Easy)
56. Mention any four food items that are rich in vitamin 'B' complex. (Easy)
57. Mention any four food items that contain vitamin D. (Easy)
58. List any four food items that contain iodine mineral. (Easy)
59. Mention any four food items rich in phosphorus. (Easy)
60. Name any four food items which have iron content. (Easy)
61. Sugar is an example of carbohydrates. Sugar is tested with iodine solution. However, it does not change to blue-black. What could be the possible reason for this? (Difficult)
62. What do you think of Raman's statement that "All starches are carbohydrates, but not all carbohydrates are starches"? Design an activity to test your answer. (Difficult)
63. While using iodine in the laboratory, a few drops of iodine fell on Mishti's stockings and a few drops fell on her teacher's saree. While the iodine drops on the saree turned blue-black brown, the colour on the socks did not change. What could be the possible reason for this? (Average)
64. You have been given a sample of a solution. How will you test the possibility that it is an iodine solution? (Easy)
65. What is a balanced diet? (Easy)
66. Teachers say that good food can act as medicine. Ravi is curious about this statement and he has some questions to ask the teacher. List at least two questions he can ask. (Average)
67. Medu does not eat vegetables, but enjoys biscuits, noodles and white bread. He often experiences abdominal pain and constipation. What changes should he make in his diet to overcome these problems? Explain your answer. (Easy)
68. Give reason: Potato chips, candy bars, chocolate, carbonated drinks are called junk foods. (Easy)
69. You have been provided with the following. Which of these would you prefer and why?
(i) Refined fruit juice (ii) fresh fruit juice (iii) fresh fruit (Easy)
70. What do you mean by value added food? Give any two examples.
71. What are millets? Give two example (Easy)
72. Millets make a significant contribution to a balanced diet which is essential for the normal functioning of our body. Justify this statement. (Easy)
73. Why are millets considered a healthy food choice? Is just consuming millets enough for the body's nutritional needs? Discuss. (Difficult)
74. Many people waste food by leaving it uneaten on their plates. This is not the right approach. Please justify this statement. (Average)
75. Illustrate the story of chapati through a conceptual map.
- VI. Answer the following questions in three sentences. (3 marks questions)
76. State whether the following statements are true or false.
i) Food habits do not vary from state to state
ii) Our food choices and food preparation habits may differ from each other.

- iii) Our food habits and cooking habits have changed over time. (Easy)
77. Name the following.
- i) Energy providing nutrients -
 - ii) Body building nutrients -
 - iii) Protective Nutrients - (Easy)
78. Gaurav has fractured his leg. His doctor attached the bones and put plaster. The doctors also gave him calcium tablets. At the second visit, the doctor gave vitamin 'D' syrup along with calcium tablets. Answer the following questions.
- i. Why did the doctor give calcium tablets to Gaurav?
 - ii. At the second visit. Why did the doctor give vitamin 'D' syrup along with calcium tablets?
 - iii. What question arises in your mind about the choices doctors make in administering medicines? (Difficult)
79. Anil cannot see objects in dim light. The doctor examines his eyesight and informs him that this is due to a deficiency of a specific nutrient, and suggests consuming certain food items. So,
- A) What is the name of the deficiency disease that Anil has?
 - B) Which nutrient deficiency has caused this?
 - C) What food items does the doctor suggest Anil consume? (Difficult)
80. Kiran has swelling in body parts, numbness in the feet and hands or a burning sensation, difficulty in breathing. The doctor examines him, tells him that it is due to a deficiency of a particular nutrient and suggests consuming certain food items. Then
- i) What is the name of kiran's deficiency disease?
 - ii) It is due to deficiency of which nutrient?
 - iii) What food items does Dr. Kiran suggest eating? (Difficult)
81. Anasha has bleeding gums and is facing the problem of slowly healing her wounds. The doctor examines her, tells her that it is due to a deficiency of a particular nutrient and suggests consuming certain food items. Then
- i) What is the name of Anusha's deficiency disease?
 - ii) It is due to deficiency of which nutrient?
 - iii) What food items does the doctor advise Anusha to eat? (Difficult)
82. Raghu has soft and bent bones. The doctor examines him, tells him that it is due to a deficiency of a particular nutrient and suggests consuming certain food items. Then
- i) What is the name of Raghu's deficiency disease?
 - ii) It is due to deficiency of which nutrient?
 - iii) What food items does the doctor advise Raghu to eat? (Difficult)
83. Srikanth has a swelling in the front of his neck and the doctor examined him, told him that it was due to a deficiency of a particular nutrient and advised him to consume certain food items.
- i) What is the name of Srikanth's deficiency disease?
 - ii) It is due to deficiency of which nutrient?
 - iii) What advice does Dr. Srikanth give him? (Difficult)
84. Ramesh has anaemia, weakness, shortness of breath and the doctor examines him, tells him that it is due to a deficiency of a particular nutrient and suggests him to eat some food items. Then
- i) What is the name of Ramesh's deficiency disease?
 - ii) It is due to deficiency of which nutrient?

iii) What food items does the doctor instruct Ramesh to eat?

(Difficult)

85. What are food miles? List the advantages of reducing food miles.

(Average)

VII Answer the following questions in four or five sentences. 4 marks questions

86. How do you check for the presence of starch in the food? Explain.

(Difficult)

87. How do you test for the presence of protein in food. Explain.

(Difficult)

88. How will you test for the presence of fat in food? Explain.

(Easy)

CHAPTER – 4

EXPLORING MAGNETS

Learning outcome: Understand the magnetic and non-magnetic materials and explains the properties of magnets, magnetic poles, attraction and repulsion, and methods of finding directions.

I. Choose the most appropriate answer from the four alternatives given to each of the given questions.

- 1) Identify the magnetic material in the given things
A) Iron B) Nickel C) Cobalt D) All the above (Easy)
- 2) Identify the correct pair from the following.
A) Iron - Magnetic material B) Horseshoe magnet - Nonmagnetic
C) Rubber - Naturally occurring magnet D) Lodestone - Artificial magnet (Average)
- 3) When a bar magnet is brought closer to iron pieces, maximum pieces stick to
A) North pole B) South pole C) Both the poles D) Middle part of the magnet (Easy)
- 4) Which of the following substances can be magnetised?
A) Iron nails B) Wooden board C) Paper D) Plastic plate (Easy)
- 5) An instrument which does not have magnet in it is
A) Speaker B) Computer C) Cooker D) Television (Easy)
- 6) What happens when a magnet is beaten or hit with a hammer?
A) A magnet is fully crushed B) Magnetic property increases
C) Magnetic property decreases D) Magnet transforms into horseshoe magnet (Average)
- 7) When a magnet is brought near devices like a TV and a remote, this effect occurs
A) Devices may not work properly B) Magnet doesn't work
C) Decreases the attractive nature of magnet D) Magnet may shine (Average)
8. Direction does a freely suspended magnet always point to?
A) East - West B) North - South C) North - West D) South – West
9. Like poles of a magnet do to each other
A) Attract B) Repel C) No change D) Attract first then repel
10. Unlike poles of a magnet do to each other
A) Repel B) Attract C) Push away D) Nothing happens
11. A magnetic compass used for
A) To measure temperature B) To know direction C) To measure distance D) To see light
12. An example of a natural magnet is
A) Bar magnet B) Horseshoe magnet C) Magnetite D) Needle magnet
13. The maximum attractive power of a magnet located at
A) In the middle B) At the poles C) On one side only D) Equal everywhere
14. The following is a non-magnetic material
A) Nickel B) Cobalt C) Plastic D) Steel
15. This Happens to the strength of a magnet when it is heated.
A) Increases B) Does not change C) Destroys / Loses it

II) Fill in the blanks with suitable words.

16. In the olden days sailors used a magnetic compass which is made up of _____ (Easy)
17. The materials that are attracted by magnets are called _____ (Easy)
18. The substance which is used to separate iron pieces from garbage is _____ (Easy)
19. Horseshoe magnet has _____ poles. (Average)

20. The pointer of a magnetic compass always comes to rest in the _____ direction. (Easy)
21. Every magnet always has ----- poles.
22. Artificial magnets are made in various -----.
23. Materials attracted by a magnet are called ----- materials.
24. In olden days, sailors used to suspend ----- to know the direction.
25. The two poles of a magnet are ----- pole and South pole.
26. A cylindrical magnet has ----- poles.
27. The needle used in a compass is a small -----.

III . Say true or false.

- | | |
|--|-------------|
| 28. All parts of magnet attract magnetic materials equally. | (Average) |
| 29. If a bar magnet's north pole is moved towards a north pole of needle of magnetic compass, the needle moves away from the magnet. | (Difficult) |
| 30. Magnet attracts wooden pieces. | (Easy) |
| 31. The broken pieces of magnet have only one pole. | (Average) |
| 32. A freely suspended bar magnet always rests in the east west direction. | (Easy) |
| 33. Magnetic properties increase if a magnet is heated. | (Easy) |
| 34. A compass can be used to find directions at any place. | |
| 35. Coins are attracted by a magnet. | |
| 36. The poles of a magnet cannot be separated from each other. | |

IV. Match column A with column B Of the following.

- | | | | |
|-----|----------------------|--------------------------------|-----------|
| 37. | A | B | (Average) |
| | 1) Unlike poles | i) Artificial magnet | |
| | 2) Paper | ii) Sailor | |
| | 3) Loadstone. | lii) Attracts | |
| | 4) Magnetic compass. | lv) Non-Magnetic | |
| | 5) Bar magnet | v) Naturally occurring magnet. | |

- | | | |
|-----|-------------------------|--------------------------|
| 38. | Part A | Part B |
| 1. | Magnetite | a) Natural magnet |
| 2. | Plastic | b) Non-magnetic material |
| 3. | Like poles | c) Repulsion |
| 4. | Freely suspended magnet | d) North-South pole |

V. Answer the following questions in one sentence. (1mark)

39. What is a magnet?
40. What are the poles of a magnet?
41. Where is a natural magnet found?
42. What is an artificial magnet?
43. Name two shapes of artificial magnets.
44. What is a compass?
45. What is Magnetite?

VI. Answer the following questions in two or three sentences. (2mark)

46. What are magnetic and non-Magnetic substances? Give examples. (Average)
47. How would sailors sail their ships in the right direction? Explain. (Easy)
48. List any four characteristics of magnets. (Average)
49. Both Seetha and Geetha had a magnet with them. Geetha's magnet was broken. She feels that her broken magnet has only one pole. But Seetha says that the magnet has two poles. Who among the two is correct. Justify your answer. (Easy)
50. Give reason:- Why does needle of a magnetic compass always lie in north south direction while resting. (Difficult)
51. How to preserve magnets . Explain. (Average)
52. Differentiate between natural magnets and artificial magnets.
53. Write the laws of attraction and repulsion of magnets.
54. How does a compass work?
55. What happens if magnets are not kept carefully? How should they be stored?
56. From which objects should magnets be kept away? Why?
57. You have an iron needle, how will you turn it into a magnet?
58. Describe a simple experiment to identify the poles of a bar magnet
59. Describe the diagram of a compass
60. List out a few things which you come across in your daily life where magnets are used. (Easy)
61. List out different shapes of magnet and draw them, neatly. (Average)
62. You have been given a bar magnet that does not identify the poles. How will you identify the north pole without using another a bar magnet? (Difficult)
63. How will you separate iron filings from a mixture of iron filings and sand?

CHAPTER 5

MEASUREMENT OF LENGTH AND MOTION

Learning outcome: Understand the concept of measurement and units, measure the length using appropriate methods, describe position, and observe moving objects to identify different types of motion.

I. Fill in the blanks with suitable words.

1. The shopkeeper measures the cloth using a _____ measuring rod. (Easy)
2. The tailor uses a _____ measuring tape to take Deepa's measurements. (Easy)
3. When measuring lengths, it is important to have a _____ point to ensure accuracy. (Easy)
4. An object is said to be in _____ if its position does not change with respect to a reference point over time. (Difficult)
5. The type of motion where an object moves back and forth through a fixed point is called _____ motion. (Easy)
6. The point that needs to be considered to determine whether an object is in motion or at rest is called the _____. (Easy)
7. One metre is divided into 100 equal divisions, then each division is called a _____. (Difficult)
8. One kilometre is equal to _____ metres. (Easy)
9. For measuring the girth of a tree, a _____ measuring tape is more suitable. (Easy)
10. When Padma saw the kilometre stone reading 'Delhi 70 km', it indicated her position was _____ km from Delhi. (Easy)
11. An object is said to be in _____ if its position changes with respect to the reference point over time. (Easy)
12. When an object moves along a straight line, its motion is called _____ motion. (Easy)
13. When an object moves along a circular path, its motion is called _____ motion. (Easy)
14. The motion of a body about its own axis is called _____ motion. (Easy)
15. An example for rotatory motion is _____. (Easy)
16. The motion of a body that repeats itself at regular intervals is called _____. (Easy)
17. Sometimes Oscillatory motion and rotatory motion are _____ in nature. (Difficult)
18. The motion of tip of a hand that shows seconds in a clock and motion of a pendulum are examples of _____ motion. (Easy)
19. You have a ruler that is broken up to one and a half centimeters from zero marking. Using this ruler, if you place one end of the pencil on a line showing two centimeters and observe the other end on the ruler, it appears to be 8 cm. Therefore, the actual length of the pencil is _____. (Difficult)
20. The description of a physical quantity consists of two components: one is a _____ and the other is a _____. (Difficult)
21. Internationally accepted standard units of measurement are called ----- Units.
22. The motion of the needle while working on a sewing machine is an example of ----- motion.

II. Choose the most appropriate answer from the four alternatives given to each of the given questions.

23. What is the purpose of a reference point in measurement?
A) To make measurements easier B) To ensure accuracy in measurements
C) To compare different objects D) To measure time (Average)
24. Which of the following is an example of oscillatory motion?
A) Pendulum of a clock B) A moving swing

- C) Fluttering leaves D) All the above (Easy)
25. What is the SI unit of length?
A) Centimetre B) Millimetre C) Metre D) Kilometre (Easy)
26. How many centimetres are there in one metre?
A) 10 B) 50 C) 100 D) 1000 (Easy)
27. Which of the following is the smallest unit of length in the scale that is used in the classroom?
A) Metre B) Centimetre C) Millimetre D) Kilometre (Easy)
28. If length of your desk is of 5 metre, how many centimetre is that?
A) 50 cm B) 500 cm C) 5 cm D) 100 cm (Easy)
29. What is the relationship between millimetre and centimetre?
A) 1 mm = 1 cm B) 1 mm = 10 cm
C) 1 mm = 0.1cm D) 1 mm = 100 cm (Average)
30. What does a kilometre stone indicate?
A) The time taken to reach a destination. B) The distance from a reference point to destination.
C) The speed of the vehicle. D) The direction to travel (Easy)
31. Movement of the needle of the sewing machine
A) Circular motion B) Rotational motion
C) Oscillatory motion D) Periodic motion (Easy)
32. Proposition: A person's hand span can be used as an ideal unit of distance.
Reason: The length of the hand span varies from person to person.
A) Assertion is true, reason is false. B) Proposition is correct, reason is correct.
C) Proposition is false, reason is false. D) Assertion is false, reason is correct. (Difficult)
33. Ravi wants to measure the length of his school sports ground. Which of the following should he use to get an accurate measurement?
A) Handspan B) Steps C) Measuring tape D) Plastic thread
34. The motion of the blades of a moving ceiling fan and the motion of the hands in a clock are examples of which type of motion?
A) Rectilinear motion B) Circular motion C) Periodic motion D) Circular and periodic motion

III. MATCH THE COLUMN "A" WITH COLUMN 'B' OF THE FOLLOWING.

35. Column A Column B
i) Metre a) 0.1 cm
ii) Centimetre b) 1000 m
iii) Millimetre c) m
iv) kilometre d) cm (Average)
36. Column A Column B
i) Reference Point a) Indicates distance from Delhi
ii) Flexible Measuring Tape b) Used to measure curved lines
iii) Kilometre Stone c) Determines motion or rest
iv) Motion d) Position changes with time (Difficult)
37. Column A Column B
i) Linear Motion a) Motion of tip of needle of clock, motion of pendulum
ii) Circular Motion b) Motion of swing
iii) Oscillatory Motion c) coconut falling from a tree

- | | | |
|--------------------|------------------------------------|--------|
| iv) Motion at Rest | d) motion of tip of blade of a fan | (Easy) |
|--------------------|------------------------------------|--------|
38. Match the lengths with the suitable units:
- | | | |
|---------------------------------------|---------------|--------|
| i) Distance between Delhi and Lucknow | a) Metre | |
| ii) Thickness of a coin | b) Centimetre | |
| iii) Length of an eraser | c) Millimetre | |
| iv) Length of school ground | d) Kilometre | (Easy) |

IV. Answer the questions in one sentence. (1 mark)

39. What do you mean by standard unit of measurement? (Average)
40. What is the purpose of having standard units of measurement? (Average)
41. What is the length of one section between two consecutive big marks on a 15-cm scale? (Difficult)
42. How many millimetres are there in 1 centimetre? (Easy)
43. Describe the correct way to read a scale. (Difficult)
44. Express 1.5 km in metre. (Easy)
45. Define motion. (Easy)
46. Why does a tailor use tape instead of handspan before cutting cloth?
47. What type of motion is the movement of an athlete's legs while running?
48. The height of your doorway is 1.65 m. Write this in cm.
49. What is the motion of a point marked on the blade of a moving ceiling fan?
50. Convert a distance of 5 kilometers to meters.
51. How many centimeters is 25 millimeters?
52. Where should the position of the eye be while measuring the length of an object?
53. What happens if handspan is used to measure a house and plot?
54. On a scale with a broken end, if you start measuring from 2 cm and reach 8 cm, what is the actual length of the object?
55. What type of motion is the movement of tree branches when wind blows?
56. Why is the SI system accepted worldwide?

V. State whether the following statements are True or False.

57. An object can be in motion with respect to one reference point and at rest with respect to another. (Easy)
58. A flexible measuring tape is not useful for measuring curved lines. (Easy)
59. The position of an object does not change if it is at rest. (Average)
60. Kilometre stones help travellers understand how far they are from their destination. (Easy)
61. An object at rest is always stationary with respect to all reference points. (Difficult)
62. Circular motion is a type of linear motion. (Easy)
63. Oscillatory motion and circular motion are periodic motion in some cases. (Average)
64. The motion of a pendulum is an example of linear motion. (Easy)
65. $1 \text{ km} = 10,00,000 \text{ mm}$. (Difficult)
66. While measuring the length of an object with a meter scale, the line of sight of the eye should be inclined to the measurement point.
67. When a guitar string is plucked, it exhibits periodic motion.

