

## MAP WORK

➤ MARK THE FOLLOWING CONTINENTS AND OCEANS ON THE WORLD MAP

1. NORTH AMERICA
2. SOUTH AMERICA
3. EUROPE
4. ASIA
5. AUSTRALIA
6. AFRICA
7. ANTARCTICA
8. ARCTIC OCEAN
9. PACIFIC OCEAN
10. INDIAN OCEAN
11. SOUTHERN OCEAN
12. ATLANTIC OCEAN

7 continents map with 5 oceans



## LESSON 16

### NATURAL CALAMITIES

#### OBJECTIVE

Students will learn about

- Different types of natural calamities.
- Steps that can be taken to reduce the effect of natural calamities.

#### NEW WORDS

1. Earthquake
2. Tsunami
3. Crust
4. Volcano
5. Richter's Scale
6. Aftershocks
7. Cyclone
8. Topple
9. Tidal waves
10. Forecast
11. Epidemic
12. Drought
13. Famine
14. Calamity

#### Answer the following questions.

**Q1.** Define the following

**Ans**

- i. Natural calamity: A natural event that causes great damage to life and property is called a natural calamity.
- ii. Volcano: A volcano is a hill or mountain like formation that has a vent through which magma and gases come out of the Earth.
- iii. Cyclone: A cyclone is a very strong wind accompanied by very heavy rain.
- iv. Drought: It is a dry period, with rain fall far below the normal rate.

**Q2.** When does an earthquake occur?

**Ans.** Earthquake occurs when the plates in the crust slip past each other.

- It is also caused by volcanic eruption.

**Q3.** Write the effects of an earthquake.

**Ans.**

- Cracks in walls of houses, buildings and houses may fall.
- Dams, bridges and roads may get damaged.
- Undersea earthquakes cause tsunamis.
- Loss of life and property.
- Fires and disturbance in water supply.

**Q4.** What should you do if there is an earthquake?

**Ans.** In case of an earthquake

- Run out of the building as fast as possible.
- Stand in an open area.
- Do not enter the damaged building even after the earthquake stops.

**Q5.** What are the effects of a cyclone or flood?

**Ans.**

- The overflow of water from rivers enters homes and fields.
- People and animals die due to drowning.
- Loss of property and crops.

**Q6.** How do government and other communities help in case of a natural disaster?

**Ans.**

- Relief camps are set.
- Medicines, food, drinking water are supplied.
- Doctors are put on duty.
- Stranded people are air lifted.

**Q7.** What are the effects of drought?

**Ans.**

- Reservoir, ponds and lakes dry up.
- Soil erosion takes place.
- Ground water level drops sharply and people in cities do not get water.
- Crops dry and there is less food.
- Livestock and other animals die in severe drought.
- Widespread diseases due to famine lead to epidemic.

## LESSON NO 15

### THE ENVIRONMENT

#### OBJECTIVE

Students will learn about

- Our role in affecting environment
- How to conserve natural resources
- The effects of pollution

#### NEW WORDS

- i. Ecology
- ii. Ecologist
- iii. Pollutant
- iv. Greenhouse gas
- v. Acid rain
- vi. Compost
- vii. Resource

#### ANSWER THE FOLLOWING QUESTIONS.

**Q1.** Define

**Ans.**

- i. Ecology: The study of living things in their natural surrounding is called ecology.
- ii. Ecologist: The scientist who studies ecology is called ecologist.
- iii. Pollution: It is the release of substances into air, water or soil that are harmful to living things.

**Q2.** How is mankind disturbing the environment?

**Ans.** Environment is disturbed by

- Cutting down of trees to make space for cities and farms.
- Hunting animals for clothing and cosmetics.
- Dumping waste from factories, hospitals, homes into water bodies and soil.
- Releasing smoke and harmful gases from vehicles and factories into atmosphere.

**Q3.** Write the cause and effects of the following pollutions.

**Ans.**

<b>Pollution</b>	<b>Cause</b>	<b>Effect</b>
Air pollution	<ul style="list-style-type: none"><li>➤ Burning of fuels.</li><li>➤ Smoke from the chimneys of factories and power stations.</li></ul>	<ul style="list-style-type: none"><li>➤ Diseases like asthma, lung damage.</li><li>➤ Increase in the level of CO<sub>2</sub> which results in global warming.</li><li>➤ Removal of ozone layer.</li><li>➤ Acid rain which damages soil, plants and buildings.</li></ul>

Water pollution	<ul style="list-style-type: none"> <li>➤ Waste from industries, farms, sewage, homes and hospitals thrown into water bodies.</li> <li>➤ Bathing of animals, and washing clothes in rivers, ponds, lakes etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Drinking polluted water causes diseases like typhoid, jaundice and dysentery.</li> </ul>
Soil and land pollution	<ul style="list-style-type: none"> <li>➤ Too much use of chemicals like insecticides, pesticides.</li> <li>➤ Burning of poisonous waste from industries in the land.</li> <li>➤ Throwing solid waste such as plastic items, rubber etc in an open area.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Fertility of soil reduces.</li> </ul>
Noise pollution	<ul style="list-style-type: none"> <li>➤ Loud noise from vehicles, loud speakers and machinery.</li> </ul>	<ul style="list-style-type: none"> <li>➤ High blood pressure and deafness.</li> </ul>

**Q4.** Explain what is greenhouse effect?

**Ans.**

- Burning of fuels increases the level of CO<sub>2</sub> in the air.
- CO<sub>2</sub> traps heat resulting in increase of atmospheric temperature.
- This effect is called greenhouse effect and it leads to global warming.

**Q5.** What are the effects of global warming?

**Ans.** Because of global warming, ice on poles and mountains starts melting resulting in increase of sea level.

**Q6.** Write any five ways to conserve natural resources.

**Ans.**

- i. Use wind or solar energy.
- ii. Vehicles and factories should have machinery to convert poisonous substances into harmless ones.
- iii. Grow more trees and stop deforestation.
- iv. Use cycle for short distances.
- v. Reduce the use of plastic.

## LESSON NO 14

### INTERDEPENDENCE IN NATURE

**OBJECTIVE:** Students will learn about

- Interdependence of plants and animals.
- Food chain
- Importance of decomposers.

### **NEW WORDS**

- i) Pollination
- ii) Respiration
- iii) Essential
- iv) Primary consumer
- v) Secondary consumer
- vi) Decomposer

### **ANSWER THE FOLLOWING QUESTIONS**

Q1. Show how living things depend on non living things.

Ans. living things depend on the following non living things

- i) Air :
  - Plants and animals need oxygen for respiration and to get energy from food.
  - Plants also need carbon dioxide for photosynthesis.
  
- ii) Water:
  - Plants and animals need water to carry out their life process.
  - Plants absorb minerals from water.
  - Plants need water for photosynthesis.
  - In animals, water is needed to carry food to all parts of the body and removing waste from the body.
  
- iii) Soil:
  - Plants get minerals and water from soil.
  - Soil provides shelter to many animals.
  - Dead body of plants and animals decay and mix with soil.
  
- iv) Sunlight:
  - Plants use sunlight to make their food.
  - Seeds get warmth from sunlight to germinate.
  - Animals need warmth of sunlight for survival.

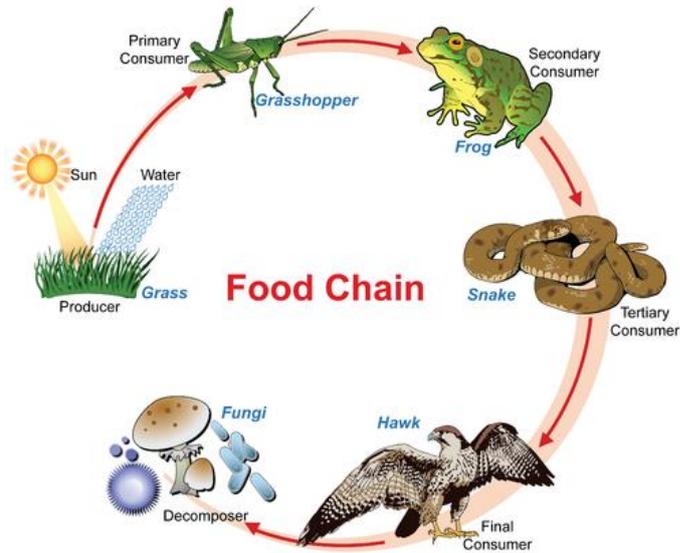
Q2. How are plants and animals dependent on each other?

Ans.

- i) Animals depend on plants for food, shelter and oxygen.
- ii) Plants use carbon dioxide produced by animals.
- iii) Plants depend on animals for reproduction.
- iv) Animals make soil fertile so that plants can grow in it.

Q3. Draw a food chain to show producers and different types of consumers and decomposers.

Ans.



Q4. Why are decomposers important?

Ans. Decomposers are important because they provide nutrients to plants.

**LESSON NO 13**  
**AIR AND WATER**

**OBJECTIVE**

Students will learn about

- Different layers of atmosphere.
- Properties of air
- Purification of water.

**New Words**

1. Troposphere
2. Stratosphere
3. Mesosphere
4. Thermosphere
5. Exosphere
6. Ozone
7. Ultraviolet
8. Nitrogen
9. Argon
10. Exert
11. Pressure
12. Decantation
13. Sedimentation
14. Filtration
15. Alum
16. Condenser
17. Distillation
18. Purifier
19. Screening
20. Impurity

**Answer the following questions.**

**Q1.** Write the specific features of the following layer of the atmosphere.

**Ans.**

**1. Troposphere**

- It is the nearest layer to the Earth.
- Extends about 15 km above the surface of the Earth.
- Living things can breathe only in this layer.
- Clouds form in this layer.
- Most weather changes take place in this layer.

**2. Stratosphere**

- Extends about 50 km above the surface of the Earth.
- Jet planes usually fly here.

### 3. Mesosphere

- Extends to 85-90 km above the surface of the Earth.
- Meteors burn up in this layer.

### 4. Thermosphere

- Extends to 500-600 km above the Earth.

### 5. Exosphere

- Outer most layer, fades into space.

**Q2.** Why is atmosphere important?

**Ans.**

- Atmosphere contains oxygen which all living things need to breathe.
- It contains carbon dioxide which plants need for making food.
- Atmosphere absorbs a large part of heat in sunlight.
- Ozone layer absorbs harmful ultraviolet rays of the Sun.

**Q3.** What does air contain?

**Ans.** Air contains nitrogen (78%), oxygen (21%) carbon dioxide (0.03%) argon, water vapour, smoke, dust and other gases.

**Q4.** Write the properties of air.

**Ans.**

- Air occupies space.
- Air has weight.
- Air exerts pressure.
- Air is needed for burning.

**Q5.** Define the following.

**Ans.**

1. Solute: The solid which is dissolved in a liquid is called solute.
2. Solvent: The liquid in which the solid (solute) is dissolved is called solvent.
3. Solution: The mixture of solute and solvent is called solution. In a solution, solute completely gets dissolved in a solvent.

**Q6.** Explain the following process of removing insoluble impurities from water.

**Ans.**

- i. Sedimentation and decantation:
  - The mixture of insoluble impurities is allowed to stand undisturbed in a beaker.
  - After sometime the impurities settle down at the bottom of the container as sediments.
  - Clean water can then be poured out into a separate container without disturbing the sediments. This process is called decantation.

- ii. Filtration: The process by which insoluble impurities are removed by passing impure water through a filtering device is called filtration.

**Q7.** Explain the process of distillation.

**Ans.** The process of distillation is used to remove soluble impurities from water.

It has the following steps:

- Water is evaporated in a distillation flask by heating.
- Water vapour is taken in a condenser, where it is cooled to form water. This is the purest form of water. The condenser is kept cool by circulating cold water around it.

**Q8.** Which process is used in waterworks to purify water?

**Ans.** screening ---> sedimentation --->filtration--->chlorination

## LESSON NO 11

### WEIGHT VOLUME AND DENSITY

#### LEARNING OBJECTIVES

Students will learn about

- Relationship between weight, volume and density.
- Archimedes' principle
- Why does an object float or sink in water.

#### NEW WORDS

1. Density
2. Hollow
3. Apparent
4. Archimedes' principle
5. Buoyant
6. Upthrust
7. Immerse
8. Displacement

#### ANSWER THE FOLLOWING QUESTIONS

**Q1. What is the relation between volume and weight of an object?**

Ans. When the volume of an object increases, its weight also increases and vice versa.

**Q2. Define density.**

Ans. Density is defined as the mass of unit volume of a substance.

**Or**

Density = mass/volume

**Q3. Find the density of a substance if its mass is 8 kg and the volume is 2 litres.**

Ans. Density = mass/volume

Here mass is 8 kg and the volume is 2 L

So density =  $8\text{kg}/2\text{L}$

=  $4\text{kg/L}$

**Q4. Give reason: Wood floats on water whereas a small iron nail sinks in water.**

Ans.

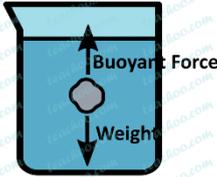
- Wood floats on water because wood's density is less than water's density.
- Iron nail sinks in water because iron's density is more than water's density.

**Q5. Define buoyant force.**

Ans. The force that acts on an object in the upward direction when it is pushed in water is called buoyant force.

- It is also called upthrust.

**Buoyant Force acts in opposite direction of weight**



**Q6. What is displacement of water?**

Ans. When an object is put in water, the level of water goes up. This is called displacement of water. The amount of water displaced is equal to the volume of the object pushed in water.

**Q7. What is Archimedes' Principle?**

Ans. The upthrust is equal to the weight of water displaced by an object. This is known as Archimedes' Principle.

**Q8. What are the rules for floating or sinking as per Archimedes' principle?**

Ans.

- If the weight of an object is more than the upthrust, the object will sink.
- If the weight of the object is less than the upthrust, the object will float in water.

**Q9. Why does a ship float on water?**

Ans. A ship is hollow.

- The volume of water displaced is much more than the volume of iron used in ship.
- So according to Archimedes' Principle, the upthrust is also very high, more than the weight of the ship.
- Therefore, the ship floats on water.