VI. Answer the questions in two or three sentences. (2marks)

68. Which two motions would you identify in a ball rolling on the ground?

69. If you have a scale with a worn-out (broken) zero mark, how will you measure the length of an object accurately?
70. Why should a person not use an elastic tape to measure the length of cloth
71. Why is it not appropriate to express the distance between Delhi and Bengaluru in centimeters?
72. The distance from Radha's school to home is 2250 meters. Show the calculation to convert this to kilometers.
73. What motions can be seen in a kite flying in the sky?

VII. Answer the questions in four or five sentences. (4marks)

74. Motion and rest are relative. Justify your answer with an example. (Difficult)
75. Explain types of motion with examples. (Average)
76. Write the steps to prepare an accurate report using the instruments provided by your science teacher to measure the length of your classroom.

CHAPTER – 6

MATERIALS AROUND US

Learning outcome: Understand different materials around us, identify their properties, classify them based on those properties and Identify similarities and differences among objects and apply the importance of separation and classification in daily life.

I. Choose the most appropriate answer from the four alternatives given to each of the given questions.

1. Which of the following shines when light falls on it?
A) Paper B) Chalk piece C) Piece of wood D) Aluminium foil (Easy)
2. Air is all around us, but it doesn't obstruct us from seeing each other. However, if a wooden door comes in between, we cannot see each other because air and wooden door respectively are
A) Transparent and Opaque B) Translucent and Transparent
C) Transparent and Translucent D) Transparent and Translucent (Average)
3. Which of the following does not dissolve in water?
A) Salt B) Sugar C) Glucose D) Oil (Easy)
4. Oil-coated paper is an example of this.
A. Transparent B. Opaque C. Translucent D. None of these
5. Translucent Reason for metals losing their shine on normal days
A. Due to dust B. Due to the action of air and moisture C. Due to heat D. Due to moisture
6. Identify the object floating on water
A. Coin B. Stone C. Dried leaf D. Glass marble.
7. The characteristic of a hard material is
A. Can be compressed easily B. Cannot be scratched or compressed easily
C. Shape can be changed D. Dissolves in water.
8. Shopkeepers keep candies in glass or plastic containers, Because
A. They are cheap B. They are opaque
C. So that buyers can easily see the items D. They are strong
9. The following is a gaseous solution (gas dissolved in water)
A. Nitrogen B. Oxygen C. Hydrogen D. Methane
10. On what basis is a material chosen to make an object?
A. Its color only B. Its properties and purpose of use
C. Its weight only D. Its availability only
11. Which of the following is not a metal?
A. Wood B. Gold C. Copper D. Aluminum.
12. Density of an object that sinks in water but floats on coconut oil:
A. More than water B. Less than water, more than coconut oil
C. Less than both D. More than both.

II Fill in the blanks with suitable words.

13. One liter of water can be filled into _____ glasses of 250 ml volume. (Easy)
14. The international unit of mass is _____.(Easy)
15. Since the weight of objects is determined by weighing, mass is commonly referred to as _____. (Easy)

III. Write True/False.

16. Honey and vinegar do not dissolve in water. (Average)
17. Aquatic animals and plants use oxygen dissolved in water for respiration. (Easy)
18. Sugar does not dissolve in water.
19. A piece of wood floats on water.
20. Chalk powder dissolves in water.
21. Oil mixes (dissolves) in water.
22. Diamond is the hardest substance.

IV. Identify the odd one out and underline it.

23. Rubber, Candle, Stone, Sponge (Easy)
24. Bronze, Steel, Book, Brass (Easy)
25. Chair, Bed, Table, Child, Cupboard.
26. Copper, Iron, Aluminum, Stone, Water.
27. Rubber ball, Plate, Honey, Glycerin.
28. ball Brinjal, Banana, Stone, Coconut.
29. Glass, Water, Paper, Pure air.

V. Answer in one sentence. (1 mark)

30. What is material? (Easy)
31. What is classification? (Easy)
32. How do you determine if objects are solid? (Average)
33. What is matter? (Easy)
34. State the characteristics of matter. (Easy)
35. What is luster (shine)?
36. What are soluble materials?
37. Name a liquid substance soluble in water
38. Name two items that can be made from paper.

VI. Answer in two or three sentences. (2mark)

39. What are transparent substances? Give an example. (Average)
40. What are translucent substances? Give an example. (Average)
41. What is opaque substance? Give an example. (Average)
42. Containers used to store materials in shops and homes are usually transparent. Give a reason for this. (Average)
43. Why does a fizzy froth come out when the lid of carbonated soft drinks like Coca-Cola is opened? (Difficult)
44. What are non-lustrous objects? Give an example. (Average)
45. Write two benefits of classifying materials into groups
46. What is the difference between soft and hard materials?
47. Why are wooden or plastic handles fitted to cooking utensils?
48. How do aquatic plants and animals live in water?
49. It is not possible to make a water cup from paper. Why?
50. A piece of iron and an iron rod - which of these has more luster and why?
51. Give one example each of liquids that mix in liquids and liquids that do not mix.

52. Classify the following materials based on their density (sinking and floating without dissolving in water) :-
Coin, Dried leaf, Stone, Plastic spoon

VII. Answer in three or four sentences. (3marks)

53. Why are metal utensils increasingly used instead of earthenware pots these days? (Average)
54. How is ORS solution prepared? What is it used for? (Average)
55. You are given a clear liquid in a test tube. How will you test whether it is a solution or pure water?
56. List three major general characteristics of metals with suitable examples.
57. Why does ice float on water even though it is harder than water? Give a scientific reason.

VIII. Answer in four or five sentences. (4marks)

58. Explain an experiment you would undertake to test density [floating and sinking property] along with required materials, procedure, and conclusion.
59. Classify the following objects based on the materials used to make them: [Pen, Chair, Bucket, Cupboard, Window bar, Toys, Table, Plate]
60. Classify materials based on their properties, giving one example for each property.
[Gold, Iron, Sugar, Glass, Oiled paper]
61. Justify this statement with three examples from daily life. Materials other than glass can also be transparent.

IX Match the following :

- | A | B |
|------------------|--------------------------------|
| a. Copper wire | i. Excellent conductor (Metal) |
| b. Oiled paper | ii. Translucent |
| c. Glass | iii. Insoluble in water |
| d. Ice | iv. Floats on water. |
| e. Iron cupboard | v. Opaque cover |

CHAPTER – 7 HEAT AND ITS MEASUREMENT

Learning outcome: Identify hot and cold objects and recognize the units and instruments used to measure temperature.

I. Choose the most appropriate answer from the four alternatives given to each of the given questions.

1. The SI unit of temperature is:
A) Degree B) Kelvin C) Celsius D) Fahrenheit (Easy)
2. What does a thermometer measure?
A) Heat B) Light Intensity C) Temperature D) Air pressure. (Easy)
3. During Summers, tap water is _____ than the cold water from a refrigerator.
A) Hotter B) Colder C) Cooler D) Weaker (Easy)

4. The thermometer used for measuring body temperature is:
 A) Laboratory thermometer B) Experimental thermometer.
 C) Clinical Thermometer D) Wall-Mount Thermometer. (Easy)
5. Temperature in a digital clinical thermometer is determined with the help of
 A) Heat Sensors B) Cold Sensors C) Hot chips D) Hot panels (Average)
6. 37°C is the same temperature as:
 A) 97.4°F B) 97.6°F C) 98.4°F D) 98.6°F (Easy)
7. Which thermometer can measure body temperature without Contact?
 A) Mercury Thermometer B) Digital Thermometer
 C) Infrared Thermometer D) Laboratory Thermometer (Easy)
8. The body temperature should be read from the thermometer:
 A) Immediately after removing it B) After Shaking it
 C) Without removing it D) After 5 minutes. (Easy)
9. Which of these temperatures is below the freezing point of water?
 A) 0°C B) -5°C C) 10°C D) 5°C (Easy)
10. Which part of the thermometer Contains mercury?
 A) capillary tube B) Outer casing C) Scale D) bulb (Easy)
11. The reading on a clinical thermometer is always taken by holding it:
 A) Flat on the hand B) At eye level C) Below the eye level D) Above the eye level (Easy)
12. Which of the following is the correct way to measure temperature using a Laboratory Thermometer.
 A) Tilt the thermometer and touch the bulb to the bottom of the beaker.
 B) Hold the thermometer Vertically and immerse it without touching the sides (or) bottom.
 C) Hold the thermometer horizontally
 D) Place the thermometer in the water after heating it. (Average)
13. Four students used a laboratory thermometer to measure the temperature of water as shown in Fig. Who do you think followed the correct way for measuring temperature?



Student 1



Student 2



Student 3



Student 4

- A) Student 1 B) Student 2 C) Student 3 D) Student 4 (Easy)

14. The temperature shown by the thermometer in Fig. is



- A) 28°C B) 27.5°C C) 26.5°C D) 25.3°C (Difficult)

15. Which type of thermometer is often seen in doctor's clinics and hospitals to give an approximate idea and room temperature?
 A) Clinical Thermometer B) Digital Thermometer.
 C) Wall-mounted Thermometer D) Air Thermometer. (Easy)

16. Mercury is used in thermometers because: Type equation here.
 A) It is colourful B) It is sticky
 C) It is a good Conductor of heat and does not stick to the glass. D) It boils easily. (Easy)
17. Temperature in Kelvin scale = Temperature in Celsius Scale + _____
 A) 273.15 B) 273.25 C) 273.75 D) 273.85 (Easy)
18. Who is known as "Weather woman of India"?
 A) Anna Mani B) Sunitha Williams C) Kalpana chawla D) Nirmala Sitaraman (Easy)
19. Range of a laboratory thermometer is (in degree Celsius)
 (A)-10 to 110 (B) 35 to 42 (C) 0 to 100 (D) 0 to 45
20. Rays used in non-contact thermometers are
 (A) Ultraviolet (B) Infrared (C) X-ray (D) Visible light
- II. Answer the following one sentence. 1 Mark
21. In a digital thermometer, temperature is determined with the help of -----.
22. Special thermometer used during Covid-19 pandemic is -----.
23. Define Temperature. (Difficult)
24. Which liquid is generally used in the thermometer?
 (Average)
25. Which thermometer has a Constriction in its Capillary tube? (Easy)
26. What is the function of the constriction in a clinical thermometer? (Difficult)
27. Komal tells you that she has a fever of 101 degrees. Does she mean it on the Celsius Scale (or) Fahrenheit Scale? (Difficult)
28. Which is the thermometer that has no mercury in it? (Easy)
29. A laboratory thermometer has 50 divisions between 0°C and 100°C. What does each division of this thermometer measure? (Difficult)
30. The teacher asked students to measure the temperature of boiling water. But differences were found in the temperatures they measured. Give reason.
- III. Match the following:
- | | | |
|-----------------------------|--------------------|---|
| 31. | A | B |
| | (Difficult) | |
| i) Boiling point of water | a) 0°C | |
| ii) Freezing point of water | b) Absolute Zero | |
| iii) Digital thermometer | c) 100°C | |
| iv) Zero Kelvin | d) Mercury | |
| v) Liquid metal | e) Runs on battery | |
- IV. Fill in the blanks:
32. Normal temperature of a healthy human adult is taken to be _____ (Easy)
33. The temperature of ice-Cold water can be measured by a _____ thermometer.
 (Average)
- V. Write Yes (or) No:
34. A hotter body has a higher temperature than a Colder body. (Easy)
35. The SI unit of temperature is degree Celsius. (Easy)
36. Tip of the thermometer to be washed with soap and water before and after use. (Easy)

37. Clinical thermometer is used for measuring the temperature of boiling water. (Easy)
38. The temperature of water remains constant while it is boiling.
(Average)
39. A Laboratory thermometer is used to measure our body temperature. (Easy)
40. "While measuring temperature in a thermometer, the mercury level should be kept in line of sight of eye and read."
41. Body temperature of children is lower than adults.

VI. Answer the following questions with two (or) three Sentences:

42. How many kinds of thermometers are there? Name them. (Average)
43. What are the factors which influence the body temperature?
(Average)
44. What are the three scales of measuring temperature? (Easy)
45. Mercury Thermometers are being replaced by digital thermometers. Give reasons.
(Difficult)
46. A laboratory thermometer is not used to measure our body temperature. Give a reason.
(Difficult)

VII. Answer the following questions with 4 (or) 5 Sentences:

47. Why is Mercury used in thermometers?
(Difficult)
48. Why are digital thermometers Considered safer than mercury thermometer? (Easy)
49. Briefly explain the three main temperature scales. (Difficult)

VIII. Answer the following questions with 6 (or) 7 Sentences:

50. Write the differences between Clinical thermometer and Laboratory thermometer.
(Average)
51. Describe the steps to use a Laboratory thermometer.
(Average)
52. Describe the steps to use a digital clinical thermometer.
(Average)

CHAPTER – 8

A JOURNEY THROUGH STATES OF WATER

Learning outcome: Identify the different states of water and understand the processes of evaporation and condensation through observation, questioning, and experimentation, and explain the water cycle.

I Choose the correct answer from the following for alternative given below.

1. What are the three states of water?
A) ice, water, oil B) solid, semi solid, gas
C) solid, liquid, gas D) ice, cloud, steam (Easy)
 2. Which state of water takes the shape of its container but has a fixed volume?
A) solid B) liquid C) gas D) plasma (Easy)
 3. Why do water puddles disappear on a sunny day?
A) water seeps into the ground B) evaporation occurs.
C) water flows away D) water condenses. (Average)
 4. Fog is formed due to
A) evaporation B) freezing C) melting D) condensation. (Average)
 5. Why does the water in an Earth pot feel cool?
A) the pot block sunlight B) pot absorbs water
C) water seeps and evaporates causing cooling D) none of above. (Difficult)
 6. Evaporation occurs faster when,
A) there is low temperature B) it is windy and hot
C) it is cloudy D) none of the above (Easy)
 7. Which state of water has the most energy?
A) solid B) liquid C) gas D) ice (Easy)
 8. Steam is.
A) liquid water B) solid water C) water vapour D) ice (Easy)
 9. When water vapour cools down, it becomes,
A) ice B) fog C) water D) snow (Easy)
 10. Why does dew drop form on the Leaves in the morning?
A) water vapour condenses and the cool surfaces B) leaves absorb water
C) it rains at night D) water seeps out of leaves (Easy)
 11. Process of water becoming ice
A) Melting B) Freezing C) Evaporation D) Condensation
 12. This happens to water due to sun's heat
A) Evaporates B) Does not evaporate C) Condensation D) Temperature
 13. The state of water plays an important role in the formation of drops is
A) Melting B) Freezing C) Condensation D) Rain
 14. The process of ice melting into water is called
A) Less than B) More than C) 100°C D) Exactly
- II State the name of the process for each of the following.
15. water drops appear on the outer surface of glass containing cold water. (Easy)
 16. stream rising from wet clothes while they are ironed. (Difficult)
 17. the process of turning water into ice. (Easy)
 18. process in which water changes into water vapour. (Easy)

19. process in which solid turns into gas. (Easy)

III. Give scientific reasons for the following.

20. Clothes dry faster on a windy day. (Average)

21. Coconut oil gets converted into its solid during winter season. (Average)

22. After washing utensils water remains on the surface of the utensils and it will vanish after some time. (Average)

23. The glasses of the spectacles become foggy when we breathe out on glass. (Average)

IV. Answer the following questions. (1M)

24. What is the conversion of water into water vapor called?

25. Name the process where liquid water turns into water vapor and returns as water.

26. What is the process called when plants release excess water through their leaves?

27. What is the process of ice melting into water called?

28. What is the continuous circulation of water taking place in the atmosphere called?

IV. Short answer type questions. (2M)

29. Mention the few conditions that affect the process of evaporation (Difficult)

30. Mention the properties of liquid water and water vapour. (Easy)

31. What is evaporation? (Easy)

32. What do you mean by melting? (Easy)

33. What is freezing? (Easy)

34. What is sublimation? (Easy)

35. Define "Humidity". What is the relationship between humidity and evaporation of water. (Difficult)

36. What is cooling effect? Give an example. (Average)

37. How can we turn candle wax into liquid state.? (Easy)

38. The seat of a two-wheeler parked on a sunny day has become very hot. How can you cool it down. (Easy)

39. Give examples of liquids other than water that evaporate. (Easy)

40. How is water present in the solid state in nature? (Average)

41. Why does air containing water vapor go up in the atmosphere? (Difficult)

42. Why do rainy days more humid? (Average)

43. What is condensation? Where can we observe this in nature.

44. How do the states of water change in the water cycle?

V. Long answer type questions

45. How are clouds formed? What causes rain. (Average)

46. Reflect on the statement "water is our responsibility before it is our right". Share your thoughts. (Difficult)

47. What is a water cycle? Draw a neat picture that shows the process of water cycle. (Average)

48. What are the three states of water? Explain them with examples.

49. State the differences between evaporation & condensation.

CHAPTER – 9.

METHODS OF SEPARATION IN EVERYDAY LIFE

Learning outcome: Understand different materials around us, identify their properties, classify them based on those properties and Identify similarities and differences among objects and apply the importance of separation and classification in daily life.