**Q10. Define the following.**

1. Apparent weight- The weight of an object in water is called apparent weight.
  - $\text{Apparent weight} = \text{weight in air} - \text{weight of water displaced}$
2. Apparent loss of weight: The loss of weight of an object when immersed in water is known as the apparent loss in weight. This also equal to the weight of water displaced.
  - $\text{Apparent loss in weight} = \text{weight in air} - \text{apparent weight}$

**Q11. Why does an object feel lighter in water?**

Ans. Weight of an object in water = weight in air-- weight of water displaced.

- Therefore, when an object is immersed in water, it loses weight equal to the weight of water displaced by it.



## LESSON NO 10

### FORCE, WORK & ENERGY

#### OBJECTIVE

Students will learn about

- Different types of force.
- Source and use of different types of energy.
- Differentiate between simple machine and complex machine.

#### NEW WORDS

1. Force
2. Effect
3. Muscular
4. Gravitation
5. Frictional
6. Elastic
7. Stretching
8. Complex
9. Inclined
10. Lever
11. Mechanical
12. Boulder
13. Load
14. Fulcrum
15. Effort
16. Winding
17. Thread
18. Pulley
19. Screwdriver

#### ANSWER THE FOLLOWING QUESTIONS.

**Q1. Define force. Write the effects of force on an object.**

**Ans.** A force is a push or pull acting on an object.

**Effects of force:**

- i. Force can move an object.
- ii. Force can stop a moving object.
- iii. Force can change the direction of movement.
- iv. Force can change the shape of an object.

**Q2. Name the force acting in the following cases:**

**Ans.**

Sr No	Action	Force
1.	To open a door by your hand.	Muscular force
2.	A leaf falls on ground.	Gravitational force
3.	A moving cycle stops due to brake.	Frictional force
4.	A stretched rubber band comes back to its original position.	Elastic force
5.	Bending or breaking of a wooden stick.	Mechanical force

**Q3. What is the relation between force and work?**

**Ans.**

- To do less work, less force is required.
- To do more work, more force is required.

**Q4. Write the difference between simple machine and complex machine.**

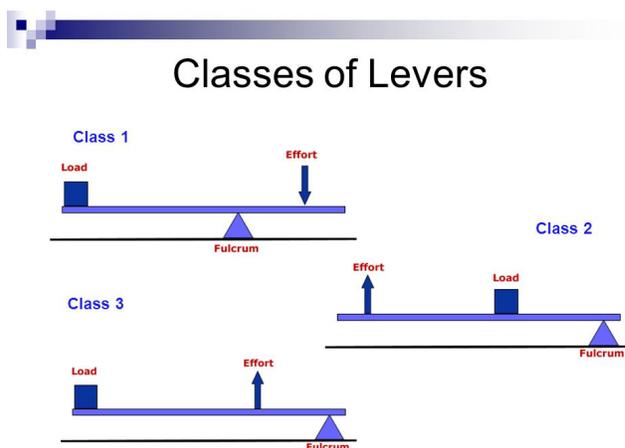
**Ans.**

Simple machine	Complex machine
It is made up of 1 or 2 parts.	It has many parts.
There are 6 types of simple machines.	It is a combination of many simple machines.
Eg. Scissors, knife	Eg car, washing machine.

**Q5. Explain three classes of lever.**

**Ans.**

- First class lever: In this, the **fulcrum** is located between the load and the effort.  
Eg. Scissors, plier
- Second class lever: In this, **load** is located between the effort and the fulcrum.  
Eg. Bottle opener, nut cracker
- Third class lever: In this, the **effort** is located between the load and the fulcrum.  
Eg. Fishing rod, tongs



**Q6. Write any two uses of the following simple machines.**

**Ans.**

- Inclined plane**
  - Loading or unloading heavy boxes in the truck.
  - A winding road.
- Lever**
  - To lift an object.
  - To open a lid of a jar.
- Wedge**
  - A knife to cut vegetables.
  - An axe to cut wood.

**iv. Screw**

- A screw jack to lift car.
- A screw to attach two wooden planks together.

**v. Pulley**

- On a well to draw water.
- In a lift

**vi. Wheel and axle**

- In sewing machine to move other parts.
- In cars to move wheels.

**Q7. Give one word for the ability to do work.**

**Ans.** Energy

**Q8. Write the source and use of the following energies.**

**Ans.**

Sr No	Energy	Source	Use
1.	Light energy	Sun, fire, electrical bulb	To see things, photosynthesis
2.	Heat energy	Burning wood, petrol, coal, Sun	To cook food and generate electricity
3.	Sound energy	Drum, piano	Sonography, to find the depth of sea
4.	Electrical energy	Wind mill, solar panel	To run electric appliances like washing machine, computer
5.	Mechanical energy	Water falling from a height, water stored at a height	Generate electricity. To break an object
6.	Wind energy	Moving air	To generate electricity, for grinding grains
7.	Water energy	Flowing water	To generate electricity
8.	Solar energy	Sun	To run solar car, solar bulb
9.	Geothermal energy	Heat inside the earth	To generate electricity.

# CHAPTER 8: Nervous System

## Learning objectives:

Students will be able to-

1. Identify that Brain is the control center.
2. Describe how messages are communicated to and from brain.
3. Describe how sense organs help us to know about the world around us.

## New Words

- |                |                   |
|----------------|-------------------|
| 1. nervous     | 14. co-ordination |
| 2. nerve       | 15. eyelid        |
| 3.respiration  | 16. iris          |
| 4. cerebrum    | 17. pupil         |
| 5. Spinal cord | 18. lens          |
| 6.cerebellum   | 19.funnel         |
| 7. brain stem  | 20. molecules     |
| 8. sensory     |                   |
| 9.motor        |                   |
| 10.mixed       |                   |
| 11. reflex     |                   |
| 12. vibration  |                   |
| 13. Voluntary  |                   |

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## Answer the Following Questions:

Q. 1)- What is a Nervous System? Name its parts.

Ans.)-The nervous system is a complex network of nerves, that carry messages to and from the brain and spinal cord to various parts of the body

It consists of following main parts-

- i) Brain
- ii) Spinal cord
- iii) Nerves

Q. 2)-Explain the functions of Nervous system.

Ans.)- Functions of Nervous system:

- (i) It is the control centre of the entire body.
- (ii) It controls all the system in our body.
- (iii) It sends messages to body and receives messages

from body.

(iv) It controls our sense organs.

Q. 3)- Describe the parts of Nervous system.

Ans.)- Parts of Nervous system:

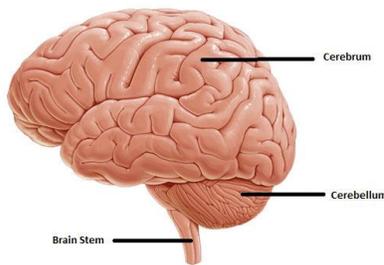
Brain: It is protected by the skull, and is the organ of thought and memory. It studies the messages, decides the action and sends the instructions to other parts of the body. It is the control centre of the entire body.