I. Choose the correct answer and write:

1. Identify the correct purpose of separating component substances from mixtures among the following:
A) To remove impurities or harmful components B) To remove non-useful components
C) Separating useful components D) All of the above (Average)
2. What physical state must a mixture have in order to separate substances from it?
A) Solid B) Liquid C) Gas D) All of the above (Easy)
3. Identify the correct statement regarding the separation of components from a mixture:
Statement 1: We throw away the non-useful components of the mixture.
Statement 2: We use the useful components of the mixture.
A) Only statement one is correct B) Only statement two is correct
C) Both statements are correct D) Both statements are incorrect (Easy)
4. Satish noticed his mother using a strainer to separate tea leaves while making tea. The purpose of Satish's mother doing this is:
A) To separate harmful components B) To separate two separate but useful components
C) Separating non-useful components D) Separating toxic components (Average)
5. The appropriate method to separate stones from sand is using a sieve because:
A) small particles like sand do not pass through the sieve's holes
B) larger impurities like stones do not remain in the sieve
C) small particles like sand remain on the sieve
D) small particles like sand pass through the sieve's holes (Average)
6. Farmers use the method of winnowing to separate lighter husk particles from heavier grain seeds because:
A) The wind carries away the husk particles
B) The grain separates from the husk
C) The separated husk is used by farmers for fodder
D) All of the above (Easy)
7. Separating grains from paddy is to threshing as separating stones from rice is to:
A) Winnowing B) Handpicking C) Sieving D) Sorting (Easy)
8. The methods to separate clean water from muddy water should be followed in the order of:
A) Sedimentation, decantation, filtration
B) Filtration, decantation, sedimentation
C) Sedimentation, filtration, decantation
D) Sedimentation, filtration, decantation (Average)
9. By boiling a saturated salt solution:
A) It is not possible to dissolve more salt in it
B) It is possible to dissolve more salt in it
C) Both statements a and b are correct
D) Both statements a and b are incorrect (Easy)

10. When writing the steps to prepare salt from seawater in order, match them as follows:
 i. Collecting seawater in shallow pits
 ii. Purifying the salt in the mixture to obtain common salt
 iii. Allowing the water collected in the pits to evaporate
 iv. Filling the purified common salt into bags
 A) i, ii, iii, iv B) i, iii, ii, iv C) ii, iii, I, iv D) iv, iii, ii, I (Average)
11. What purpose does handpicking serve in the separation process?
 A) Filtration B) Separation C) Evaporation D) Sedimentation (Easy)
12. You have a mixture of sand and sawdust. The suitable method you should choose to separate the components from this mixture is:
 A) Threshing B) Magnetic separation C) Handpicking D) Filtration (Easy)
13. In the method of separating components from a mixture by gravitational force:
 A) The heavier component collects at the top
 B) The lighter component collects at the bottom
 C) The heavier component collects at the bottom
 D) The heavier component does not collect at the bottom. (Average)
14. The suitable method to separate the light impurities in rice and grains is:
 A) sieving B) gravitational separation C) winnowing D) filtering (Easy)
15. Which is the most suitable method used to separate stones from rice?
 (A) Winnowing (B) Handpicking (C) Filtration (D) Sieving
16. Which method is suitable to separate tea powder from tea after preparing it.
 (A) Decantation (B) Filtration (C) Handpicking (D) Evaporation
17. Method used to obtain common salt from sea water
 (A) Filtration (B) Evaporation (C) Threshing (D) Sieving
18. Method used at home to separate small bran or trash present in flour
 (A) Winnowing (B) Drying (C) Sieving (D) Evaporation

19 Correct match of the mixtures given below with their separation methods:

Mixtures	Separation Methods	
i) Chickpea flour mixed with black gram	a) hand picking	
ii) Powdered gram flour mixed with water	b) magnetic separation	
iii) Maize mixed with potatoes	c) sedimentation	
iv) Iron powder mixed with sawdust	d) sieving	
v) Oil mixed with water	e) filtering	
A) i-a, ii-b, iii-c, iv-d, v-e	B) i-d, ii-e, iii-a, iv-b, v-c	
C) i-d, ii-a, iii-b, iv-c, v-e	D) i-a, ii-c, iii-d, iv-e, v-b	(Average)

20 Identify the correct statement:

Statement 1: When heat energy is given to water, it turns into vapor.

Statement 2: When water vapor is cooled, it turns back into liquid water.

- A) Only statement one is correct B) Only statement two is correct
 C) Both statements are correct D) Both statements are incorrect (Easy)

II. Fill in the blanks with suitable words.

- 21 The process by which water vapor changes into liquid is called (Average)

- 22 The correct method to separate a mixture of water and oil is (Easy)
23 To extract butter from curd, the method used is (Easy)

III. Answer the following questions in one sentence. (1 mark)

- 24 What is the purpose of separating stones from the rice? (Easy)
25 What method is used to separate tea leaves from the mixture when preparing tea? (Average)
26 What are the purposes of separating component substances from mixtures? (Average)
27 How do you separate the husk or dust particles present in pulses before cooking? (Easy)
28 What is a saturated solution? (Average)
29 What is condensation? (Easy)
30 What is evaporation? (Easy)
31 What is filtration? (Easy)
32 Name the method of churning curd to separate butter.
33 Which is the method of separating stones from grains.
34 What is threshing?
35 What is Sedimentation?
36 Give an example for handpicking method

VI. Answer the following questions: (2 mark)

- 37 What is winnowing? Where is it used? (Average)
38 What is thrashing? In what context is it used? (Average)
39 Explain the differences between the methods of thrashing and winnowing. (Average)
40 Why is it necessary to separate substances in our daily life? Write two reasons.
41 What is the difference between Sedimentation and Decantation methods?
42 What is evaporation? State one important application of it.

VII. Answer the following questions in three or four sentences: (4marks)

- 43 Describe the method of obtaining salt from seawater. (Average)
44 Describe the method of separating component substances from a mixture of sand and salt. (Difficult)
45 Describe the method of obtaining clean water from muddy water. (Average)
46 Is it possible to separate sugar mixed in wheat flour? If yes, how would you do it? (Difficult)
47 Draw a neat, labelled diagram of filtration. (Difficult)
48 Explain the various steps used by farmers to separate grain seeds from trash & name the steps.

CHAPTER – 10.

LIVING CREATURES: EXPLORING THEIR CHARACTERISTICS

Learning outcome: Explain the basic characteristics of living organisms such as growth, movement, respiration, and reproduction in living organisms.

Compare and classify living and non-living things.

I. Choose the correct answer from the following:

- 1) What is the white jelly-like substance found on the surface of water or attached to plants in a pond known as.
A) Algae B) Spawn C) Pollen D) Seaweed (Average)
- 2) Which of the following statements is incorrect?
A) Living and non-living things are made up of cells.
B) Non-living things are made up of matter.
C) Cell is the structural unit of all living things.
D) Similar cells combine together to form tissues. (Average)
- 3) Animals move around
A) to search for their food
B) to search for shelter
C) to escape from their enemies
D) all of these (Easy)
- 4) What do plants require for seed germination?
A) Sunlight B) Water and air C) Soil and air D) Heat (Easy)
- 5) How do plants like drosera capture insects?
A) By excretion B) By movement C) By growth D) By respiration (Easy)
- 6) Energy is released during the process of
A) digestion B) excretion C) growth D) respiration (Average)
- 7) Which characteristic is common to all living beings
A) Growth B) Reproduction C) Movement D) All of the above (Easy)
- 8) What happens to a seed when it is kept in a dark location with moist soil.
A) It will germinate and grow normally
B) It will dry out
C) It will germinate but will not grow well
D) It will not germinate (Easy)
- 9) Which of the following is true for plants and animals?
A) They make their own food
B) They need sunlight for energy
C) They respire to get energy
D) They move from one place to another (Easy)
- 10) How do mosquito larvae breathe while living in water?
A) By coming to the surface B) Through gills C) Through the skin D) Through lungs (Difficult)
- 11) Which stage in the life cycle of a frog has both tail and legs?
A) Tadpole B) Froglet C) Embryo D) Spawn (Difficult)
- 12) Which of the following does not grow?

- A) Tree B) Book C) baby D) butterfly (Easy)
- 13) Which of the following is not a product of excretion?
A) Carbon dioxide B) energy C) urine D) sweat (Difficult)
- 14) The germination of bean seeds requires one of these gases.
A) nitrogen B) oxygen C) vapours of water D) hydrogen (Easy)
- 15) Which of the following is not a characteristic of living beings.
A) Growth B) Respiration C) Excretion D) Absense of cellular structure (Average)
- 16) An organism that is fully grown is called
A) A pupa B) A larva C) An adult D) newborn (Average)

II. Fill in the blanks with suitable words:

- 17) The tiny _____ inside a seed develops into a plant. (Easy)
- 18) The _____ transforms into an adult mosquito. (Easy)
- 19) Tiny pores called _____ help plants to respire. (Easy)
- 20) All living beings respond to _____. (Easy)
- 21) The process of _____ maintains the continuity of a kind of animal. (Easy)
- 22) Living beings need _____ for their growth and development. (Easy)

III. Answer the following questions: (1mark)

- 23) What distinguishes living things from non-living things? (Easy)
- 24) Can plants move from one place to another? (Easy)
- 25) What is growth in living beings? (Easy)
- 26) Why do living beings need food? (Easy)
- 27) What is Excretion? (Easy)
- 28) How do animals excrete waste? (Easy)
- 29) How do plants excrete waste? (Easy)
- 30) What is stimulus? (Easy)
- 31) What is reproduction? (Easy)
- 32) When is a living being considered dead? (Easy)
- 33) Why is water essential for seed germination? (Average)
- 34) What conditions are necessary for seed germination? (Easy)
- 35) Do all seeds require light to germinate? (Easy)
- 36) What is phototropism in plants? (Easy)
- 37) What is the role of air in seed germination? (Easy)
- 38) What is the characteristic of living beings related to stimuli? (Easy)
- 39) What is stimulus? (Stimulation)
- 40) What is the main purpose of respiration in living beings?
- 41) Which type of organisms are Amoeba, Paramecium?
- 42) What is a cell?
- 43) What is the main difference between the lifespan of plants and animals?

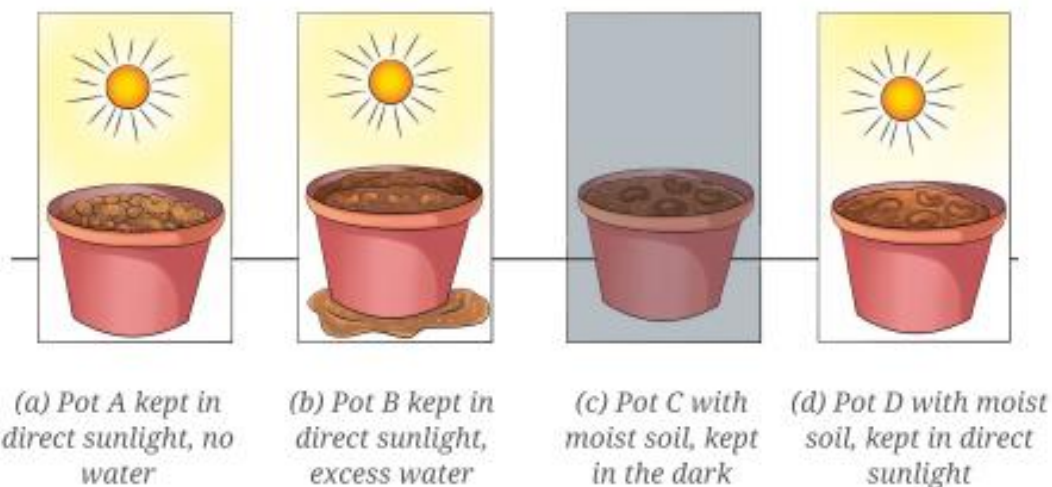
IV. Answer the following questions: (2mark)

- 44) What are the essential features of living beings? (Easy)
- 45) How does a plant grow during its life cycle? (Average)
- 46) What is the life cycle of a frog? (Difficult)
- 47) What is the significance of growth in living beings? (Average)

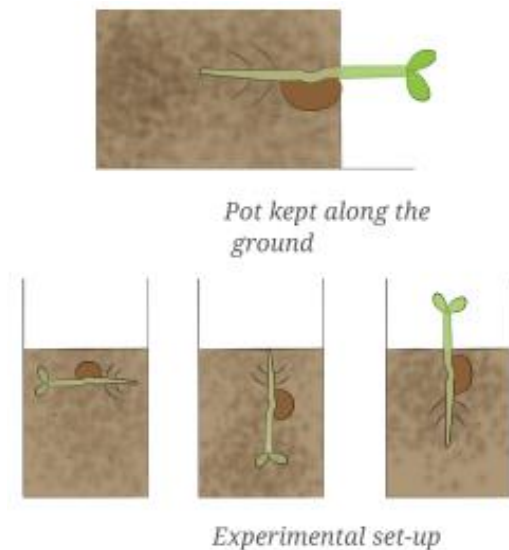
- 48) How do plants respond to sunlight? (Average)
 49) How does seed germination occur? (Easy)
 50) Why is water essential for seed germination? (Average)
 51) How do roots and shoots grow in plants? (Easy)
 52) What is reproduction in living beings? (Easy)
 53) What is excretion in plants and animals? (Easy)

V. Answer the following questions: (3mark)

- 54) Explain the life cycle of a bean plant. (Difficult)
 55) How does the life cycle of a frog differ from that of a mosquito? (Difficult)
 56) Describe the factors necessary for seed germination and their effect on plant growth. (Average)
 57) How do plants and animals grow and exhibit movement? (Easy)
 58) How does a frog's life cycle help it adapt to its environment? (Average)
 59) You have learnt that different conditions are required for seed germination. How can we use this knowledge for proper storage of grains and pulses? (Average)
 60) You have learnt that a tail is present in a tadpole, but it disappears as it grows into a frog. What is the advantage of having a tail in the tadpole stage? (Easy)
 61) What are the similarities and distinguishing features in the life cycles of a mosquito and a frog? (Difficult)
62. Write 3 main differences between living and non-living things. Living things
 63. State the differences found between plants and animals.
64. A plant is provided with all the conditions suitable for its growth (Fig. below). Draw what you expect to see in the shoot and the root of the plant after one week. Write down the reasons. Fig: Pot kept along the ground
 (Average)



65. Tara and Vijay set up the experiment' shown in the picture (Fig. below). What do you think they want to find out? How will they know if they are correct? (Average)



66. Design an experiment to check if temperature has an effect on seed germination. (Difficult)
67. Give the Basic Characteristics of Living Beings

CHAPTER – 11

NATURE'S TREASURES

Learning outcome: Understand various resources available in nature and their importance and uses of natural resources, the need for conserving natural resources and learn the measures for their conservation.

I. Correct answer from the given options.

- Name the abundant Gas present in the air's is
A) Oxygen B) Nitrogen C) Carbon dioxide D) Dust (Easy)
- The gas in held during the respiration of living being is
A) Oxygen B) Organ C) Nitrogen D) Carbon dioxide (Easy)
- The use of windmill is
A) To run flour mill B) to pull up water from a well
C) Generate electricity D) All of the above (Average)
- The collection of rainwater from the top of the buildings for later uses is called
A) Rainwater harvesting B) Water purification
C) Irrigation D) None of these (Average)
- The main source of light and heat on the earth is
A) Electric bulb B) Sun C) Moon D) Stars (Easy)
- An example for renewable resources is
A) Cooking gas (LPG) B) Petrol C) Forest D) Coal (Difficult)
- is formed by the disintegration of rocks by actions of the sun, water and living organisms
A) Fossil fuels B) Pure water C) Minerals D) Soil (Difficult)
- The main reason for the shortage of rainfall is

- A) Sunlight B) Deforestation C) Increase of underground water D) Water pollution (Easy)
9. The energy used in Solar bulb to glow is
A) Solar energy B) Wind energy C) Electricity D) Petrol (Average)
10. Which among the following is not a source of freshwater
A) River B) Lakes C) Ocean D) Wells (Easy)
11. The following is a natural resource
(A) Gold (B) Soil (C) Plants (D) Forests & Plants
12. The machine that produces electricity using wind speed is
(A) Hydroelectric plant (B) Nuclear power plant (C) Solar panel (D) Windmill
13. The most precious liquid resource on Earth
(A) Water (B) Diesel (C) Petroleum (D) Milk
14. The most suitable way to prevent soil erosion is
(A) Planting more trees (B) Cutting trees (C) Use of chemicals (D) Overgrazing by cattle
15. Resource called 'Black Gold' is
(A) Black soil (B) Iron (C) Petroleum (D) Coal

II. Match the following.

16. Match the following with the sources they use (Average)
- | | |
|-----------------------------|------------------|
| i) Windmill | a) Petrol diesel |
| ii) Car | b) solar energy |
| iii) Solar cooker | c) wind energy |
| iv) Furniture manufacturing | d) water |
| v) Hydroelectric plant | e) forest |
17. Match the following
- | A | B |
|------------|--|
| a. Forests | i. Drinking water, Hydroelectricity |
| b. Rivers | ii Light, Solar energy. |
| c. Land | iii. Medicinal plants, Timber |
| d. Sun | iv. Agriculture, Food grain production |

III Weather the following statements are true or false.

- 18 Resources which get renewed, replaced or restored within a reasonable period of time are called renewable resources. (Easy)
19. Minerals and salt are not essential for good health of human beings. (Easy)
20. In the olden days stepwells are built in the temple premises to collect and store rainwater (Easy)
21. We should minimise the use of petrol, diesel, coal and cooking gas as much as possible. (Easy)
22. Air pollution is caused due to the release of toxic gases into the air. (Easy)
23. Solar energy will get exhausted if we use it maximum. (Easy)

IV Answer the following questions in one sentence. (1mark)

24. Which energy is used by the plants to prepare their own food? (Easy)
25. What do we call the large areas with dense growth of various types of plant? (Average)
26. Suggest any two ways to conserve fossil fuels? (Average)
27. Give any two examples for renewable natural resources. (Easy)
28. Write any one method to reduce air pollution? (Easy)

V. Answer the following questions in two or three sentences. (2mark)

29. Write the uses of water in our daily life activities? (Easy)
30. List out the freshwater resources on the earth? (Average)
31. What is the reason for the water pollution on the earth surface? (Average)
32. Name the devices which work by using solar energy? (Difficult)
33. What are the uses of forests? (Easy)
34. What is the effect of afforestation on the environment? (Difficult)
35. What are the methods to improve the soil fertility? (Difficult)
36. What are fossil fuels? Give examples. (Average)
37. Differentiate between renewable and non-renewable resources? (Average)
38. Explain why natural resources are essential for human beings and other living organism? (Difficult)
39. What is rainwater harvesting? What is its use?
40. Why is wildlife conservation essential? What are the areas established to conserve them called?
41. What are alternative energy sources? Give examples.
42. How Natural Resources are classified?
43. Give examples for Natural Resources.

CHAPTER -12

BEYOND EARTH

Learning outcome: Understand celestial bodies such as the Sun, Moon, planets, and stars. The position of the Earth in the Solar System. Develop curiosity about space and understand the importance of space exploration.