- (i) Spinal cord: It is a thick bundle of nerves, arising from the brain stem, running through the vertebral column of the backbone. It carries messages from the brain to different parts of the body and vice versa.
- (ii) Nerves: They arise from the brain and spinal cord and branch out to every other part of the body. They carry messages from the sense organs to our spinal cord and brain and vice versa.

Q-4) Explain the regions of the brain with the help of a diagram.

Ans.)- The three regions of the brain are:

- A. Cerebrum: i) It is the largest part of the brain.  
ii) Controls memory, thoughts, intelligence, learning, speech and sense organs.
- B. Cerebellum: i) It is located at the back of the brain below cerebrum.  
ii) It controls the movement of muscles. It helps to keep our body balanced
- C. Brain Stem: i) It is the lower portion of our brain. It connects the brain to spinal cord.  
ii) It controls involuntary actions such as swallowing, breathing and circulation.



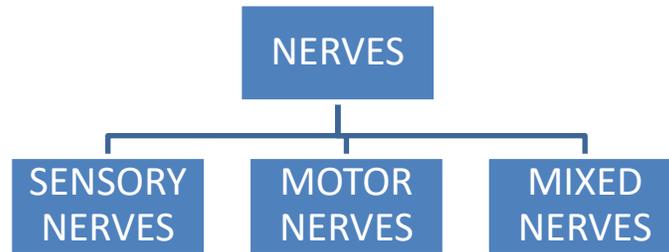
Q. 5)- Explain the three types of nerves.

Ans.)- (i)Sensory nerves: carry messages from sense organs to the brain and spinal cord.

(ii)Motor nerves: carry messages away from the brain and spinal cord to muscles and glands.

(iii)Mixed Nerves: carry messages from sense organs to the brain and spinal cord as well as away from the brain and spinal cord to muscles and glands.

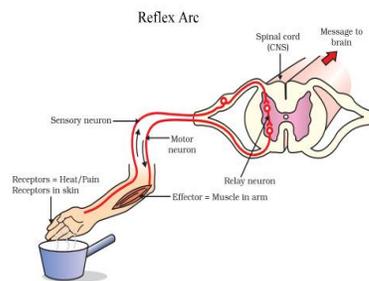
❖ Carry messages in both the directions.



Q. 6)-What is Reflex action?

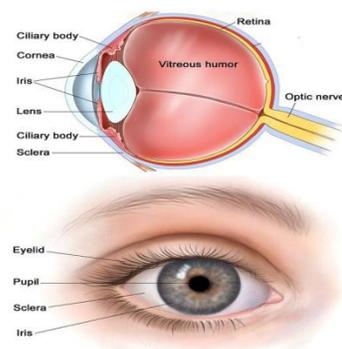
Ans.)-A reflex action, is an automatic and immediate action in response to a stimulus (a sudden external change)

- They are automatic actions which are controlled by spinal cord.
- The brain is not involved.
- Spinal cord senses the danger and takes action immediately, to avoid any damage to the body.



Q. 7)- Explain the structure of eye with the help of a diagram.

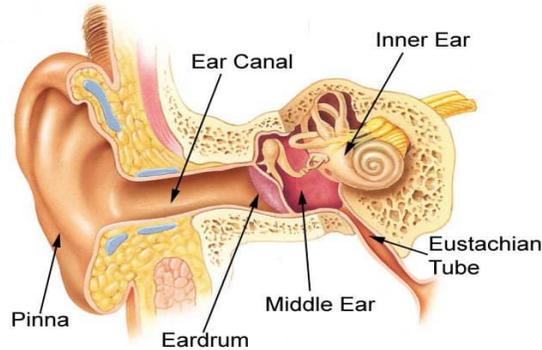
Ans.)- Eyes are the organs of sense of sight. It works with brain, together they enable us to see things, differentiate colours, shapes, sizes and distances of objects around us.



- **Cornea**: It is the transparent covering present in the front.
- Iris: It is the coloured part of the eye.
- Pupil: The pupil is the small hole. Light enters the eye through pupil.
- Lens: Behind the pupil, there is a lens. It helps to bend the light rays and focus on Retina.

- Retina: Image is formed on retina.
- Optic nerve: It connects the eye to the brain. The messages are sent to the brain through optic nerves.

Q. 8)-Explain the structure of ear with the help of a diagram.



Ans.)-The ear is the organ of hearing and balance.

- The outer ear consists of the pinna and the ear canal.
- The sound waves are gathered by the outer ear and sent down the ear canal to the eardrum.
- The sound waves cause the eardrum to vibrate, which sets the three tiny bones in the middle ear into motion.
- The motion of the bones causes the fluid in the inner ear to move.
- These vibrations are changed into signals in internal ear and passed to brain through nerves.

Q-9) Explain the following as sense organs.

Ans.)- (i)The nose: The ability to smell comes from specialized sensory cells (nerves), which are found inside the nose.

- These cells connect directly to the brain which takes messages to the brain.

(ii)The tongue: Tongue allows us to experience tastes that are sweet, salty, sour, and bitter.

- Taste buds are sensory organs that are found on our tongue.

(iii) The skin: The skin acts as a sense organ because it contains specialized sensory nerve endings that detect touch, heat, pressure, pain and cold.

## LESSON NO 7

### BONES AND MUSCLES

#### OBJECTIVES

Students will learn about

- Functions of the skeletal system.
- Types of joints.
- How muscles help in bones movement.
- Different types of muscles and their functions.

#### NEW WORDS

1. Skeleton
2. Collapse
3. Bone marrow
4. Vertebrae
5. Vertebral column
6. Spinal cord
7. Femur
8. Ribs
9. Breast bone
10. Sternum
11. Humerus
12. Hinge
13. Ligament
14. Ball and socket
15. Gliding
16. Triceps
17. Voluntary
18. Cardiac
19. Pivot

#### ANSWER THE FOLLOWING QUESTIONS.

**Q1. Write the functions of the skeletal system.**

Ans. Our skeletal system

1. Gives shape and strength to our body.
2. Protects soft internal organs like brain, heart, lungs.

3. Bones have bone marrow where the blood cells are produced.

## Q2. Answer the following in one or two words.

1. Number of bones in
  - Skull- 22
  - Upper part of skull- 8
  - Our face- 14
  - In backbone (vertebrae) – 33
  - Pair of ribs- 12 pair
2. Organs protected by
  - Skull- brain
  - Rib cage- heart, lungs
  - Backbone- spinal cord
3. The other name of the backbone- spine or vertebral column
4. Thin, flat, curved bones that form a cage around the heart and lungs- ribs
5. The other name of the breast bone- sternum
6. Pair of ribs that are not attached to sternum- floating bones/ ribs.

## Q3. Name the following.

1. Bone present at the upper half of the leg- femur
2. The longest bone in our body- femur
3. Bone present at the lower half of the leg-
  - shin bone- tibia
  - calf bone- fibula
4. Bone present at the upper arm- humerus
5. The stretchy bands that hold the bones at joints- ligament
6. The tough band of tissues that attach muscles to bones- tendons.

## Q4. Define joints. Name the four types of joints and give two examples of each.

Ans. Joints are place where two or more bones are joined together.