I. Fill in the blanks with suitable words:

1. Pleiades is a _____ and is found in the constellation _____ (Average)
2. Examples of useful apps for identifying stars, star clusters, and planets on mobile phones are _____ and _____ (Easy)
3. The star closest to Earth after the Sun is _____ (Average)
4. The period of Revolution of Earth around the Sun is _____ (Easy)
5. The period of rotation of Earth is _____ (Easy)
6. The planet that is not a star but is called the morning star or evening star because it shines brightly in the morning and evening is _____ (Average)
7. The name of the dwarf planet that orbits the Sun and is smaller than the moon, located beyond Neptune, is _____ (Average)
8. The instrument that helps observe many faint celestial bodies visible to the naked eye is _____ (Easy)
9. The celestial bodies that revolve round planets are called _____ or _____ (Easy)
10. The only natural satellite of Earth is _____ (Easy)
11. Many small irregularly shaped rocky bodies orbiting the Sun in the solar system are called _____ (Easy)
12. The belt of many small rocky bodies orbiting the Sun between the orbits of Mars and Jupiter is called _____ (Average)
13. The size of Asteroids ranges from _____ to _____ (Difficult)
14. The comet that appears every 76 years is _____ (Easy)
15. Halley's comet was last seen in 1986, and it will next appear in the year _____ (Difficult)
16. Our solar system is part of the _____ galaxy. (Average)
17. On a moonless night, the broad band of light stretching from north to south across the sky is known as _____ (Easy)
18. Beyond the Milky Way galaxy, there are billions of _____ in the sky. (Difficult)
19. The vast space that surrounds us, which includes planets, stars, galaxies, etc., is called _____ (Easy)

II. Choose and write the most appropriate answer from the four options provided for each question.

20. Which of the following statements is correct regarding the North Star (Polaris)? (Difficult)
 - A) It appears to be fixed in the northern direction.
 - B) It helps to identify the northern direction in the northern hemisphere.
 - C) The North Star is located in the Little Dipper constellation.
 - D) all the above (Difficult)
21. The factors that make night sky observation undesirable are:
 - A) Light pollution
 - B) Smoke and dust
 - C) The observation location is surrounded by tall buildings and trees.
 - D) All the Above (Difficult)

22. The group of planets visible to the naked eye is:
 A) Mercury, Venus, Mars, Jupiter, Saturn
 B) Jupiter, Saturn, Uranus, Earth, Neptune
 C) Mercury, Venus, Earth, Mars, Jupiter
 D) Uranus, Neptune, Sun, Moon. (Difficult)

23. Which of the following is not a member of our solar system?
 A) Sirius B) Comets C) Dwarf planets D) Pluto. (Difficult)

24. Which of the following is not a planet of the Solar system?
 A) Jupiter (B) Pluto (C) Neptune (D) Saturn (Average)

25. Which star is at the center of the solar system?
 (A) Earth (B) Moon (C) Sun (D) Mars

26. Which of the following is called the Red Planet?
 (A) Mercury (B) Venus (C) Mars (D) Jupiter

27. Which is the largest planet in the solar system?
 (A) Earth (B) Jupiter (C) Saturn (D) Neptune

III. Match the following.

28. Match the name of the constellation with the stars found in it. (Difficult)

Constellation	Star
i) Taurus	a) Sirius
ii) Canis Major	b) Betelgeuse (Ardra)
iii) Orion	c) Pole Star (Polaris)
iv) Little Dipper	d) Aldebaran (Rohini)

29. Match the following. (Easy)

Column I	Column II
i) Planet closest to the Sun	a) Earth
ii) Red planet	b) Venus
iii) Blue planet	c) Mercury
iv) Brightest planet	d) Mars

30. Match the following. (Easy)

Column I	Column II
i) Earth's satellite	a) Orion
ii) Dwarf planet	b) Venus
iii) Constellation	c) Pluto
iv) Planet commonly called the evening star	d) Moon

31. Match the following:

A	B
1. Sun	a) North direction
2. Earth	b) Constellation
3. Moon	c) Star
4. Saptarishi Mandal (Ursa Major)	d) Planet
5. Pole Star	e) Satellite

IV. Answer the following questions in one sentence. 1-mark questions

32. State the conditions necessary for observing the night sky. (Easy)
 33. How did stars and constellations assist travelers in ancient times? (Average)

34. How many parts did the International Astronomical Union divide the entire sky into, and how many constellations did it identify? (Easy)
35. What is the brightest star in the night sky? (Easy)
36. In which constellation is the brightest star in the night sky, Sirius, found? (Difficult)
37. Who is Yuri Gagarin?
38. Who was the first human to land on the Moon?
39. Which is India's first artificial satellite?

V. Answer the following questions in one or two sentences. (2 marks questions)

40. What are stars? Which is the star closest to Earth? (Average)
41. What are constellations? Give two examples. (Difficult)
42. What is light pollution? Mention one problem caused by it. (Average)
43. What are dark sky reserves?
44. You can see stars disappear in the morning and appear in the evening. Why is it not possible to see stars during the day? Explain. (Difficult)
45. Indicate whether the following statements are true or false: (Easy)
 - i) All stars and constellations are visible from all places on Earth throughout the year at night.
 - ii) The North Star is not visible from the South Pole.
46. Proxima Centauri is about 269,000 AU away from Earth. What does this mean? (Difficult)
47. Scientific reason: The Sun is a star, and although other stars are larger than the Sun, they appear as dots. (Average)
48. What does revolution mean in relation to the solar system? What is the period of revolution of the Earth around the Sun? (Easy)
49. What is a planet? (Easy)
50. What is rotation? (Easy)
51. What is a solar system? (Easy)
52. Write about the eight planets in order based on their distance from the Sun. (Easy)
53. Give a reason: The Mars called the red planet? (Difficult)
54. Why is Earth called the blue planet? (Easy)
55. Give a reason: Why is Venus hotter than Mercury even though it is farther from the Sun? (Average)
56. How are the craters on the surface of the Moon formed? (Easy)
57. What are comets? Give an example. (Easy)
58. Explain the difference between inner planets and outer planets. (Difficult)
59. What is a galaxy? Which is our galaxy? (Easy)
60. What type of clothes do astronauts wear, why?
61. What are the uses of artificial satellites to humans?

VI. Answer the following questions in three sentences. (3-mark questions)

62. i) Name the constellations represented by the letters A and B in the image.
 ii) Which star is represented by the letter C?
 iii) What is its significance?

(Difficult)



63. What preparations will you make for observing the night sky? (Easy)
 64. Describe the method for identifying the North Star(Polaris). (Difficult)
 65. Explain how a rocket works?
 66. How is the life of astronauts in space?
 67. Write the names of Planets of the Solar System in order.
 68. Describe the method for identifying the brightest star Sirius in the night sky. (Difficult)
 69. A part of the starry night sky is shown in Figure. Carefully observe and identify the groups of stars that form patterns. Draw lines to connect the stars in the patterns of the Big Dipper and Little Dipper. Name them. Identify the North Star and write its name. (Average)

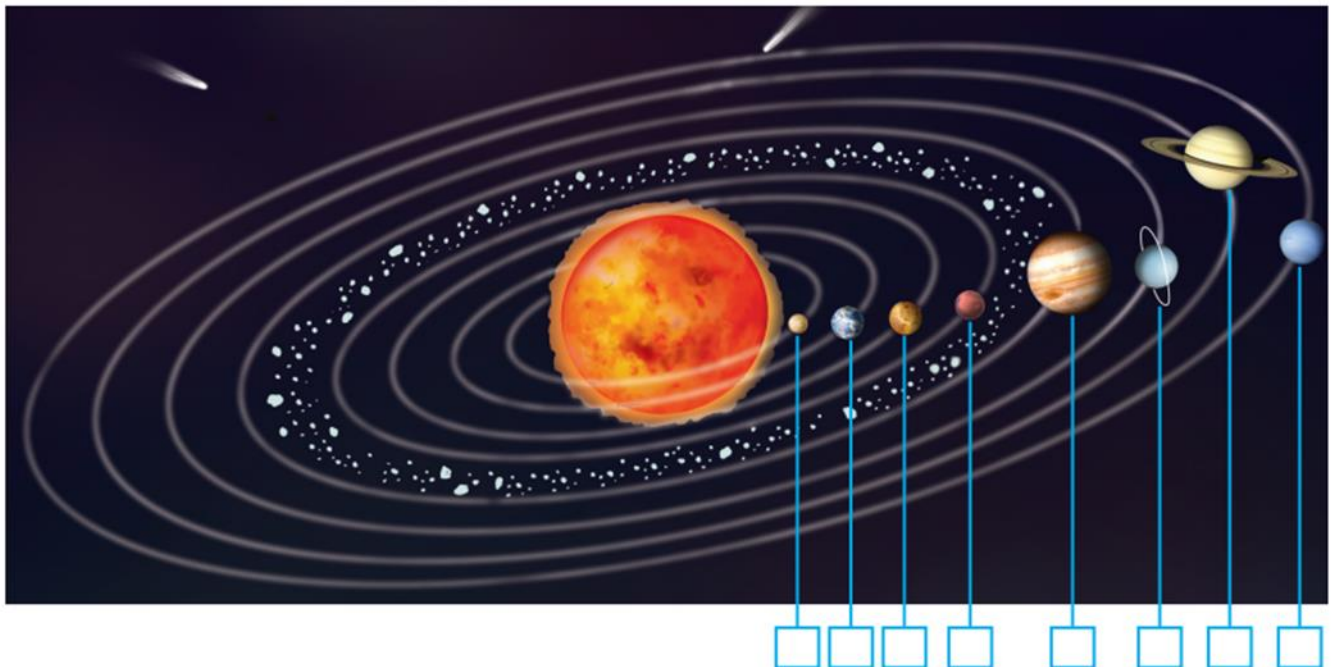


70. A part of the night sky is shown in the picture. Draw lines for Orion and connect the stars and identify the Sirius star by writing its name. (Difficult)



VI. Answer the following questions in four or five sentences. (4 mark questions)

71. Write a brief note on the Sun. (Difficult)
72. Draw a beautiful diagram of the solar system and label the parts. (Average)
73. A diagram of the solar system created by an artist is provided. Is the arrangement of the planets correct? If not, write the correct order in the box provided. (Average)



74. Write a brief note about the Moon. (Difficult)
75. Explain the results of the Chandrayaan mission undertaken by the Indian Space Research Organisation to facilitate further explorations about the Moon. (Average)

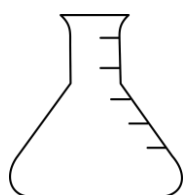
Model answers

CHAPTER – 1 **THE WONDERFUL WORLD OF SCIENCE**

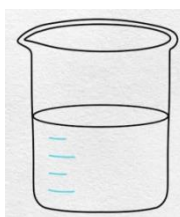
1. Childhood
2. Everywhere
3. Puzzle
4. Change
5. Warm
6. Scientific method
7. Observation
8. Hypothesis
9. Science lab
10. Problems
11. Scientific
12. Experiments
13. Teams
14. Scientist
15. Mobile
16. Smoke
17. Petrol
18. Earth
19. Bottle
20. Belief
21. $a \rightarrow 4, b \rightarrow 1, c \rightarrow 2, d \rightarrow 3.$
22. $a \rightarrow 3, b \rightarrow 1, c \rightarrow 4, d \rightarrow 2$
23. $a \rightarrow 4, b \rightarrow 3, c \rightarrow 1, d \rightarrow 2$
24. C) Question
25. B) Nature
26. D) All of these
27. B) Science
28. C) Experiments
29. D) Earth
30. A) Sun
31. D) All of these
32. C) Cooling
33. C) Pollution
34. C) Dream
35. C) Systematic investigation
36. False
37. True
38. False
39. True

40. True
41. False
42. False
43. True
44. False
45. True
46. False
47. False
48. True
49. Curiosity is the first step that inspires to study science.
50. Observation is the core activity involved in scientific process.
51. Science is a way of understanding the natural world through observation and experimentation.
52. Science helps us understand how things work around us like how rain forms or how plants grow.
53. Curiosity is important in science because it leads to new questions and discoveries.
54. Curiosity is the desire to know or learn something.
55. Science is compared to a puzzle because every new discovery adds a piece to the larger picture of knowledge.
56. A field Science that studies celestial bodies is astronomy.
57. The fundamental needs of all living organisms are air, water and food.
58. The first step in the scientific method is observation.
59. A hypothesis is a testable explanation based on observations.
60. Experiments help test hypothesis and validate scientific theories.
61. Inference is drawing a conclusion based on observation.
62. Example : finding out why a pen has stopped writing.
63. Learning science will develop our capabilities for finding solutions to bigger problems and solving more mysteries of the universe.
64. Scientists use experiments to test hypothesis.
65. Scientists repeat experiments to verify results and ensure accuracy.
66. Questions motivate learning and lead to discovery of new experiments.
67. Science is a way of thinking observing and doing things to understand the world we live in and to uncover the secrets of the universe.
68. Curiosity encourages questioning and exploration which are the starting points of scientific discovery, it leads students to observe experiment and understand concepts deeply.
69. It means scientific principles are at work in all aspects of our life from boiling water to understanding weather and using gadgets.
70. The book will guide us in exploring and comprehending the wonders of our world and natural phenomena we encounter.
71. Science is called an adventure because it involves exploring the unknown asking questions, conducting experiments and discovering new things much like an adventurous journey.
72. Systematic way to explore and understand problems using observation, hypothesis, experimentation and conclusion.
73. We can discover answers on our own through scientific enquiry by making observations and conducting experiments.

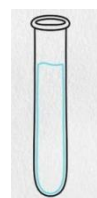
74. Observation is the first and most important step in science careful observation allows scientist to gather information, identify pattern and ask meaningful questions for further investigation.
75. Observation - gathering data using senses example seeing water boiling
Inference- drawing a conclusion from observations example the water is boiled because heat was applied.
76. i) Checking why a light bulb is not working
ii) Finding out why milk is not boiling properly
77. Science teaches us to think logically, observe carefully, ask questions and test solutions which are useful in solving real life problems.
78. They observe, ask questions, form hypothesis, conduct experiments and analyse results to reach conclusions.
79. Scientists collaborate to share knowledge, divide tasks and verify results which helps in faster and better discoveries.
- 80.



Conical Flask



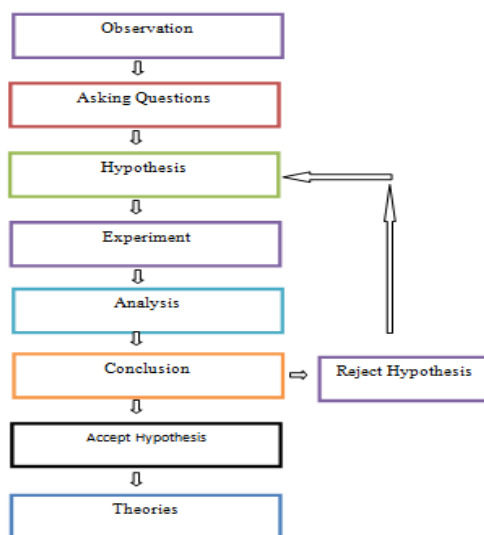
Beaker



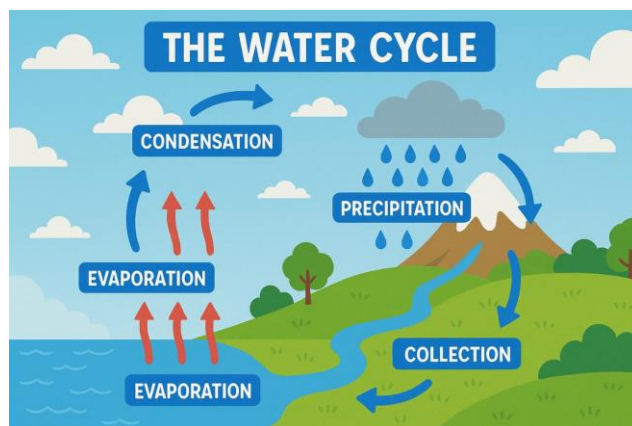
Test Tube

81. Science is part of our life example boiling milk, using a mobile phone, breathing and rain. Science is present in all these activities, so it is connected to our daily life.
82. Earth is a special planet because it is the only planet where life is known to exist it has air to breathe, water to drink and the right temperature for living things. Plants. animals and humans can live here comfortably. That's why Earth is a very special planet.
- 83.

The Flow chart of Scientific Method



84. The scientific method helps us to solve problems systematically for example when a bicycle tyre is flat, we observe the problem hypothesize the cause test it by checking for air leaks and conclude the solution.
85. The study of science enjoyable because it encourages curiosity discovery and understanding it involves exploring fascinating questions conducting experiments and uncovering how things work which can be both exciting and rewarding.
86. A person who asks questions demonstrates a curious and analytical mind which signifies wisdom therefore someone who frequently asks "why" is considered wise.
87. Curiosity - Curiosity Sparks the desire to ask questions and learn more.
Exploration - Exploration involves investigating and finding answers.
Example: If a child wonders why the sky is blue, they may explore by reading books and conducting simple experiments. This process leads to better understanding and growth in knowledge. Scientific breakthrough often begin with someone asking why? or how?
88. Science explains how living organisms interact with one another and with their surroundings. It helps us understand pollution, conservation, food chains and ecosystems. It also makes us aware of how our actions affect the planet and teaches us ways to protect it.
- 89.



90. Science builds knowledge step by step through research and evidence. scientists share findings with others correct mistakes and build on previous knowledge. Working in team helps bring in new ideas and solve problems faster showing that science is a collaborative effort.
91. Nature's variety like light, air, sound, water, plants and animals creates curiosity in children they begin to ask questions about what they see and experience to find answers. They observe carefully, think deeply and sometimes do simple experiments. This process develops scientific thinking in them.
92. Scientific Method can be applied to solve a problem in daily life as follows
Steps of the Scientific Method:
1. Observation:
The TV is not turning on or working properly.
For example: Even after plugging it in, the screen remains blank.
2. Question:
Why is the TV not working?
3. Hypothesis:
The power cord might be damaged, or the remote batteries might be dead.

There could also be a power supply issue.

4. Experiment:

Try plugging the TV into a different socket.

Replace the remote batteries.

Test the power cord with another TV if available.

5. Analysis:

If the TV works after replacing the power cord, then the old cord was faulty.

6. Conclusion:

The TV was not working because the power cord was damaged.

After replacing it, the TV worked fine.

CHAPTER – 2. DIVERSITY IN THE LIVING BEING

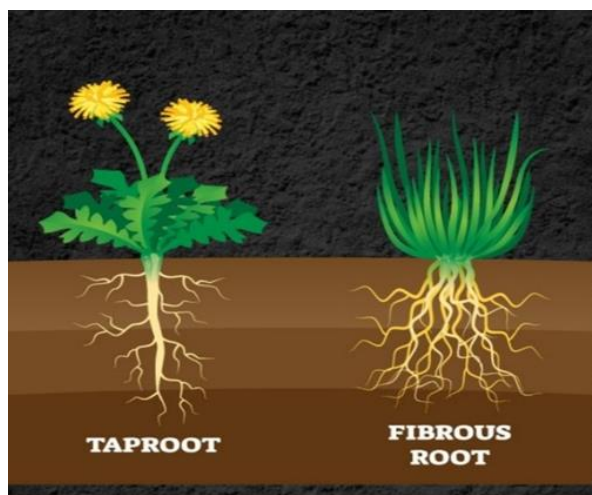
Model answers

1. (C) 6
2. (D) Mountains
3. (B) Usefulness Of Plant
4. (D) Amphibians
5. (A) Herbs
6. (B) Climbers
7. (A) Gram -Parallel Venation
8. (A) Taproots
9. (A) Both P And Q Are True
10. (D) All The Above
11. (B) Adaptation
12. (D) Lake Habitat
13. (A) Organic Components
14. (A) Leaf
15. Shrub
16. Fins
17. Crawl
18. Reticulate
19. Shrub
20. Climbers
21. Venation
22. Reticulate and tap
23. Parallel and fibrous
24. Grouping
25. Habitat
26. Terrestrial
27. Aquatic
28. Amphibians
29. I – d, ii – c, iii – b, iv -a
30. (i) tallness / shortness, hardness / softness of the stem
(ii) different shapes of leaves and their arrangements on the stem or branches
31. Each member in the biodiversity of region has a different role to play. For example, trees provide food and shelter to some birds and other animals , animals help in spreading seeds after eating fruits.
32. wheat grain is a monocot, it will have parallel venation in their leaves and it possess fibrous roots.
Gram grain is a dicot, it will have reticulate venation in their leaves and possess taproots.
33. Grouping makes it easier to understand and study plants and animals on the basis of their similarities and differences.
34. Plants are classified into three types based on of height of the stem . They are herbs, shrubs and trees
35. Trees have hard, thick, brown and woody stems.their branches typically start higher up on the stem and away from ground.

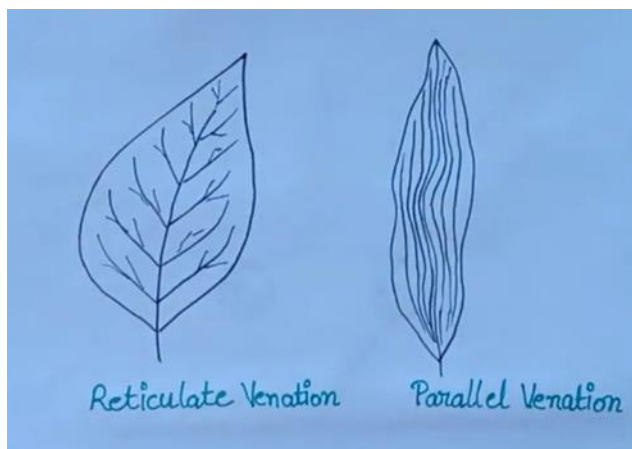
36.

Taproot system	fibrous root system
In taproot there is a main root structure and some lateral roots also there	In fibrous roots have small bunches, which does not have main root structure
Taproots are generally seen in dicotseed plants.	They are generally seen in monocot seed plants.

37.



38.



39. By observing vein pattern of the leaves, we can know the type of roots of that plant without cutting the plant. If the veins are parallel in structure, then the roots will be fibrous. If the veins are reticulate in structure then the roots will be taproot.

40.

Shrub	Tree
Some plants grow as branches near the base of stem. The stem is stiff but not very thick . These types of plants are called shrubs. Example - Rose plant.	Some plants are very tall, and stems are hard and thick , branches are at the top of the trunk. These types of plants are called as trees.

41. (i) Very little water available in deserts

(ii) In desert it is very hot in day and very cold in night times

42. Mountains are extremely cold regions; there experiences frequent snowfall. In order to survive in such condition some of the trees have the ability to let the snow slide off easily. Conical shape and sloping branches of deodar trees enable them to do so easily.
43. Forests, deserts, grasslands and mountain regions are some terrestrial habitats.
44. Ponds, Lakes Rivers and Oceans are examples for aquatic habitats.
45. The camel in hot desert has long legs with wide hooves. This helps camels to walk on the sandy desert without sinking into sand. On the other hand, the legs of cold desert camel are relatively shorter than those for d in hot desert. These short legs allow them to walk easily.
46. Desert animals – camel, rats, snake.
Desert plants – cactus
47. Camels having long legs that helps to insulate their body from the heat of the sand. Camel excretes small amounts of urine and dry dung and does not sweat – these helps them to save water in their body. Camel can survive without water for many days. Its wide hooves help to walk on the sandy desert easily.
48. Frogs can live both in water and on land. Its hindlegs are strong and help them to jump. Frog have webbed feet which help them to swim in water. Frog can breathe through lungs when it is on the land and it breaths through skin when it is in water.
49. (i) Helps to swim. (ii) Helps to respire. (iii) Helps to maintain body temperature.
(iv) helps to eat flesh helps to store food (vi) Helps to slide off snow
(vii) Helps to restore water in the body

CHAPTER 3: MINDFUL EATING ; A PATH TO A HEALTHY BODY

Model Answers

1. Ragi
2. Manipur
3. Rice
4. Food habits
5. Cuisine
6. Food
7. Energy
8. Glucose
9. Starch
10. Fat
11. Carbohydrates
12. Carbohydrates
13. Carbohydrates
14. Protein
15. Protein
16. Sweat, urine
17. Vitamin D
18. Kolluthur Gopalan
19. Vitamin D
20. Food Safety and Standards Authority of India.
21. Iodized salt and baby foods.
22. D) All the above statements are correct.
23. D) All the above statements are correct.
24. A) Peas and fish
25. C) Sea fish, ginger, Spinach Should Be Consumed as the soil and water in the surroundings are low in iodine content
26. C) Minerals
27. D) Moringa
28. A) Purple colour appears because starch is present.
29. A) Protein
30. C) Purple colour appears because there is protein.
31. C) I and IV
32. C) Fat (lipid)
33. D) Low nutrient food items.
34. D) Vitamins are not easily destroyed by heat while cooking.
35. I - Idli , II - Dokla , III - Kachori, IV - Parotta Dal
36. I- Iruluguradu, II - Beri Berry , iii - Scurvy , IV - Rickets
37. Rice, ragi, urad, coconut
38. Idli, dosa, sambar, coconut chutney, ragi mudde, curry, rasam, rice

39. Roti, Sagu, Chole and Bhature, Parotta, Halwa, Kheer
40. Fibre and water
41. Vitamin C
42. Packaged food items should have the name of the product and the amount of each nutrient on the top of their packet .
43. India is a large agrarian country with diverse soil and climatic types and a variety of crops are grown depending on the soil types and climatic conditions in different regions.

44.

Traditional cuisine	Modern cuisine
Most of the cooking was done using a traditional stove	Cooked using a modern gas stove
Most of the grinding was done using grinding stone	The grinding work is being done using an electric grinder

45. Factors such as technological development, improved transportation, and better communication may have contributed to the change in cuisines over time.
46. Nutrients include carbohydrates, lipids, proteins, vitamins and minerals in the food we eat that provide energy to our body, help in the growth and repair of the body and maintain health.
47. While fibre helps in the movement of food in the digestive tract, flushes out undigested food and eases bowel movements, prevents constipation, water helps in absorption, transport, excretion of waste materials and regulates body temperature.
48. Cereals such as rice, ragi, wheat, jowar, vegetables such as potatoes, tubers and fruits such as bananas, pineapples, mangoes are carbohydrate-rich food items.
49. (i) Gram – Gram is leguminous and a protein-rich food item, whereas jowar, bajra, ragi, cereals are carbohydrate-rich food items.
(ii) Rice - Rice is a cereal and carbohydrate rich food item, whereas rajma, moong dal, soyabean, legumes are a protein rich food item
50. Gram flour with jaggery, dry fruits and seeds with wheat flour and ghee as components, laddu is rich in carbohydrates and fats that help in producing more energy needed to keep our body warm during winters
51. Vegetable sources of fat: mustard, coconut, sunflower seeds, soybean, ground-nut (groundnut), cashew-nuts, almonds, pumpkin seeds, sesame seeds, pistachios
52. The fat stored under their skin has been used as a source of energy to keep snow bears alive during the long sleep of the winter months without consuming anything.
53. Plant sources of proteins: Moong dal, tur dal, kadle dal, rajma, peas, soyabean etc
Animal sources of proteins: milk, paneer, eggs, fish, meat, etc.
54. Green leafy vegetables, fresh fruits, cereals, legumes and seeds are good sources of fibre.
55. Papaya, Carrot, Mango, Milk
56. Pulses, nuts, whole grains, seeds, milk products, flaxseeds, pumpkin seeds, wheat, rice, paneer, liver, etc.
57. Fish, edible mushrooms, fish, eggs, butter, milk
58. Sea weeds, water chestnuts, singhada (nut of Sita-Ashoka plant), iodized salt ginger, milk, boiled potatoes, spinach, raisins, eggs, hard curd, prawns, crab etc.
59. Milk, cheese, wheat, rice, green chillies, banana, sunflower seed, pumpkin seed etc.

60. Green leafy vegetables, beetroot, pomegranate, spinach, sprouted cereals, potatoes, molluscs, pumpkin seeds, apples, meat etc.
61. Sugar is a type of carbohydrate, but it does not contain starch. The iodine test is specifically used to detect the presence of starch, which turns blue-black when iodine is applied. Since sugar does not contain starch, it does not change colour when tested with iodine solution. This is why sugar does not turn blue-black.
62. Raman's statement, "All starches are carbohydrates but not all carbohydrates are starches" is accurate. Starches are a certain type of carbohydrate, but carbohydrates also contain sugars and polysaccharides, which are not classified as starches.
63. A possible reason why iodine on a teacher's saree turns blue-black but does not change colour on Mishti's socks is that the saree is made of a material containing starch, which reacts with iodine to produce a blue-black colour. In contrast, Mishti's socks could be made from material that did not contain starch, so iodine did not cause any color change.
64. When a food substance containing starch (like potato) is taken and treated with dilute iodine solution, a blue-black color mixture appears.
65. A diet that contains the right amount of all the essential nutrients, fibre and water for the proper growth and development of the body is called a balanced diet.
66. i) How does the nutritional content of certain foods help prevent or treat specific health issues?
 - i) Can you give examples of foods that have medicinal properties and the health benefits they offer?
67. He should include foods that are high in fibre in his diet. It involves eating various vegetables, fruits, grains and legumes. Oats, brown rice, cereal bread and fruits like apples and bananas help improve digestion and promote regular bowel movement. Drinking plenty of water is essential for digestive health, This is because it helps in softening the stools and prevents constipation.
68. Foods like potato chips, candy bars, chocolate, carbonated beverages are called unhealthy foods as they are high in calories due to their high sugar and fat content and are low in proteins, minerals, vitamins and fibre, which increases our body fat and causes a number of health problems.
69. "I prefer fresh fruits because they are free from harmful chemicals used in processing, and they are also free from the sugars added to fresh fruit juices"
70. In some cases, more nutrients are added to the food during processing to improve the nutritional quality of the food in packaged food items.

Example: Iodized salt and baby foods
71. Millets are some of the indigenous crops of India, such as small-sized cereals with high nutrients that can be easily grown in different climatic conditions.
72. Millets are rich in vitamins, minerals and fibre like iron and calcium and are known as nutritious cereals, which are important parts of a balanced diet.
73. There are several reasons why Millets are considered a healthy food choice:
 - i) Nutrient Richness: Millets (such as barley, quinoa, etc.) are rich in vitamins, minerals, and antioxidants. They provide essential nutrients that the body needs.
 - ii) High Fiber: Millets contain a high amount of fiber, which improves digestion, aids in weight management, and supports heart health.
 - iii) Water and Energy: Millets serve as a source of energy for the body, providing long-lasting energy. They release energy slowly, unlike simple carbohydrates that provide quick energy.

- iv) Heart Health: Millets help lower cholesterol levels and prevent heart-related diseases.
- v) Immune Power: The antioxidants present in Millets enhance the body's immune system.

However, relying solely on Millets to meet the body's nutritional needs is not sufficient. The body requires a variety of nutrients, and a balanced diet is necessary to obtain them.

74. We should not waste food to avoid wasting the time and effort used by our farmers and people from other communities to reach food from the garden to our plate.
75. Farmers grow in wheat fields > harvesting and appearance of wheat> collecting wheat grains> flouring and townbuilding> transportation to shops> Chapati on our plate
76. i) False, ii) True, iii) Right
77. a) Energy providing nutrients - carbohydrates and fats
b) Body Building Nutrients - Protein Rich Foods
c) Protective nutrients - vitamins (vitamins) and minerals
78. (i) The doctors gave calcium tablets to Gaurav as calcium is essential for bone health and healing.
(ii) The doctor gave vitamin D syrup along with calcium tablets as vitamin D is crucial for the absorption of calcium in the body. Without enough vitamin D, the body cannot utilize calcium effectively, which is essential for proper bone healing and strength.
(iii) The question that arises about the choices made by the doctor is: "Has the doctor assessed Gaurav's overall nutritional status and ensured that he was getting enough vitamin D from other sources like sunlight or food along with syrup?" This consideration is important to ensure comprehensive care and effective healing.
79. (A) Vitamin A,
(B) Night blindness,
(C) Milk, fish oil, mango, carrot, papaya, etc.
80. (A) Beriberi
(B) Vitamin B1
(C) Pulses, nuts, whole grains, seeds, milk products, flaxseeds, pumpkin seeds, wheat, rice, paneer, liver, etc.
81. (A) Scurvy
(B) Vitamin C
(C) Tomato, Amla, Lemon, Orange, Guava, Green Chillies
82. A) Rickets
B) Vitamin D
(C) Fish, edible mushrooms, fish, eggs, butter, milk
83. A) Goiter (Galaganda)
B) Iodine
C) Sea weeds, water chestnuts, singhada (nut of Sita-Ashoka plant), iodized salt ginger, milk, boiled potatoes, spinach, raisins, eggs, hard curd, prawns, crab etc.
84. A) Anemia (anemia)
B) Iron is the main component of blood
C) Green leafy vegetables, beetroot, pomegranate, spinach, sprouted cereals, potatoes, molluscs, pumpkin seeds, apples, meat etc.
85. The entire distance travelled by any food item bag from producer to consumer is called its food mile.

Advantages of reducing food miles.

A) Reduces cost and pollution during transportation

B) Helps to support local farmers

C) It keeps our food fresh and healthy

86. Take a small amount of food items like potatoes, cucumbers, bread, some rice, cooked peanuts.

Crushed peanuts, oil, butter and coconut grated coconut for testing.

- Take a small piece of each food item in a separate bowl.
- With the help of a dropper, put 2-3 drops of dilute iodine solution on each food item.
- The colour of food items turns blue-black while blue-black indicates the presence of starch.

87. Take a small amount of food items like potatoes, cucumbers, bread, some rice, cooked peanuts.

Crushed peanuts, oil, butter and coconut grated coconut for testing.

1. Make a paste or powder of food items using a kuttani.
2. Take about half a teaspoon of each food item in a clean separate test tube.
3. Add 2-3 teaspoons of water to each test tube and stir well.
4. Add two drops of copper sulphate solution to each test tube using a dropper.
5. Now take another dropper and add 10 drops of caustic soda solution to each test tube and shake the test tubes thoroughly and keep them undisturbed for a few minutes

If the colour of the food items turns purple, it indicates the presence of proteins in the food item.

88. Take a small amount of food items like potatoes, cucumbers, bread, some rice, cooked peanuts.

Crushed peanuts, oil, butter and coconut grated coconut for testing.

- Place each food item on a separate paper.
- Wrap the paper around the food and press it. Be careful not to let the paper flow.
- If there is some moisture in the food item, let the paper dry. The oil mark on the paper shows that the food item contains fat.

CHAPTER – 4

EXPLORING MAGNETS

Key Answers

- 1) D
- 2) A
- 3) C
- 4) A
- 5) C
- 6) C
- 7) C
- 8) North – South
- 9) Repel
- 10) Attract
- 11) To know direction
- 12) Magnetite
- 13) At the poles
- 14) c) Plastic
- 15) Destroys / Loses it
- 16) Loadstone.
- 17) Magnetic.
- 18) Magnet.
- 19) Two
- 20) North south
- 21) Two
- 22) Shapes
- 23) magnetic materials
- 24) magnets
- 25) North pole
- 26) Two
- 27) small magnet
- 28) false
- 29) true.
- 30) false.
- 31) false.
- 32) False.
- 33) true
- 34) True
- 35) True
- 36) True
- 37) 1) Unlike poles - attracts , 2) Paper- Non-Magnetic, 3) Loadstone- Naturally occurring magnet.
4) Magnetic compass - sailor , 5) Bar magnet - artificial magnet

38. 1- a 2-b 3-c 4-d
39. Objects that have the property of attracting iron or iron-like objects towards themselves are called magnets.
40. The ends of a magnet where the attractive power is maximum are called the poles of the magnet.
41. Magnetism is found in rocks of the earth.
42. Magnets made by humans from pieces of iron are called artificial magnets.
43. Bar magnet and Horseshoe magnet
44. A compass is a device with a easily rotating magnetic needle used to identify directions.
45. Magnetite is a natural magnet containing iron ore.
46. The materials which are attracted by a magnet are called magnetic materials.eg: Iron, alnico
The materials which are not attracted by a magnet are called non-magnetic materials.eg: paper, plastic, glass , wood.
47. In olden days sailors used stars to find direction at night. They also used a traveller's device called a magnetic compass to find their direction.
48. The properties of magnets are as follows
Magnets attract magnetic substances.
Magnet has two poles - north and south.
Like poles repel each other.
Unlike poles attract each other.
A freely suspended magnet always comes to rest in North south direction.
49. Sita is correct because
- It is not possible to obtain a magnet with single pole.
 - Even if the magnet is broken into smaller pieces, the smallest pieces have both north and south pole.
50. A freely suspended magnet always comes to rest in North south direction because, our earth itself behaves like a giant magnet.
51. Magnets are preserved in the following ways
While storing the magnets keep the unlike poles in the same side.Keep a piece of wood inbetween.Place two pieces of soft iron across the ends.Do not heat ,drop or hammer the magnets.Do not keep magnets near mobile phones or remote controls.
52. Natural magnet : Found in nature. Their shape is irregular and power is low. Example :- Magnetite
Artificial magnet: Made by humans. Have specific shapes, high power. Example :- Bar magnet, Horseshoe magnet
53. Unlike poles of magnets (North - South) attract each other. Like poles of magnets (North - North or South - South) repel each other.
54. A compass contains a small magnetic needle. This freely rotating needle always comes to rest in the Earth's North and South direction. This helps us know the direction.
55. If magnets are not kept properly, they lose their magnetism. When storing bar magnets in pairs, they should be kept such that their unlike poles are on the same side and a piece of soft iron should be placed across their ends.
56. Magnets should be kept away from cassettes, mobiles, televisions, computers, and CDs. Because these electronic devices can get damaged due to the influence of the magnet.
57. By placing one pole of a bar magnet on the iron needle and rubbing it repeatedly (30-40 times) in the same direction up to the end, the needle can be turned into a magnet.