The four types of joints are

1. Ball and socket joint- eg. hip joint, shoulder joint
2. Hinge joint- eg. Knee joint, elbow joint
3. Pivot joint- joint between the first two vertebrae of the backbone.
4. Gliding joints- eg wrist and ankle joints.

## Q5. Write the difference between voluntary and involuntary muscles. Give one example of each.

Ans.

<b>Voluntary Muscles</b>	<b>Involuntary Muscles</b>
These muscles are in our control.	These muscles are not in our control.
Eg. Muscles in arms and legs.	Eg. Muscles in heart and stomach

**Q6. Why are at least two muscles needed to move a bone in the body?**

Ans. Muscles can only pull at the bones. They cannot push so at least two muscles are needed to move a bone in our body.

Eg. To move our lower arm up and down, there are biceps and triceps muscles.

- To raise the arm, biceps contract and pulls up the arm.
- To lower the arm, triceps contract and pull the arm down.

## LESSON NO 6

### ANIMAL LIFE

**OBJECTIVE:** Students will be able to

- Explain the different eating habits of animals.
- Recognise how the bodies of animals are suited to their surroundings.
- Describe the different kind of breathing and movements observed in animals.
- State why some animals travel long distances.

#### **NEW WORDS**

1. Habitat
2. Shell
3. Scales
4. Adapt
5. Fur
6. Detachable
7. Nostrils
8. Spiracles
9. Forelimbs
10. Hindlimbs
11. Migration
12. Widespread

#### **ANSWER THE FOLLOWING QUESTIONS.**

Q1. Define habitat.

Ans The surrounding in which living organism lives and survives is called its habitat.

Q2. Describe the body covering in the following animals.

Ans:

- i. Snails, turtles and tortoise- shell to protect bodies.
- ii. Fish- thin scales.
- iii. Reptiles- hard leathery scales.
- iv. Birds- feathers to protect, keep them warm and help them fly.
- v. Mammals- hair to protect them and keep the warm.
- vi. Polar bear- fur

Q3. Name the breathing organs in the following animals.

Ans:

- i. Mammals, birds, reptile- lungs
- ii. Earthworm- moist skin
- iii. Frog- on land- lungs, in water- moist skin
- iv. Insects- spiracles
- v. Fish, tadpoles, prawns- gills

Q4. How do the following animals use their limbs?

Ans.

- i. Cheetah, horse, gazelles, zebra- they use their strong legs to run fast.
- ii. Rabbits and hares- they hop. Their hind limbs are stronger than forelimbs.
- iii. Humans- use hindlimbs to walk and forelimbs have thumb and fingers to lift, hold and grab things.
- iv. Snakes and worms do not have legs.
  - A snake moves by curling and straightening its body.
  - A worm shortens and elongates its body repeatedly to move.
- v. Crocodile, lizard and tortoise- use their four short legs to crawl.
- vi. Insects have six legs.
  - Ants and beetles use their legs for walking.
  - Grasshopper uses its powerful hind limbs to hop.
- vii. Bird's forelimbs are modified into wings. By moving wings up and down, birds push themselves through air.

Q5. Why some birds like ostrich cannot fly?

Ans. Some birds cannot fly because of

- Their heavy bodies
- Poorly developed wings.

Q6. What do the following animals use to swim?

Ans.

- i. Fish- fins
- ii. Frogs- webbed feet
- iii. Water boatman, prawns and tadpoles- legs
- iv. Turtles- flippers

Q7. What is migration? Why do some animals migrate?

Ans. The seasonal movement of animals from one region to another is called migration.

- Animals migrate in search of warmth, food and give birth to their young.

## CHAPTER 5: Plant Life

Learning objectives: Students will be able to-

1. Understand that plants reproduce through seeds and body parts such as root, stem and leaves.
2. Describe the structure of seed.
3. List the necessary condition for germination.
4. Explain the need for dispersal of seed.
5. List the various ways of seed dispersal.
6. Explain crops and their types.
7. Describe various methods and techniques adapted by farmers to grow healthy crops and get good yield from them.

### New Words

1. Seed coat	8. Rabi crops
2. Cotyledon	9. Irrigation
3. Embryo	10. Ploughing
4. Seedling	11. Insecticides
5. Dispersal	12. Pesticides
6. Explosion	13. Weeds
7. Kharif Crops	14. Harvested

### Answer the Following Questions:

Q. 1)- What are the various ways through which plants reproduce?

Ans.)- Ways through which plants reproduce are:

- Through seeds
- Through body parts such as root, stem and leaves.
- Through spores

Q. 2)- Explain the following methods of reproduction in plants:

Ans.)-

(i) Reproduction through spores: Some plants have seed like structure called spores, from which new plants develop. Example: Ferns and mosses.

(ii) Reproduction through underground stem:

(a)Eyes: In potato plant there are several small depressions called eyes, where buds develop. Later new plants develop from these buds.

Ginger is underground stems that also grows from buds.

(b)Bulb: The onion is a bulb (underground stem with fleshy leaves). New plants develop from the bulb.

(iii)Reproduction through stem cuttings: Sometimes plants are produced from pieces of stems called stem cuttings. These pieces have one or two buds on them from where new leaves develop while new roots develop from lower part of stem cuttings. Example: Rose, sugarcane, Hibiscus, croton.

- □ Strawberry plant has long stems that run along the ground and hence called Runners. New plants grow from the runner.

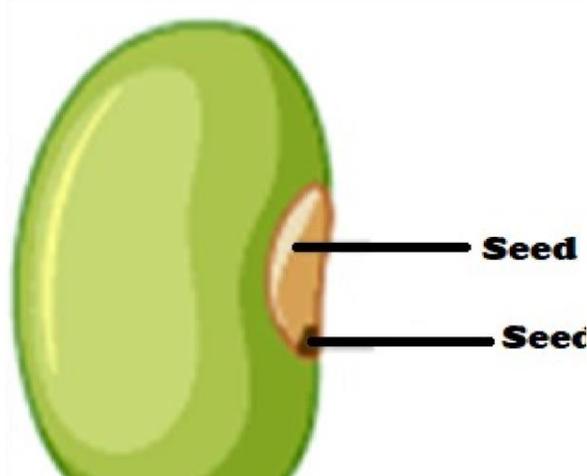
(iv) Reproduction through leaves: Buds develop in the notches along the leaf margins, later these buds fall on ground and develop into new plants. Example: Begonia, Bryophyllum.

(v) Reproduction through roots: Roots of some plants send up new shoots giving rise to new plants. Example: carrot and sweet-potato

Q. 3)- Describe the structure of a seed with the help of a diagram

Ans.-A) External Structure of a Seed-

When we observe a seed from outside, we can see the following parts:



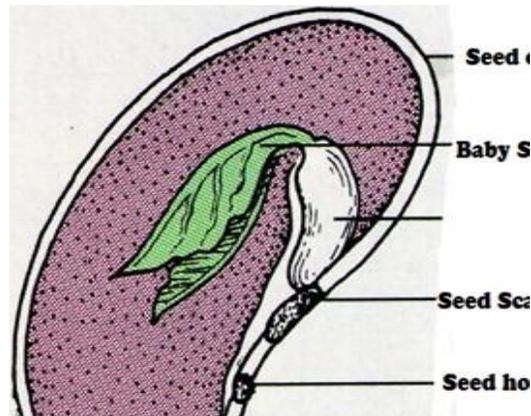
(i) Seedcoat: Thick outer covering that protects the seed.