58. When a bar magnet is brought near iron filings, maximum iron filings stick to the two ends of the magnet. Those two ends are the poles.
59. A compass is a small box with a glass lid. Inside it is a magnetic needle that rotates freely on a center, and directions (N, S, E, W) are marked.
60. Magnets are used in compass, purses, pencil box lids, refrigerator doors and the duster to stick it on the board.
- 61.



Bar magnet



Horseshoe magnet



cylindrical magnet



Spherical Magnet

62. Suspend a bar magnet with a thread tied to the middle of the magnet.
Adjust the position of the string till the magnet is balanced horizontally.
Let it come to rest.
A freely suspended magnet always comes to rest in North south direction.
The pole which is resting towards north is considered as north pole.
63. Bring a strong bar magnet near the mixture of iron filings and sand or roll the magnet in the mixture.
Since iron is a magnetic material, it gets attracted and sticks to the poles of the magnet. Sand being a non-magnetic material stays below. Thus it can be easily separated.

CHAPTER 5: MEASUREMENT Of LENGTH AND MOTION

Model Answers

1. metal
2. flexible
3. reference
4. rest
5. oscillatory
6. reference
7. centimetre (cm)
8. 1000
9. flexible
10. 70
11. motion
12. linear
13. circular
14. rotatory
15. Spinning of a top
16. Periodic motion
17. Periodic motion
18. Periodic motion
19. 6 cm
20. numerical value, unit of measurement
21. S.I. Units
22. periodic motion
23. B) To ensure accuracy in measurements
24. D) all the above
25. C) Metre
26. C) 100
27. C) Millimetre
28. B) 500 cm
29. C) $1 \text{ mm} = 0.1 \text{ cm}$
30. B) The distance from a reference point
31. C) Oscillatory motion
32. D) Assertion is false, reason is correct
33. c) Measuring tape
34. d) Circular and periodic motion
35. i – c, ii – d, iii -a, iv - d
36. i - c, ii - b, iii - a, 4 - d, 5 - E
37. i - c, ii - d, iii - b, iv – a
38. i – d, ii – c, iii – b , iv - a

39. The standard unit of a measurement of a specific physical quantity is that, regardless of who measures it, where it is measured, or how many times it is measured, will always yield the same value.
40. The purpose of having standard units of measurement is to provide a consistent and universally accepted way to measure and communicate lengths, thereby reducing confusion in trade, travel, and scientific research.
41. The length of one section between two consecutive big marks on a 15-cm scale is 1 centimetre (cm).
42. It is 10 millimetres (mm) in 1 centimetre (cm).
43. The scale should be placed in contact with the object, and the observer's eye should be positioned directly above the point being measured to avoid parallax error.
44. $1.5 \text{ km} = 1.5 \times 1000 \text{ m} = 1500 \text{ metres}$
45. Motion is the change in position of an object with time from a reference point.
46. Since handspan measurement varies from person to person, tape is used for accurate measurement.
47. This is a periodic motion that repeats at regular intervals.
48. $1.65 \times 100 = 165 \text{ cm}$
49. This is circular motion.
50. $5 \times 1000 = 5000 \text{ m}$
51. $25 \div 10 = 2.5 \text{ cm}$
52. The eyes should be directly above the point where the measurement is being taken.
53. Since the handspan size of different individuals varies, it causes confusion in measurement.
54. $8 - 2 = 6 \text{ cm}$
55. This is oscillatory or periodic motion.
56. It is accepted to maintain uniformity and accuracy in measurements around the world.
57. True
58. False
59. True
60. True
61. False
62. False
63. True
64. False
65. True
66. False Correct statement :- To avoid parallax error, the eye must be directly above the measurement point
67. True
68. Since the ball moves forward on the ground, it exhibits rectilinear motion. At the same time, because it rotates on its own axis, it possesses rotational or circular motion.
69. We should skip the zero and start measuring from the next full number (for example 1.0 cm). Then, subtracting that starting number from the final reading will give the exact length.
70. When an elastic tape is stretched, its length increases, leading to errors in measurement. However, a regular tape gives accurate and stable measurements.
71. Since the distance between cities is extremely large, writing it makes numbers large and difficult to read. Therefore, the kilometer unit is appropriate for such large distances.

72. As we know, $1000\text{ m}=1\text{ km}$ $2250\div1000=2.25\text{ km}$ The distance to Radha's home is 2.25 km.

73. Since the kite changes direction according to wind flow, it has irregular motion. At the same time, because it swings back and forth under the control of the string, oscillatory motion can be observed

74. Motion and rest are indeed relative concepts, meaning that whether an object is in motion or at rest depends on the observer's frame of reference.

Example: Consider a train moving at a constant speed on a straight track. To a passenger sitting inside the train, everything inside the train (like a cup on the table) appears to be at rest. However, to an observer standing outside the train on the platform, the same cup is moving along with the train. Thus, the cup is at rest relative to the passenger but in motion relative to the observer on the platform. This illustrates that motion and rest are not absolute; they depend on the observer's point of view.

75.

- i) Linear Motion: This occurs when an object moves along a straight path. Example: A car driving down a straight road or a person walking in a straight line.
- ii) Circular Motion: This type of motion happens when an object moves along a circular path. Example: A bicycle wheel spinning or a child on a merry-go-round.
- iii) Oscillatory Motion: In oscillatory motion, an object moves back and forth around a fixed position. Example: A swing moving back and forth or a pendulum swinging.
- iv) Periodic Motion: This is a type of motion that repeats itself after a fixed interval of time. Example: The motion of a clock's hands or the vibrations of a guitar string.
- v) Rotational Motion: This occurs when an object spins around an axis. Example: The Earth rotating on its axis or a spinning top.

76. To prepare the report, first take the provided standard scale or meter tape. Starting from one corner of the room, stretch the tape straight along the floor to touch the opposite corner and record the reading. To ensure there are no errors in measurement, repeat this process three times and then calculate the average length. Finally, write that length clearly in meters and centimeters and submit an accurate report to the teacher.

CHAPTER – 6. MATERIALS AROUND US

Answers

1. D) Aluminum foil
2. Transparent Opaque
3. Oil
4. C.
5. B. Due to the action of air and moisture
6. C. Dried leaf.
7. B. Cannot be scratched or compressed easily
8. C. So that buyers can easily see the items
9. B. Oxygen
10. B. Its properties and purpose of use
11. A. Wood
12. B. Less than water, more than coconut oil
13. 4
14. Kg (kilogram)
15. Weight
16. False
17. True
18. False
19. True
20. False
21. False
22. True
23. Stone
24. Book
25. Child
26. Stone
27. Rubber
28. Stone
29. Paper
30. Any substance used to produce an object is called a material.
31. The method of arranging objects into different groups is called classification.
32. Objects that are difficult to compress or scratch can generally be determined as solid objects.
33. Any object that occupies space and has mass is called matter.
34. Matter occupies space and has mass.
35. Some materials have the property of shining on their surface, this is called luster.
36. Materials that completely dissolve in water are called soluble materials.
37. Lemon juice.(any one)
38. Books and Calendars.
39. Materials through which we can see clearly are called transparent. Example: Window glass, air.

40. We can see objects through some materials, but there is no clarity. Such materials are called translucent. Example: Tracing paper and muslin cloth.
41. Objects through which we cannot see are called opaque. Example: Wooden plank, wall, cardboard.
42. Because the objects stored in transparent containers are clearly visible, making them easy to identify.
43. A specific amount of carbon dioxide is mixed in cold drinks. This gas keeps the drink fresh by forming small bubbles.
44. Objects that do not have a shiny surface are called non-lustrous objects. Example: Paper, wood, rubber.
45. 1] Helps to identify and find items easily. 2] Helps to study their properties systematically.
46. Materials that can be easily compressed or scratched are called soft materials. Example :- Sponge
Materials that cannot be easily compressed are called hard materials. Example :- Iron
47. Wood and plastic are poor conductors (insulators) of heat. Even if the vessel gets hot, the handle does not get hot. Because of this, the vessel can be easily held.
48. Oxygen gas dissolves in small amounts in water. Aquatic beings live by using this dissolved oxygen for respiration.
49. The main purpose of a cup is to hold liquid. Paper absorbs water, and because of that, it tears. It cannot hold water.
50. The iron rod has more luster. Because iron is a metal, and metals naturally have the property of luster. Luster is not visible on the rusted portion.
51. Miscible liquid :- Lemon juice Immiscible liquid :- Coconut oil.
52. Floating objects :- Dried leaf, Plastic spoon Sinking objects :- Stone, Coin
53. Although earthenware pots are healthy, metal utensils are increasingly used instead because:
 - * Metal utensils do not break.
 - * They are shiny.
 - * They last for a long time.
 - * They are very easy to use.
54. ORS is prepared by mixing six teaspoons of sugar and half a teaspoon of common salt in one liter of boiled and cooled water. This solution is used to treat dehydration caused by diarrhea or other illnesses.
55. A few drops of the liquid in the test tube should be placed on a glass or plate and heated or left to dry in the sun. After all the water evaporates, if a white layer (residue) remains at the bottom of the plate, it is a salt solution. If no substance remains, it is pure water.
56. Luster : Metals shine. Example :- Gold, Silver. Hardness : These are generally hard. Example :- Iron.
Conductivity : These allow heat and electricity to flow. Example :- Copper.
57. When water cools and turns into solid ice, its volume increases and its density decreases. Since the density of ice is less than liquid water, it floats on water.
58. Required materials :- Beaker filled with water, Iron nail, Plastic spoon, Stone, Coin, Dried leaf.
Procedure :- Place items one by one into the water-filled beaker and observe whether they float or sink. Observation :- Stone, nail, coin sink to the bottom. Plastic spoon, leaf float on top of the water. Conclusion :- Objects with density greater than water sink and objects with lesser density float.

59. Plastic --- Pen, Bucket, Toys, Wood -----Chair, Table, Metal / Iron ----- Cupboard, Window bar, Plate
60. Luster — Gold Hardness — Iron Solution (Solubility) — Sugar Transparent — Glass Translucent — Oiled paper. "All transparent objects are not made of glass"
61. This statement is correct. Materials other than glass can also be transparent. Water :- Water is a liquid material. But it is transparent. Air :- Pure air around us is transparent. We can see everything through it. Plastic :- Some plastic toys and water bottles are completely transparent.
62. Match the following a-iii, b-v, c-i, d-ii, e-iv

CHAPTER – 7

HEAT AND ITS MEASUREMENT

Key answers

1. B) Kelvin
2. A)Temperature
3. A) Hotter
4. C) Clinical Thermometer
5. A) Heat Sensors
6. D) 98.6°F
7. C) Infrared Thermometer
8. A) Immediately after removing it.
9. B) -5°C
10. D) bulb
11. B) At eye level
12. B) Hold the thermometer vertically and immerse it without touching the sides (or) bottom.
13. B) Student 2
14. B) 27.5°C
15. C) Wall-mounted thermometer.
16. C) It is a good conductor of heat and does not stick to the glass.
17. A) 273.15
18. A) Anna Mani
19. (a) -10°C to 110°C
20. (b) Infrared
21. heat sensors
22. non-contact thermometer.
23. A reliable measure of hotness (or) coldness of a body is called its Temperature
24. Mercury (or) alcohol
25. Clinical Thermometer

26. It prevents the mercury from dropping back to the bulb when the reading is being taken.
27. Fahrenheit Scale.
28. Digital Thermometer.
29. A laboratory thermometer = 50 divisions Range = 0°C to 100°C , Each division of thermometer = $100^{\circ}\text{C} / 50 = 2^{\circ}\text{C}$
30. Because students did not follow the correct methods of reading temperature.
31. i - 100°C , ii - 0°C iii - Runs on battery iiiii - Absolute zero iv - Mercury
32. 37°C
33. Celsius
34. Yes
35. NO
36. Yes
37. NO
38. Yes
39. NO
40. True
41. True
42. There are 2 kinds of thermometers. They are: i) Clinical Thermometer. ii) Laboratory Thermometer.
43. The body temperature is influenced by the factors, i) Age ii) Time of the day and iii) Activity level.
44. The three scales of measuring temperature are i) Celsius scale ($^{\circ}\text{C}$) ii) Fahrenheit Scale ($^{\circ}\text{F}$) iii) Kelvin scale (K).
45. Mercury is an extremely toxic substance and is difficult to dispose of if the thermometer breaks accidentally. So, mercury thermometers are being replaced by digital thermometers.
46. Because the range of the laboratory thermometer is characterized by its long and narrow tube and the scale typically ranges beyond the human temperature range.
47. Mercury is used in thermometers because it can expand and contract evenly when the temperature changes. It is shiny, it doesn't stick to the glass tube. Also, Mercury stays in liquid form in a wide range of temperatures.
48. Digital thermometers are considered safe because there is no risk of mercury poisoning. And also, the numbers in its display are easier to read. Temperature in a digital thermometer is determined with the help of heat sensors which is accurate.
49. The 3 main temperature scales are Celsius scale, Fahrenheit and Kelvin.
The Celsius scale is used widely; water freezes at 0°C and water boils at 100°C . The Fahrenheit scale is mostly used in clinical thermometers. Water freezes at 32°F and boil at 212°F . Kelvin is the SI unit of temperature used in science. It starts from 0K (zero Kelvin).

50.

Clinical Thermometer	Laboratory Thermometer
It is made specially for measuring human body temperature.	It is used to measure other things like water (or) air temperature.
It ranges from 35°C to 42°C .	It has a bigger range usually from -10°C to 110°C .
It has a small bend called a kink, that keeps the Mercury from falling quickly.	It doesn't have a Constriction.

51. The correct way of measuring temperature using a Laboratory thermometer is
- When the thermometer is immersed in water, its bulb should not touch the bottom or the sides of the beaker.
 - The thermometer should be held vertically. It should not be tilted.
 - The temperature must be read while the thermometer is immersed in water (any liquid).
 - While reading the thermometer, the eye should be directly in line with the level of the liquid column to be read
- 52.
- Wash your hands and the tip of the digital thermometer with soap and water.
 - Reset the thermometer by pressing the reset button.
 - Place the thermometer under the tongue and close your mouth.
 - Wait till the thermometer makes a beeping sound or flashes a light.
 - Take it out from the mouth and read the temperature on the digital display.
 - Record the temperature
 - Clean the tip of the thermometer with soap and water and dry it.

CHAPTER – 8. A JOURNEY THROUGH STATES OF WATER

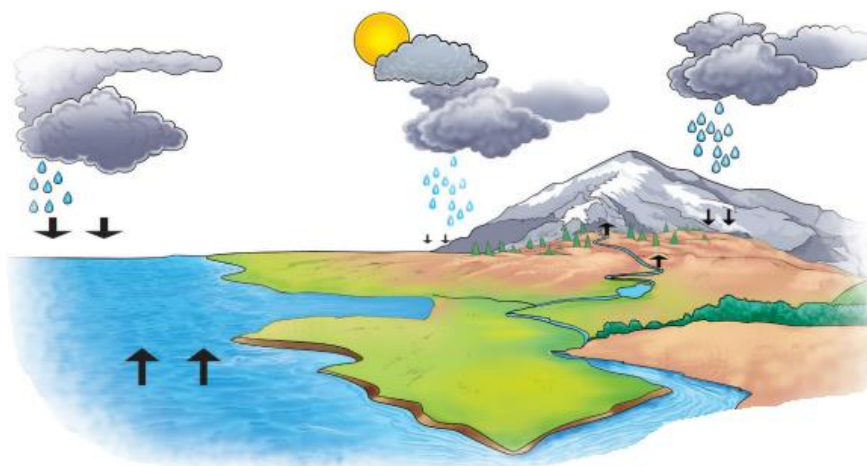
MODEL ANSWERS

1. C) solid, liquid, gas
2. B) liquid
3. B) evaporation occurs
4. D) condensation.
5. C) water seeps and evaporation causing cooling
6. B) When it is windy and hot.
7. C) gas
8. C) water vapour
9. C) water
10. A) water vapour condenses and cools the surfaces.
11. b) Freezing
12. a) Evaporates
13. c) Condensation
14. Melting
15. Condensation
16. evaporation
17. freezing
18. evaporation
19. sublimation.

20. With the increase in the moment of air, water evaporates faster.
21. Liquid oil changes into solid on cooling.
22. This is because of evaporation of water. Evaporation is the process, where a liquid changes into gas
23. The glasses becomes foggy because the warm and moist air contains water vapour that condenses on the cool glass surface.
24. Evaporation
25. Condensation
26. Transpiration
27. Liquefaction / Melting
28. Water Cycle
29. conditions which make the evaporation faster are lower temperature, exposed area, humidity etc..
30. the shape and volume of ice does not change when shifted from one container to another. In case of water, shape depends on the container but volume remains the same. In case of water vapour both volume and shape change. It occupies available space.
31. Evaporation is the process where a substance changes from liquid to gas.
32. A process of converting a substance from solid to liquid is called melting.
33. A process of converting a substance from liquid to solid is called freezing.
34. Sublimation is the process of a substance changing directly from solid to a gas.
35. The amount of water vapour in the air is known as humidity. If the amount of water vapour in the air is high, the water evaporates slowly.
36. Cooling effect or evaporative cooling is a phenomenon, where a substance cools down. Because the process of evaporation absorbs heat energy from the surroundings.
Example : feeling cool after sweating.
37. we can turn the candle wax into liquid state by heating and change the liquid wax back into solid state by cooling.
38. To cool down the hot seat of a two wheeler on a sunny day we can cover it with a wet cloth placed at the back or a towel over the seat and water will absorb heat as it evaporates cooling the seat. Sprinkle water on it lightly. Sprinkle water directly on the seat the evaporation of water will help to lower the temperature.
39. Many liquids other than water can evaporate including alcohol, oil, nail polish remover, and even things like milk or eye drops.
40. Water exists in solid form in nature as ice which is formed when water freezes below 0°C . Like glaciers, ice caps and frost.
41. Air containing water vapor goes up in the atmosphere because water vapor is lighter than air. As it rises, it can cool and condense to form clouds.
42. Rainy days are more humid because the amount of water vapor in the air is higher during these times. This increased humidity is a result of evaporation from the Earth's surface and the presence of moisture in the atmosphere.
43. The process of condensation where water vapor changes from gaseous state to liquid state by cooling. In nature, formation of clouds in the sky, occurrence of rain.

44. Water on Earth evaporates due to heat of the sun and goes up. It cools in the atmosphere and returns to Earth as rain. In extremely cold regions, it turns into ice (solid). Through this, water changes its states.
45. When air moves higher above the Earth surface it becomes cooler and cooler. At certain Heights the air gets so cool that the water in it turns into droplets which are generally formed around dust particles. These small droplets float in the air and form clouds many droplets join together to form bigger drops of water some drops get so heavy that they start falling this falling water drops are called rain.
46. Only a small portion of water available on the earth is fit for use by plants animals and humans. Most of the water is available in the oceans which we cannot use directly we need water for drinking many other activities. With increasing population, the availability of safe water is decreasing. Though it is our right to get water for our existence but at the same time it is our responsible to keep water bodies free from pollution.
47. The process in which water from the sources on the Earth's surface evaporates due to the heat of the sun, rises, cools, condenses into clouds, and moves horizontally, further cooling and falling as rain, which then returns to the water sources, is called the water cycle.

Cloud, Lake, Ocean, River, Groundwater, Evaporation,
Condensation, Rain, Snow



48. States of Water Solid → Liquid → Gas Separation
Water is found in three physical states in nature. Solid state:- When water gets very cold, it turns into ice. Ex:- Glaciers, Hailstones. Liquid state:- This is the common form of water. The water we drink and use is in this state. Ex:- River, Sea. Gaseous state:- When water is heated and evaporates, it turns into gaseous form. Ex:- Water vapor or Steam.
49. Evaporation :Process of changing from liquid state to gaseous state. Occurs when there is high temperature or heat. Ex:- Drying of wet clothes.
Condensation: Process of changing from gaseous state to liquid state. Occurs when temperature decreases and cools. Ex:- Formation of water drops outside a cold water glass.

CHAPTER – 9. METHODS OF SEPARATION IN EVERYDAY LIFE

Sample Answers:

1. D) All of the above
2. D) All of the above
3. C) Two statements are correct
4. B) To separate two useful components even though they are distinct
5. C) Small particles like sand remain on the filter paper
6. D) All of the above
7. B) Separation by hand
8. A) Separation, settling, and filtration by gravitational force.
9. B) More salt can be dissolved in it.
10. B) I, iii, ii, iv
11. B) Classification
12. A) winnowing
13. C) The heavier component settles at the bottom.
14. C) Winnowing
15. (b) Handpicking
16. (b) Filtration.
17. Evaporation
18. Sieving
19. B) i-d, ii-e, iii-a, iv-b, v-c
20. C) Both statements are correct
21. Condensation
22. decantation
23. churning
24. Separating an unusable substance from a usable substance
25. Filtration
26. To remove impurities or harmful components, to eliminate non-useful components, and to separate useful components.
27. Dust particles in the beans are removed by washing with water, but heavier dust particles or stones are pushed away. This process is called separation by gravitational force. Dirty water can be removed by the settling method, allowing the beans to settle at the bottom.
28. A solution containing a liquid that has dissolved the maximum amount of solute at a specific temperature is called a saturated solution.
29. The phenomenon of water changing from a gaseous state to a liquid state due to cooling is called condensation.
30. The phenomenon of water changing from a liquid state to a gaseous state due to heating is called evaporation.
31. The method of separating impurities present in water using a device with very small holes is called filtration.
32. Churning.

33. Handpicking method.
34. The process of beating dried plant stalks to separate grain seeds.
35. The process where heavy solid substances in a liquid settle down at the bottom of the container.
36. Picking small stones and trash from rice (or) wheat.
37. Winnowing is the process of separating heavier components from lighter components in a mixture by using air or blowing air. This is commonly used by farmers to separate lighter impurities from heavier particles.
38. Threshing is the process of separating grains from the stalks by beating the stalks against a hard surface. The action used to separate grains from the stalks is called threshing, and farmers use this method to separate the seeds of crops from the stalks.

39.

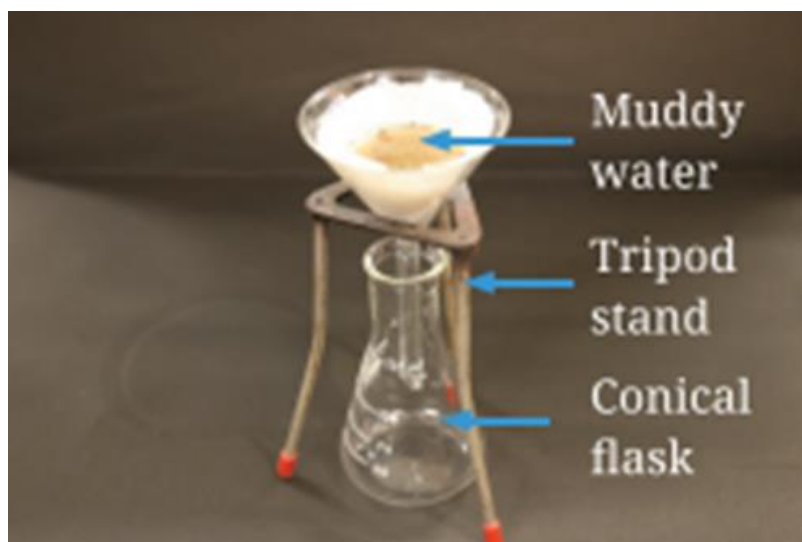
Threshing	Winnowing
This is the action of separating crop seeds from the stalks. In this process, the stalks are beaten against hard ground. This action occurs before Winnowing.	This is the action of separating impurities from the grains. In this, the impurities present in the grains are separated with the help of air. This action is performed after threshing.

40. To remove non-useful or harmful components. Ex:- Separating small stones and trash present in rice or wheat. To use useful components separately. Ex:- Churning milk to obtain butter.
41. Sedimentation : The process where heavy solid substances in a liquid settle down at the bottom of the container.
Decantation: The process of slowly pouring the clean water on top into another container without disturbing the settled mud at the bottom.
42. The process where water changes into vapor under the influence of sun's heat (Liquid → Gas).
Application:- This method is used to obtain common salt after water evaporates due to sun's heat after collecting sea water in small shallow pits.
43. When seawater is collected in shallow pits, the water gradually evaporates. After a few days, the water completely evaporates, leaving behind solid salts. This mixture of salts can be further purified to obtain common salt.
44. Mix sand and water in a beaker and add a little water. Let the beaker sit for a while; the sand will settle at the bottom of the beaker. The sand can be separated using the method of decantation or filtration. The liquid that remains will contain salt and water, which need to be separated. Transfer this liquid to a kettle and cover it. You can observe steam coming out of the kettle's spout. Place some pieces of ice on a metal plate and hold the metal plate slightly above the kettle's spout. Allow all the water in the kettle to boil away. When the steam touches the cold metal plate, it condenses and forms liquid water. After all the water has evaporated, salt will remain in the kettle.
45. Collect the muddy water in a container and let it sit undisturbed for half an hour. The heavier soil particles will settle at the bottom of the container due to the method of gravitational separation. Using the method of decantation, pour the water from the top into a second container. If the

water in the second container is still muddy, filter it using a piece of cloth. If the water is still muddy after filtration, you can filter it again. The solid particles in the mixture will remain on the paper without passing through. Through these steps, you can obtain clean water from muddy water.

46. Yes, it is possible to separate a mixture of sugar and wheat flour. This can be done using the sieving process. If you allow the mixture of sugar and wheat flour to pass through a sieve, the finer wheat flour particles will pass through the sieve, while the sugar particles will be retained by the sieve.

47.



- 48.** Farmers mainly use 2 steps to clean grains. Threshing :- To separate grain seeds from dried crop stalks, they are beaten against hard ground (or) a rock. Sometimes machines are used for this.

Winnowing :- The mixture obtained after threshing contains grains and light husk. When this is dropped down from a heightened place, the light husk flies away due to the force of wind and heavy grain seeds fall directly below to form a heap.

CHAPTER – 10. LIVING CREATURES: EXPLORING THEIR CHARACTERISTICS

Model Answers

1. (b)Spawn
2. (a) Living and non-living things are made up of cells
3. (d) all of these
4. (b)Water and air
5. (b)By movement
6. (d) respiration
7. (d)All of the above
8. (c)It will germinate but will not grow well
9. (c) They respire to get energy
10. (a)By coming to the surface
11. (b)Frogllet
12. (b) Book
13. (b) energy
14. (b) oxygen
15. (d) Do not grow
16. (c) An adult
17. Embryo
18. Pupa
19. Stomata
20. Stimuli
21. Reproduction
22. Nutrition
23. Living things grow, move, breathe, reproduce, and need food; non-living things do not
24. No, plants do not move location but can exhibit movements like opening flowers.
25. Growth is an increase in size, complexity, and development over time.
26. Food provides energy for growth, repair, and maintenance of body functions.
27. Breathing is inhaling and exhaling air; respiration uses oxygen to release energy from food.
28. Excretion is the process of removing waste products from the body.
29. Animals excrete waste through organs like kidneys, which produce urine.
30. Plants excrete oxygen during photosynthesis and carbon dioxide during respiration.
31. A stimulus is anything that causes a living being to react or respond.
32. Reproduction is the process by which living beings produce new individuals of their kind.
33. A living being is dead when it can no longer exhibit life characteristics like movement and growth.
34. Water activates enzymes that start the growth process within the seed.
35. Water, air, and suitable light or dark conditions are essential for seed germination.
36. No, some seeds need light while others require darkness to germinate.
37. Phototropism is the growth of a plant toward light.
38. Air provides oxygen necessary for respiration during germination.

39. The state caused in living beings that displays a response to changes occurring in our surrounding environment.
40. To obtain energy from food
41. Unicellular organisms.
42. Structural and functional basic unit of an organism
43. Animals live only for a specific period but plants can live for a long time.
44. Living beings respond to stimuli to adapt and protect themselves.
The essential features of living beings include movement, growth, respiration, nutrition, excretion, response to stimuli, reproduction, and death.
45. A plant grows from a seed, undergoes germination, and develops roots and shoots. It then grows leaves, flowers, and fruits, completing its life cycle.
46. The life cycle of a frog includes stages: egg, embryo, tadpole, froglet, and adult frog. The froglet eventually matures into an adult frog.
47. Growth in living beings is important for their development, and it ensures they reach a mature stage for reproduction and survival.
48. Plants grow towards sunlight, a phenomenon called phototropism, where their shoots bend toward light for better photosynthesis.
49. Seed germination occurs when a seed absorbs water, the seed coat softens, and the embryo inside grows into a young plant with roots and shoots.
50. Water softens the seed coat and helps the embryo inside the seed start growing by activating necessary metabolic processes.
51. Roots grow downward to anchor the plant and absorb water, while shoots grow upwards toward sunlight for photosynthesis.
52. Reproduction is the biological process by which living beings produce offspring of their kind, ensuring the continuation of their species.
53. Excretion is the process of eliminating waste products. In animals, it includes processes like urination, while in plants, it includes the release of excess water through leaves.
54. The life cycle of a bean plant begins with the germination of the seed. The seed absorbs water, softens the seed coat, and the embryo inside grows into a root and shoot. The plant grows, develops leaves, and eventually produces flowers. After flowering, the plant produces fruit (a pod), which contains seeds. These seeds can then be used to grow new plants, continuing the cycle.

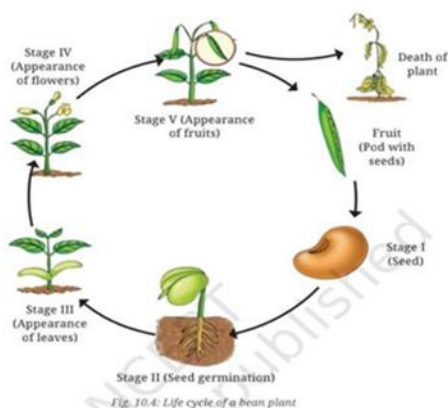


Fig. 10.4: Life cycle of a bean plant

55. The life cycle of a frog includes stages such as egg, embryo, tadpole (with tail), froglet, and adult frog. Frogs begin life in water and later move onto land. In contrast, a mosquito undergoes egg, larva, pupa, and adult stages. Mosquitoes live in water during the larval and pupal stages, with the adult mosquito flying after emerging from the pupa.
56. Seed germination requires three essential conditions: water, air, and sunlight (or sometimes darkness). Water activates the seed's metabolic processes and softens the seed coat. Air is necessary for respiration, providing oxygen for the embryo. Sunlight or darkness (depending on the plant) influences the growth direction of the seedling. Without these conditions, the seed will not germinate.
57. Both plants and animals grow by increasing in size and developing new structures. Animals move from place to place and perform various physical actions. Plants, though rooted in one place, exhibit movements such as phototropism (movement toward light) and gravitropism (response to gravity). In some cases, plants like insectivorous plants show more noticeable movements, such as trapping insects.
58. A frog's life cycle allows it to adapt to both aquatic and terrestrial environments. Initially, the frog starts as an aquatic larva (tadpole), which uses its tail for swimming. As it matures into a froglet, it begins to spend more time on land. The frog's ability to live in both environments is crucial for its survival, allowing it to exploit different resources throughout its life.

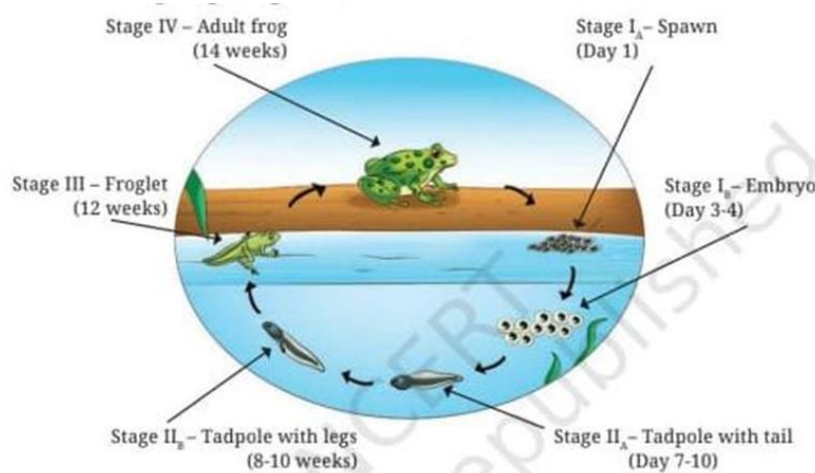


Fig. 10.8: Life cycle of a frog

59. To ensure proper storage of grains and pulses and prevent germination: Keep Dry • Cool Storage • Airtight Containers
60. The tail in the tadpole stage of a frog provides
- Swimming Ability: It helps the tadpole swim efficiently in water to find food and escape predators.
 - Balance and Stability: Assist in maintaining balance while moving in water.
61. Similarities • Both begin life as eggs.
- Both have a larval stage (tadpole in frogs, larvae in mosquitoes) that is aquatic. Distinguishing Features
- Mosquitoes have four stages, Egg → Larva → Pupa → Adult
- Respiration: Larvae and pupae breathe through siphons.
- Frog has four stages Egg → Tadpole → Froglet → Adult

Respiration: Tadpoles have gills, adults have lungs and can respire through their skin.

62. Living things : Living things require food, water, and air. They have independent growth and movement. They have a lifespan.

Non-living things: Non-living things do not require food, water, and air. They do not have independent growth and movement. They do not have a lifespan.

63. Plants: Prepare their own food. Breathe through stomata. Do not have independent movement. Animals : Depend on other organisms for food. Breathe through lungs, gills, skin, etc. Have various organs for movement.

64. Expected observations

- Shoot: Growth upwards, towards the light source.
- Root: Growth downwards, into the soil for stability and nutrient absorption. Reasons
- Shoots grow towards light (phototropism) for photosynthesis.
- Roots grow downwards (gravitropism) for – nutrient absorption.

65.



Fig. 10.9: Pot kept along the ground

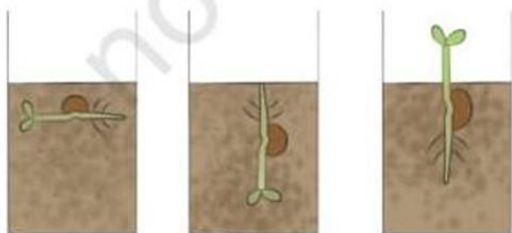


Fig. 10.10: Experimental set-up

Tara and Vijay are likely trying to understand how the orientation of a seed affects the growth direction of the shoot (the green part above ground) and the root (the part below ground).

Observation: If the shoot always grows upwards (towards the light) and the root always grows downwards (into the soil), regardless of how the seed is placed, this shows that plants have natural mechanisms (like phototropism and gravitropism) that guide their growth direction.