(ii)Scar: Point where the seed was attached to the fruit.

(iii)Small Hole: It allows water to enter and makes the seed swell up. Even exchange of gases takes place through it.

B) Internal Structure of a Seed-

When you observe a seed from inside, we can see the following parts:



(i) Cotyledon- Seeds has two seed leaves called the cotyledons.

➤ □ Function of cotyledon:

- 1) protects baby plant.
- 2) stores food for the baby plant.

(ii) Embryo: Between the cotyledons is the baby plant called embryo.

It contains the baby Shoot and baby Root.

Q-4) Give example of plants that have (i) one cotyledon and (ii) two cotyledons.

Ans.)-Example of seeds with

(i) One cotyledon: wheat, maize

(ii) Two cotyledons: gram and pea.

Q. 5)-Define germination. What are necessary conditions for seed germination?

Ans.)-Germination-The beginning of the growth of a seed into a seedling is known as germination.

All seeds need water, oxygen and the right temperature to germinate.

Q. 6)-What is dispersal of seed?

Ans.)-Scattering of the seeds away from the parent plant is called dispersal of seeds.

Q. 7)- Why dispersal of seed is necessary?

Ans.)-If plants grow too closely together, they have to compete for light, water and nutrients from the soil and eventually they will die due to overcrowding.

- Seed dispersal allows plants to spread out from a wide area and avoid competing with one another for the same resources.

Q. 8)- Name three agents of dispersal. Explain them briefly with examples.

Ans.)-Various agents for dispersal of seeds are:

(i) WIND: Some seeds are so light that they can be easily carried away by the wind.

- Hairy structures, wings, light weight, small size help the seeds to disperse by wind.
- Example: Drumsticks, maple, dandelions

(ii) WATER: Some plants make use of water to disperse their seeds.

- Such seeds have spongy seed coats & have air spaces that give the seeds buoyancy to float in the water and carried away to different place.
- Example: water lily, lotus and coconut.

(iii) Animals: (a) Some plants have hooks & spines that get tangled in animal fur or feathers, and are then carried to new sites.

- Example: Xanthium and Urena

(b) Other plants produce their seeds inside fleshy fruits that then get eaten by an animal which is later excreted. Now seed can grow into a new plant.

- Example: Mango, Berries, guava

Q-9) Explain “explosion of fruit” mechanism found in plants for seed dispersal.

Ans.)-Exploding of fruit pods in plants disperse their seeds with high pressure bursts.

- Example: Pea, balsam, Violets, poisonous squirting cucumbers, and touch-me-nots.

Q. 10)- What are crops? Explain their types.

Ans.)-Crops are plants that grown in fields to provide us food & other useful things.

• Crops are of many types:

- Food Crops (example: Wheat, Rice & Maize)
- Fibre crops (example: Jute & Hemp)
- Oil producing crops (example: Peanut mustard Linseed)

Q. 11)- Differentiate between summer and winter crops with examples.

Ans.)- Difference between summer and winter crops:

Summer crops	Winter crops
The crops which are sown at the beginning of the rai season, e.g. between June and May.	The crops that are sown at the end of monsoon or at the beginning of winter season, e.g. between September and October.
Also known as Kharif crops.	Also known as Rabi crops.
<u>Example of Summer crops:</u> -Rice, maize, groundnut, cotton, garlic	<u>Example of Winter crops:</u> - Wheat, barley, oats, mustard, chickpea/gram, Cauliflower
brinjal, Litchi, plum, apricot, mango, melon.	carrot, radish, apple, banana, berry.

Q. 12)- What should be kept in mind to grow good crops?

Ans.)-To grow good crops and have a better yield the farmers keep the following in mind:

- i Suitable soil and preparing it by ploughing.
- ii Manure and fertilisers to be added to make the soil fertile.
- iii Good quality seeds should be sown.
- iv Irrigating at the right time.
- v Protection of crops by spraying insecticides and pesticides and the field should be properly fenced.
- vi Removal of weeds.
- vii Proper storing of harvested crops.

# CHAPTER 2

## Rock And Minerals

Learning objectives: Students will be able to-

1. Understand that rocks are made up of minerals.
2. Identify different types of rocks.
3. Explain the process of formation of Igneous, Sedimentary and Metamorphic rocks.
4. Differentiate between various types of rocks.
5. List the ways in which rocks are useful to us.

New Words

1. Minerals	14. Sandstone
2. Igneous	15. Limestone
3. Magma	16. Calcite
4. Fiery	17. Shale
5. Lava	18. Conglomerate
6. Granite	19. Metamorphic
7. Basalt	20. Marble
8. Obsidian	21. Quartzite
9. Pumice	22. Gneiss
10. Frothy	23. Ores
11. Sediment	24. Magnetite
12. Sedimentary	25. Coal
13. Fossils	26. Petroleum

Answer The Following Questions:

Q. 1)- What are rocks made up of?

Ans.)- Rocks are made up of tiny grains called minerals.

Q. 2)-How are the Igneous rocks formed?

Ans.)- Process of formation of igneous rocks:

- Deep inside the Earth temperature is very high due to which rocks melt. These molten rocks are called Magma.
- Magma gets pushed up towards the earth's surface, due to pressure of hot gases, when it comes out it is called lava which cools down to form rocks again.
- These rocks are called Igneous or Fiery Rocks.

Q. 3)- Explain the difference between various type of igneous rocks on the basis of cooling of molten magma.

Ans.)- Types of Igneous rock on the basis of cooling of molten magma.

Granite	Magma cools slowly under the Earth's Surface.
Obsidian	Magma cools quickly above the Earth's surface.
Basalt	Volcanic lava cools very fast & hardens quickly above the Earth's surface.
Pumice	Frothy lava cools quickly on the Earth's surface.

Q. 4)-Write uses of following igneous rocks:

(i) Granite (ii) Basalt (iii) Obsidian (iv) Pumice

Ans.)- (i) Granite: Used in construction of building and statues.

(ii) Basalt: For construction purpose.

(iii) Obsidian: For making statues and jewellery.

(iv) Pumice: To polish floor & furniture, also used as a body scrubber.

Q. 5)- Explain the formation of Sedimentary Rocks.

Ans.)-Formation of Sedimentary rocks:

- When older rocks break down into small rock pieces.
- These broken rocks are carried by water into rivers, lakes, and oceans.
- In rivers, lakes, and oceans they sink to the bottom to form sediments.
- As the layer of sediments build up, the layers lying below due to pressure get crushed and are cemented together.

- Over millions of years, they turn into sedimentary rocks.

Q. 6)- Explain the following sedimentary rocks along with uses.

Ans.)- (i) Sandstone: It is formed when grains of sand get compressed and are cemented together. Consist of mineral Quartz. It is used in construction of buildings.

(ii) Limestone: It is formed from shells and skeleton of tiny sea animals. Consist of mineral Calcite. It is used to make cement and bricks.

(iii) Shale: It is formed when layer of clay and silt hardens. It is used in to make cement, tiles and bricks.