66. **AIM:** Experiment to Check the Effect of Temperature on Seed Germination Materials: Identical pots, soil, seeds, thermometers, and different temperature-controlled environments (e.g., refrigerator, room temperature, heated environment).

Procedure (i) Fill each pot with the same type of soil. (ii) Plant seeds in each pot. (iii) Place each pot in a different environment with controlled temperatures (e.g., cold, room temperature, warm). For example, keep one pot outside on the balcony to get sunlight. Put another in the shade in the room. Keep the third one in basement or at the coldest part of the house. (iv) Water each pot equally. (v) Record the number of seeds germinated in each environment daily for two weeks.

Observation: Measure and compare the rate of germination and growth in different temperatures.

Conclusion: Determine the optimal temperature for seed germination based on observations

67. Living beings move. → Living beings consume food. → Living beings grow. → Living beings breathe. → Living beings respond to stimuli. → Living beings excrete. → Living beings reproduce. → Living beings have a lifespan.

CHAPTER 11. NATURE'S TREASURES

Model Answers

1. B) Nitrogen
2. A) Oxygen
3. D) All Of the Above
4. A) Rainwater Harvesting
5. B) Sun
6. C) Forest
7. D) Soil
8. B) Deforestation
9. A) Solar Energy
10. C) Ocean
11. d) Forests & Plants
12. d) Windmill
13. a) Water
14. a) Planting more trees.
15. c) Petroleum
16. i – c, ii – a, iii – b, iv – e, v – d
17. a-iii b-i c-iv d-ii
18. True
19. False
20. True
21. True
22. True
23. False
24. Plants use the solar energy to prepare food.
25. It is called a forest.
26. i) Usage of public transportation e.g., buses and trains, and
ii) walking for short distances.

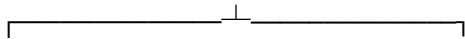
27. Renewable resources include wind energy, water, solar energy, soil, forests, etc.
28. Using electric power to operate vehicles instead of fossil fuels and using CNG and LPG fuels.
29. We use water daily for drinking, household purposes, irrigation, and hydroelectric power generation.
30. Rivers, lakes, wells, glaciers, and ponds are sources of freshwater.
31. The main reasons for water pollution are:
 - a) Household water, sewage, and waste materials being discharged into rivers.
 - b) Industrial toxic water being released into water sources without purification.
 - c) Washing vehicles and livestock and discharging the water into rivers.
32. Solar lamps, solar water heaters, solar cookers, and solar power cells are examples.
33. Forests are the lungs of the environment. They provide food and shelter for all living beings, produce a significant amount of oxygen from the trees, and increase rainfall due to well-grown trees. Forests are also useful to produce furniture.
34. The effects of deforestation on the environment are as follows:
 - a) Animals and birds face a shortage of food and habitat.
 - b) The amount of rainfall decreases.
 - c) The increase in carbon dioxide levels leads to global warming.
 - d) Medicinal plants that are needed from the forest are not available.
35. To enhance soil fertility, organic fertilizers should be used. Scientific methods include ensuring that sunlight reaches the soil, reducing the use of chemical fertilizers and pesticides.
36. The remains of microorganisms and plants and animals that have decomposed underground eventually form petroleum, natural gas, and coal after millions of years. These are referred to as fossil fuels.
Examples include petrol, diesel, and kerosene.

37.

Renewable resources	Non-renewable resources
These are resources that replenish in a short period.	These are resources that do not replenish in a reasonable or short period.
They do not get exhausted with excessive use.	They get exhausted with excessive use.
Examples: Air, water, sunlight, soil, etc	Examples: Coal, petrol, diesel, etc.

38. Natural resources such as air, water, sunlight, fossil fuels, soil, and forests are essential for all living beings to survive. Plants require water, air, soil, and sunlight to produce food, and energy sources and minerals are needed for transportation and logistics. Therefore, there is a necessity for natural resources.
39. The method of collecting rainwater falling rapidly on rooftops of buildings or open areas into tanks so that it does not flow away wastefully. Use :- It increases the groundwater level and overcomes water scarcity in summer.
40. Wildlife is needed to maintain biodiversity and food chain in the ecosystem. Their conservation is essential to maintain biological balance in nature and preserve the future beauty of nature. Conserved areas:- National Parks, Wildlife Sanctuaries.
41. Renewable energy sources that do not cause environmental pollution and never run out, instead of conventional fuels like coal and petroleum, are alternative energy sources. Examples :- Solar energy, Wind energy, Bio energy.

42. Natural Resources



Renewable (examples)

Non-renewable(examples)

43. Forests → Air → Water → Solar energy → Soil, Rocks → Minerals → Fossils

CHAPTER 12: BEYOND EARTH

Model Answers

- 1) Star cluster, Vrishabha(Taurus)
- 2) Sky Map, Stellarium
- 3) Proxima Centauri
- 4) 365 days (1 year)
- 5) 24 hours (1 day)
- 6) Venus
- 7) Pluto
- 8) Telescope / binoculars
- 9) Satellites, Moons
- 10) Moon
- 11) Asteroids
- 12) Asteroid belt
- 13) From 10 m to 500 km
- 14) Halley's Comet
- 15) 2062
- 16) Milky Way or Akasha Ganga
- 17) Milky Way Galaxy
- 18) Galaxy
- 19) Universe
- 20) (D) All Of the Above Statements Are Correct
- 21) (D) All Of the Above
- 22) A) Mercury, Venus, Mars, Jupiter, Saturn
- 23) A) Sirius
- 24) B) Pluto
- 25) c) Sun
- 26) c) Mars
- 27) b) Jupiter
- 28) i – d, ii – a, iii – b, iv – c
- 29) i – c, ii – d, iii – a, iv – b
- 30) i – d, ii – c, iii – a, iv – b
- 31) There should be clear weather, and there should be no pollution from air and light.
- 32) Before the advent of modern technology or the invention of the compass, in ancient times, particularly sailors and travellers used stars and constellations to find directions at sea or on land.
- 33) The International Astronomical Union has divided the entire sky and identified 88 constellations.
- 34) 1- c 2- d 3-e 4- b 5-a
- 35) Sirius (the Dog Star)
- 36) Canis Major (the Great Dog)
- 37) Stars are large, self-luminous gas bodies that emit light, heat, and other forms of electromagnetic radiation. The star closest to Earth is the Sun.
- 38) A region that contains a group of stars arranged in a recognizable pattern is called a constellation.

Example: Orion, Taurus, Canis Major (Great Dog),

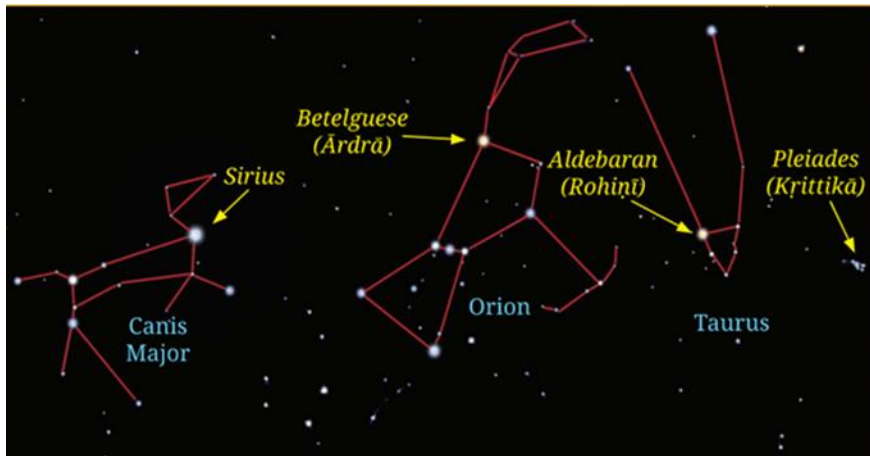
- 39) The excessive artificial light visible at night is referred to as light pollution. Light pollution hinders our ability to enjoy and study celestial bodies in the night sky.
- 40) First human to travel into space.
- 41) Neil Armstrong.
- 42) Aryabhata.
- 43) To control light pollution for the purpose of researching celestial bodies through night sky observation, some parks established to protect dark skies are called dark sky reserves.
- 44) Due to the higher intensity of sunlight,
- 45) i) False ii) True
- 46) The distance between Proxima Centauri and Earth is 2,69,600 times greater than the distance between the Sun and Earth
- 47) The Sun is closer to us than other stars, and due to the intense brightness of the Sun during the day, other stars cannot be seen, and at night they appear as twinkling points.
- 48) The motion of a celestial body revolving around the Sun is called revolution.
- 49) Large bodies that revolve in an approximately spherical shape around the Sun are called planets.
- 50) The motion of a celestial body rotating around its own axis is called rotation.
- 51) The system consisting of the Sun and the celestial bodies revolving around it, including planets, their moons, Asteroids, dwarf planets, and comets, is called the solar system.
- 52) Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.
- 53) The soil of Mars is red in color, and since Mars appears red, it is called the red planet.
- 54) One-third of the Earth's surface is covered with water, and when viewed from space, the Earth appears blue, which is why it is called the blue planet.
- 55) Mercury has no atmosphere, but Venus has an atmosphere that traps heat from the Sun, significantly increasing the planet's temperature, making Venus hotter than Mercury.
- 56) Many of the craters on the Moon's surface were formed due to impacts from small celestial bodies or rocks.
- 57) Comets are bodies made of rocks, and they are enveloped in dust, gases, and ice. When they come close to the Sun, the heat causes the solid outer layer of the body to vaporize, forming shapes like a head and tail. An example is Halley's comet.
- 58)

Inner Planets	Outer Planets
Planets that are closer to the Sun and are similar to Earth in composition and size are called inner planets or terrestrial planets.	1) Planets that are much larger than Earth, mostly made of gases, and have ring-like structures made of dust particles and rocky materials are called outer planets or gas giants.
These are smaller in size.	1) These are larger in size.
Their surfaces are solid and composed of rocks.	Their surfaces are made up of gases.
Examples: Mercury, Venus, Earth, Mars	Examples: Jupiter, Saturn, Uranus, Neptune

- 59) A massive group of millions to billions of stars bound by gravitational force is called a galaxy. Our galaxy is the Milky Way galaxy.
- 60) i) A - Ursa Major (the Big Dipper), B - Ursa Minor (the Little Dipper),
ii) C - Polaris (the North Star), is visible in the northern hemisphere.
iii) It helps in determining directions as it appears to be fixed in the night sky due to the Earth's axial rotation passing through it.
- 61)
- Under the guidance of elders, identify a dark area for observing the night sky. It should be away from lights, tall buildings, and trees. Schedule a specific time and date for observing the night sky.
 - Choose a night without clouds and without the moon to observe less bright stars.
 - You can use a sky map mobile application or print images of the constellations you plan to observe.
 - You can take a compass with you to identify directions and a notebook to record your observations.
 - Go to a designated location for stargazing with your elders on a specific day and time.
 - After reaching there, wait for about half an hour for your eyes to adjust to the darkness. This will help you see the night sky better. You will be able to easily identify the Big Dipper (Ursa Major) and the North Star in the night sky.
- 62) During summer, around 9 PM, identify the Big Dipper constellation in the night sky. Then, if you imagine a straight line connecting the two stars at the end of the Big Dipper, a faint star will appear at a distance five times that between these two stars; that is the North Star.
63. Astronauts wear specially designed space suits. Since there is no air pressure and oxygen in space, these suits are essential to protect life and balance body pressure.
64. Information about weather forecasting and rain forecast can be known. Helps in connection for television, radio, and Internet.
65. In India, the Orion constellation is well visible after sunset from December to April. In the middle of the Orion constellation, three bright stars appear in a small straight line. Based on this, identify the Orion constellation, and then imagine a line extending through these three stars towards the east; the bright star you see there is Sirius, which is part of the Ursa Major constellation.
- 66.



67.



68. Works based on Newton's 3rd Law of Motion. Fuel comes out from the rear of the rocket at very high speed in the form of hot gas, and due to the reaction caused by this, the rocket leaps forward towards the sky with equal speed.
69. The life of astronauts in space is special. They use specially prepared packaged food and water. Since there is no gravity, they keep floating in the air. To avoid floating, they sleep by securing their bodies with belts to the floor or wall.
70. Mercury → Venus → Earth → Mars → Jupiter → Saturn → Uranus → Neptune

71. The Sun is the closest star to us and is a very hot, gaseous spherical ball.

Its diameter is 100 times greater than that of the Earth.

The main component of the Sun is hydrogen gas, and through the process of nuclear fusion, it produces heat and light.

The Sun is the primary source of light and energy for the Earth.

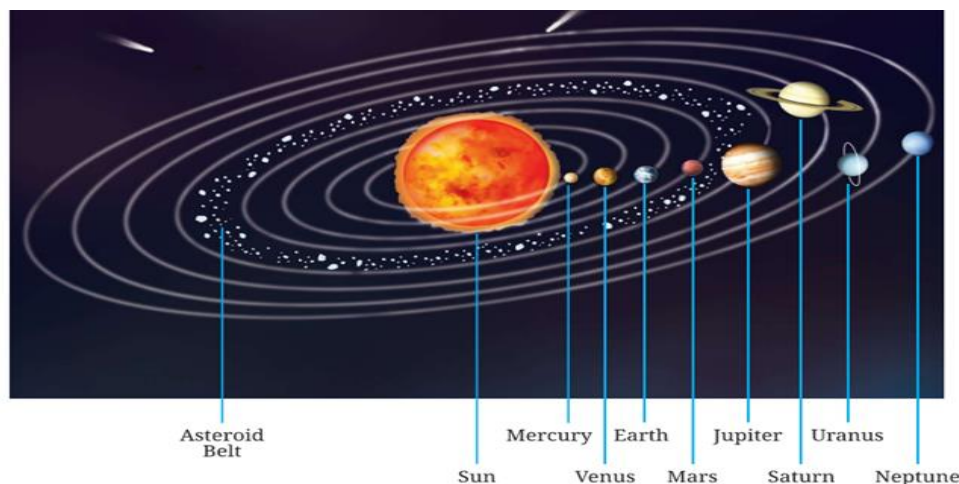
Although the Sun's diameter is 100 times greater than that of the Earth, it appears small because it is very far from us.

The distance between the Earth and the Sun is about 150 million kilometers.

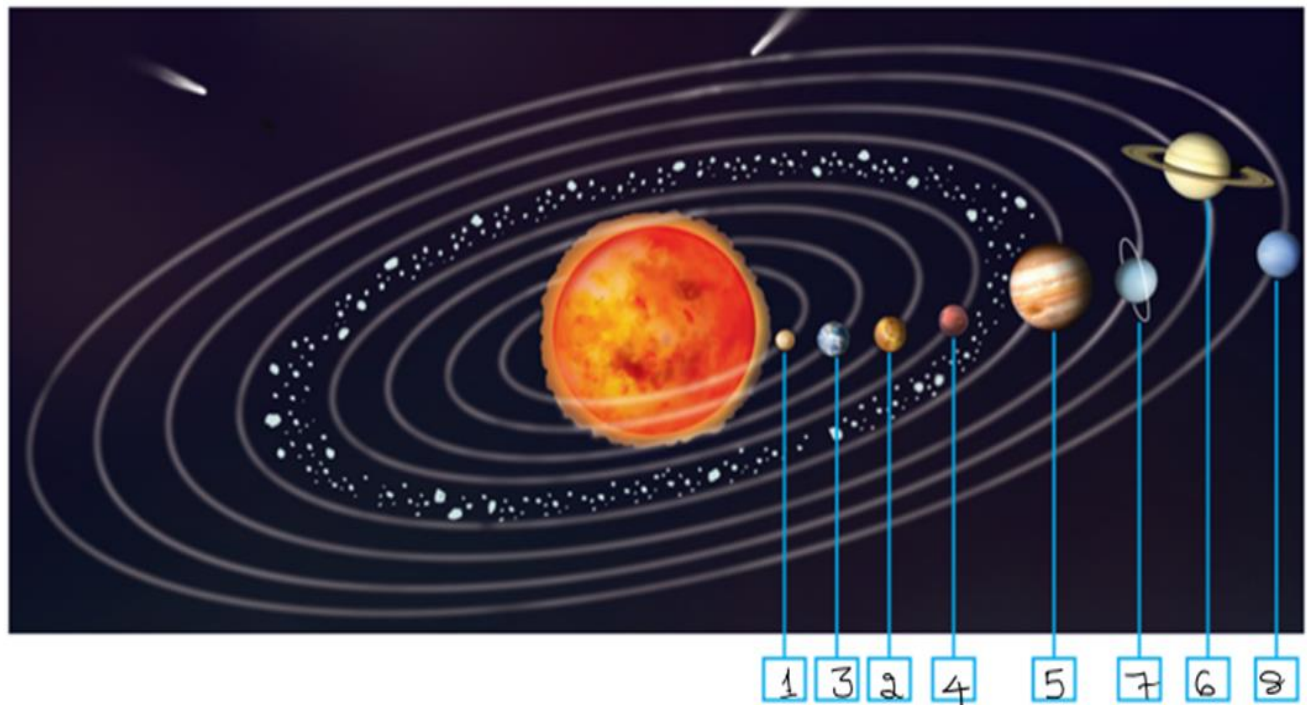
This distance is referred to as an astronomical unit. This unit is used to express the distances between celestial bodies within the solar system.

Sunlight is essential for the growth of plants, which provide food and oxygen for humans, and is crucial for the stable climate, seasonal changes, atmospheric conditions, and the water cycle on Earth—all of which are primarily influenced by the Sun.

72.



73.



74.

- i. The Moon is Earth's natural satellite.
- ii. The Moon's orbital period around the Earth is approximately 27 days.
- iii. There is no atmosphere, water, or life on the surface of the Moon.
- iv. The diameter of the Moon is about one-fourth that of the Earth.
- v. There are circular bowl-like structures on the Moon's surface called craters.

75. In 2008, the Chandrayaan-1 mission was launched, followed by the Chandrayaan-2 mission in 2019, which sent lunar landers and conducted various experiments. The third mission, Chandrayaan-3, was initiated in July 2023, successfully landing the Pragyan rover and Vikram lander near the Moon's south pole on August 23, 2023, making India the first country to land near the less-explored south pole of the Moon. In commemoration of this success, the Government of India has declared August 23 as National Space Day in India.