(iv) Conglomerates: It is formed when pebbles get cemented together with minerals. It is used in construction and making ornaments.

Q. 7)- What are Fossils? How are they useful?

Ans.)- Fossils are the remains of dead organisms (like shell and bones) found preserved between layers of sedimentary rock.

- They are used to learn about type of living beings that lived on earth millions of years ago.

Q. 8)- What are Metamorphic rocks?

Ans.)- Metamorphic rocks-. They were originally sedimentary or igneous rocks. But deep inside the Earth, heat and pressure caused changes in their minerals. Thus, changing their appearance and turning them tougher and harder.

Q. 9)- Name the parent rock of following Metamorphic rock given in the table below:

Ans.)-

S.No.	Metamorphic Rock	Parent Rock
1.	Gneiss	Granite (Igneous Rock)
2.	Marble	Limestone (Sedimentary Rock)
3.	Quartzite	Sandstone (Sedimentary Rock)
4.	Slate	Shale (Sedimentary Rock)

Q. 10)- How are rocks useful to us?

Ans.) Rocks are used as:

- (i) Building materials: (a) Marble & granite are used in construction of buildings. (b) Limestone is used to make cement. (c) Slate is used to make roof tiles.
- (ii) Metals: Many minerals that make up rocks contain metals, that can be extracted from their ores. Example Magnetite is an ore of Iron metal.
- (iii) Gemstones: Minerals are also found in form of crystals which can be polished as beautiful stones called Gemstones to make jewellery.
- (iv) Fuels: Coal (a sedimentary rock) and petroleum (sticky liquid found between sedimentary rocks) are used as fuels.

Q. 11)- How are coal and petroleum formed? Write their uses.

Ans.)-

(1) Coal:

- (i) It is formed from dead remains of plants that got buried in swamps under water and dirt.
- (ii) Heat & pressure turned the plants into coal.

Use of Coal: (a) As fuel for cooking

- (b) To heat houses.
- (c) To generate electricity in power houses
- (d) To run machines in factories.

(2) Petroleum:

- (i) It is formed from dead remains of plants and animals that sank in the sea bottom.
- (ii) Sediments build upon them.
- (iii) Heat & pressure changed the dead remains into dark sticky liquid called crude oil or petroleum.

Use of Petroleum:

- (a) Petrol and diesel obtained from petroleum are used to run vehicles and machines.
- (b) We also get plastic, paints, fertilizers, cosmetics from it.

## CHAPTER 1: Food and Health

Learning objectives: Students will be able to-

1. Identify the nutrients in food groups.
2. Understand the importance of a Balanced diet.
3. Explain methods of food preservation.
4. Identify the deficiency diseases due to lack of nutrients in diet.
5. Explain that germs cause infectious diseases.
6. List the ways of preventing infectious diseases.
7. Understand non infectious diseases.

New Words

1. Nutrient	10. Stagnate
2. Proteins	11. Insecticides
3. Carbohydrates	12. Repellents
4. Roughage	13. Immunization
5. Cereals	14. Vaccination
6. Dehydration	15. Vaccines
7. Communicable	16. Immunity
8. Infectious	17. Posture
9. Antiseptic	18. Slouching

Answer The Following Questions:

Q. 1)- Define Nutrients.

Ans.)- Nutrients are substances that our body needs to live grow and be healthy. They provide nourishment to the body.

Q. 2)-Name the five nutrients that our body needs. Also write examples of foods that contain these nutrients

Ans.)- The five nutrients that our body needs are:

- (i) Carbohydrates- Gives energy to work and play.

Examples: Found in rice, wheat, grains, potato etc.

(ii)Proteins- Helps in growth. Makes muscles, bones and skin. Repair body when damaged. Examples: Found in pulses, milk, eggs, fish, meat etc.

(iii) Fats- Stored in our body and used by body to get energy when required. Also help to keep the body warm. Examples: Found in oil, ghee, butter, nuts etc.

(iv)Vitamins- Required by body in small amounts to stay healthy and fit. They are of many kinds like Vitamin A, B, C, D, E and K. Examples: Found in fruits and vegetables

(v)Minerals- Required by body in small amounts to stay healthy and fit. Minerals include Calcium, phosphorous, Iron.

Examples: Found in milk products, beans, meat & fish.

Q. 3)- What is a Balanced diet? Name the four food groups.

Ans.)- A balanced diet is a diet that contains the right amounts of all nutrients along with roughage and water. It includes fruit, vegetables, grains, dairy products, and protein. The four food groups are

Protein group: eg meat, egg, pulses

Milk group: eg curd, paneer

Vegetable and fruit group: eg spinach, banana

Cereal group: eg rice, wheat

Q. 4)- Write the wrong practices of cooking food that destroys nutrients in it.

Ans.)- (i) Overcooking of food destroys nutrients in food.

(ii) Cooking in excess water and later throwing away that water. Hence nutrients get removed.

(iii) Keeping cooked food for longer duration increases the risk of germ growth and rotting of food.

(iv) Washing Fruits and vegetables after cutting, removes nutrients.

Q. 5)- Explain the following methods of preserving foods.

Ans.)-(i) Dehydration: It is removing water by drying in sun. Examples: Food items like grains (wheat, Rice) Papad & Chips, Pulses, Dry fruits are dried in sun before storing.

(ii)Sweetening: Adding sugar to fruits for making jams or preserving them in sugar syrup.

(iii)Salting: adding salt. Example: preserving fish by salting.

(iv) Canning: It is packing of food in cans. Examples: Fruits & Baked Beans.

(v) Pickling: Adding spices & oil in vegetables.

(vi)Adding Preservatives: Preservatives such as vinegar and oil are used to preserve spices and vegetables.

Q. 6)- What is a Disease? Explain their types.

Ans.)- An abnormal condition in an organism resulting from various causes. A person with a disease feels unwell, weak and is unable to work. They are of two types:

- (i) Infectious or communicable disease
- (ii) Non Infectious or non-communicable disease.

Q. 7)- Explain Infectious diseases with examples?

Ans.)-Infectious diseases spread from one person to other.

- They are caused by germs.
- It spreads when a sick person comes in contact with healthy person.
- Also known as communicable diseases.
- Example: Common cold, conjunctivitis, COVID 19.

Q. 8)- Write the ways by which Infectious disease spread along with examples?

Ans.)-Infectious diseases spread by the following ways:

(i)Through air: When an infected person coughs, sneezes or spits then germs are released in air and if healthy person breathes this infected air he gets infected with germs. Example: Common cold, Flu, Measles.

(ii)Through Infected food and water: Germs enter food through dust, dirt, rats or insects (such as houseflies, cockroach) in our food or water.

Example: Diarrhoea, Typhoid, Jaundice.

(iii)Through Insects & Animals: When a blood sucking insect bites an infected person it sucks blood along with germs and then when it bites healthy person, insect passes infection to him.

Example: Malaria spreads by mosquitoes.

Plague spreads by Rats.

(iv)Through direct/ indirect contact: When an infected person comes in contact of healthy person or shares towel or used items with infected person. Then infection gets transferred from sick to healthy person.

Example: Ring worm, Chicken pox.

(v)Through damaged skin: Skin is a protective wall of our body. Germs cannot enter or pass through skin. If the skin is cut or damaged then infection gets transferred inside our body.

Example: Tetanus, Leprosy

Q. 9)- Write ways to prevent the spread of infectious diseases.

Ans.)- Best is to control the breeding & spreading of germs.

- Keep yourself and surroundings clean.
- Use disinfectants to clean floors, drains and bathrooms.
- Do not let water stagnate to prevent breeding of mosquitoes. Use mosquito repellents and mosquito nets to avoid mosquito bites.
- Boil drinking water for 15-20 minutes to kill germs.
- Spray insecticides to kill insects.
- Stay away from infected people.

Q. 10)-Define and explain the following:

- (i) Immunisation (ii) Vaccines (iii) Vaccination

Ans.) (i) Immunisation: It is the process where people are protected against illness caused by infection with microorganisms. In this process a person is made immune or resistant to an infectious disease, by giving a vaccine.

- (ii) Vaccine refers to the material used for immunization Vaccines are made up of dead or very weak germs of a particular disease.

Vaccines stimulate the body's own immune system to protect the person against infection or disease.

- (iii) Vaccination refers to the act of giving a vaccine to a person. Vaccination is when a vaccine is given to you (usually by injection or orally).

Q. 11)- Explain what are Non-Infectious disease with examples?

Ans.)-Non-Infectious diseases do not spread from one person to other. They are also called non-communicable diseases.

Example: Deficiency diseases, Allergy, Diabetes, Asthma.

Q.12)- What are deficiency disease?

Ans.)-Diseases that are caused by the deficiency or lack of nutrients in diet are known as Deficiency disease

Q.13)- In a tabular form write the name of deficiency diseases caused due to lack of vitamins and minerals along with food source.

Ans.)-Deficiency diseases caused due to Vitamins & Minerals:

Vitamin/Mineral	Food Source	Deficiency Diseases
Vitamin A	Carrot, Milk, Yellow Fruits, Liver, Green vegetables.	Night blindness
Vitamin B1	Whole grains, Fish, Beans, Nuts.	Beriberi
Vitamin C	Citrus Fruits like orange, lemon Tomato, Chilli.	Scurvy.
Vitamin D	Sunlight, Milk, Cheese, Fish, Egg.	Rickets
Iron	Green leafy vegetables like spinach Seafood, Bean	Anaemia
Calcium	Milk & milk products, Egg.	Soft weak bones Bad teeth
Phosphorous	Meat, Fish, Egg, Beans, Milk, Grains	Pain in Joints, Poor Bone Development.
Iodine	Sea food, Iodized Salt	Goitre

Q.14)-Why do we need exercise and rest?

Ans.)-(i) Exercise makes your muscles and inner organs (like heart and lungs) strong. Lack of exercise makes us overweight and unhealthy.

(ii) Rest- Our body needs rest to recover and repair. We must have 8 hours of sleep every night to wake up fresh and ready for next day.

Q.14)-What is posture? What is slouching?

Ans.)-Posture is position of your body. Always sit, stand and walk straight.

- Slouching is hunched or slightly bent body. It is bad for our body.

## CHAPTER 4: Living Things

Learning objectives: Students will be able to-

1. Understand the characteristics of living things.
2. Differentiate between living things and non-living things.
3. Differentiate between plants and animals.
4. List the importance of classifying things.

New Words

1. Living	8. Spores
2. Chlorophyll	9. Reproduce
3. Photosynthesis	10. Surroundings
4. Cell	11. Groups
5. Microscope	12. Similar
6. Amoeba	13. Environment
7. Respond	14. Scientist

Answer the Following Questions:

Q. 1)- Why do scientists group things?

Ans.)- To study characteristics of things, similar ones are grouped together. This grouping makes the study easier.

Q. 2)-Write the important characteristic of living things.

Ans.)-Characteristic of living things:

- i) Living things move on their own.
- ii) Living things need, air, water and food.
- iii) Living things are made up of cells.
- iv) Living things grow and change.
- v) Living things respond to change.
- vi) Living things reproduce.

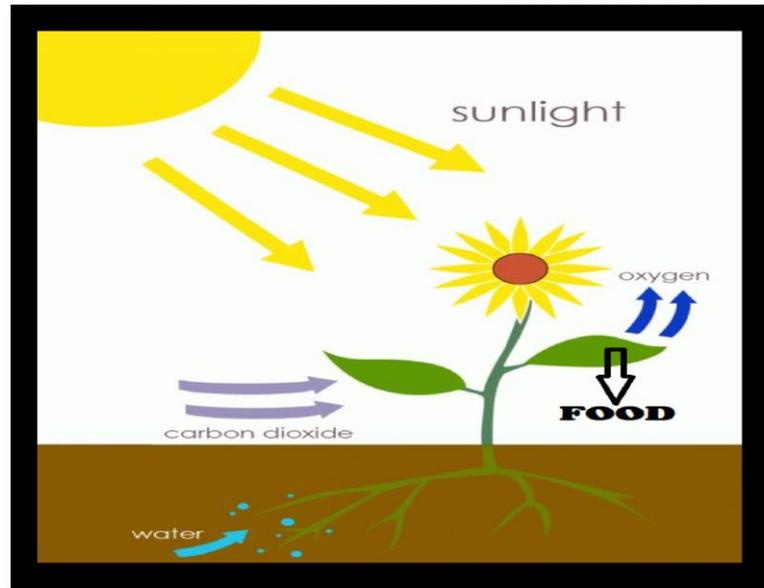
Q3)-Plants are fixed at one place then how do they get food?  
Explain in detail.

Ans.)-Plants make food by the process of photosynthesis.

Plants have green substance called chlorophyll in their leaves. It helps plants to make food using sunlight, carbon dioxide from air and water from soil.

Q-4) Draw a labelled diagram to show the process of photosynthesis in leaves of green plants.

Ans.)-Diagram of Photosynthesis



Q. 5)-What are cells? Name a single celled animal.

Ans.)-A cell is the smallest living part of living things. Cells can be seen with the help of microscope.

- Amoeba is a single celled animal.

Q. 6)-Plants do not have sense organs. Explain with examples how do plants show response towards changes.

Ans.)-(i) Touch me not plant closes its leaves when touched.

(ii) The bud of a sunflower plant moves to face sun.

Q. 7)-Why do living things reproduce?

Ans.)-Living things produce their young ones so that life can continue on Earth.

Q.8)-How do animals and plants reproduce?

Ans.)-Animals reproduce by:

- (i) giving birth to babies.
- (ii) by laying eggs.

Plants reproduce by

- (i) producing seeds or spores.
- (ii) Some plant can grow from plant parts like root, stems or leaves.

Q-9) If a stone breaks into little pieces, can we say that it has reproduced? Why or why not?

Ans.)- No, the stone has not reproduced because the broken pieces cannot reproduce new ones.

Q. 10)- Differentiate between plants and animals

Ans.)- Difference between plants and animals:

Plants	Animals
Plants are fixed at one place hence they cannot move.	Animals move in search of food and shelter.
Plants make their own food by the process of photosynthesis.	Animals depend on plants for other animals for food.