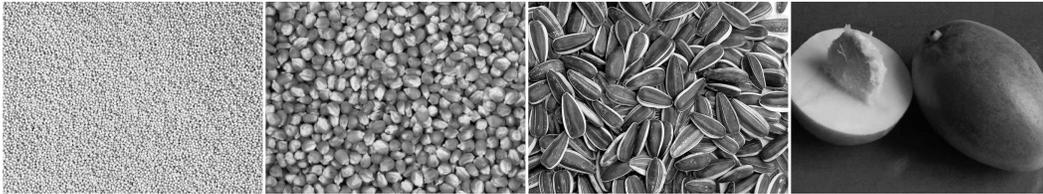


1

Reproduction in Plants

Look at the picture given below. Name one thing common to all these pictures.



These all are pictures of seeds.

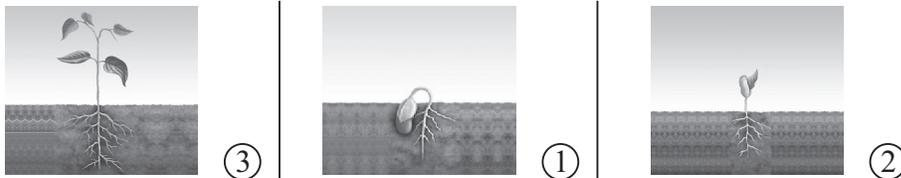
Time to Answer

Fill in the blanks :

- Ans. 1. Plants mostly reproduce through **seeds**.
2. **Ginger** grows from a part of its stem.
3. Mould is a type of **fungus**.
4. Minute seed like structure in non-green plants are called **spores**.
5. The outer covering of the seed is called **seed coat**.

Time to Answer

- A. Number the images in correct order from 1 to 3 to show the stages of germination.



- B. Give one example for each of the following :

A plant whose seeds or fruits are dispersed by

- Ans. 1. Wind **Madar** 2. Water **Coconut** 3. Animals **Xanthium**

Time to Answer

- A. Give one word for each of the following :

1. Plants grown in large quantities in a particular area in a particular season **crops**.
2. Crops grown mainly in summer. **Kharif** crops

3. Crops grown mainly in winter. **Rabi** crops

B. Give one example for each of the following :

1. Crops grown mainly in summer. **Pumpkin**

2. Crops grown mainly in winter. **Cabbage**

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.**
1. Plants are very useful to us. They provide us food and other useful things. They also give us oxygen. Without plants life can not exist on the Earth.
 2. Seed coat, cotyledon, embryo and micropyle are the different parts of a seed.
 3. Animals and human beings eat fruits like apple, mango and watermelon and throw away their seeds. These seeds grow into new plants. Some of the seeds like xanthium, tiger nail and spear grass have hooks or spines. They get attached to the animal's body or clothes of human beings and are carried to other places. These seeds also grow into new plants.

B. Tick (✓) the correct option :

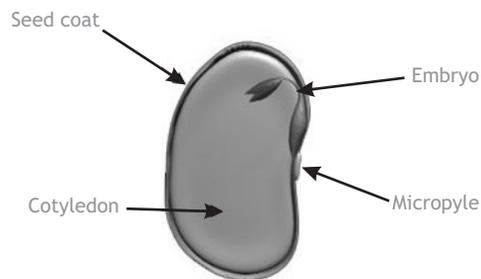
- Ans.**
- | | | |
|-------------------|--------------------|------------------|
| 1. a. embryo | 2. a. seed coat | 3. b. cotyledons |
| 4. a. germination | 5. a. Cotton seeds | |

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. Plants reproduce through seeds or a part such as leaves, stem or root. Some plants reproduce through spores.
 2. A seed can give rise to a new plant if it has proper conditions for growth. Soak a few bean, peas or gram seeds in moist cotton wool. You will see that the seed becomes soft and the outer covering can be easily peeled off. The outer covering of the seed is called the seed coat. Open the two parts of the seed and observe the minute parts inside it.

The seed coat protects the seed. On one side of the seed you will see a long scar where the seed was attached to the pod. At the top of the scar is a tiny hole called the micropyle through which water enters the seed. The two fleshy



Parts of a seed

parts of the seed are the cotyledons. They provided food for the growing plant. Attached to the cotyledons this is a tiny body plant or embryo. Seeds like grams, kidney beans, soya beans and peas have two cotyledons. Some plants like rice and wheat have only one cotyledon.

3. The process by which a seed grows into a young plant is called germination.

4. A seed germinates only when it gets the right condition for germination such as :

There should be enough light, air and water.

Few Seeds had light also.

Thus, we can say that a seedling (young plant) grows into a big plant only when it keeps getting water and plenty of sunlight and air.

5. The process by which seeds and fruits are scattered away from the parent plant is called dispersal.

6. We know that plants cannot move on their own. Nature has, therefore, arranged some methods by which the seeds of plants get scattered to large distance.

The scattering of seeds away from the mother plant is called **dispersal of seeds**. Seeds are dispersed by **wind, water, birds** and **animals**. These are called **agents of dispersal**.

7. Some plants have very light seeds. These seeds may have wings or hair. When wind blows they are easily carried away from the parent plants. Madar, hiptage and cotton seeds are dispersed by wind.

8. Animals and human beings eat fruits like apple, mango and watermelon and throw away their seeds. These seeds grow into new plants. Some of the seeds like xanthium, tiger nail and spear grass have hooks or spines. They get attached to the animal's body or clothes of human beings and are carried to other places. These seeds also grow into new plants.

9. Plants that are grown in large quantities in a particular area or region in a particular season are called crops. Crops provide us food and other useful things.

Based on the seasons in which they are grown, crops are of two types: summer crops and winter crops.

Summer Crops

Crops grown mainly in summer, i.e., from June to October are called Kharif crops. Rice, maize, jowar, bajra, brinjal and pumpkin are examples of Kharif crops.

Winter Crops

Crops grown mainly in winter, i.e., from November to April are called Rabi crops. Wheat, gram, cabbage, and cauliflower are some examples of rabi crops.

10. **For a good healthy crop, we must :**

- * use healthy and ripe seeds for sowing.
- * prepare the soil properly.
- * irrigate the soil.
- * add right kind of fertilizers to the soil. (Fertilizers are used to make the soil more fertile.) Fertilizers are of two kinds **organic** and **chemical fertilizers**. Organic fertilizers are obtained from decaying plants, cow dung, etc., they are also called **manners**. Chemical fertilizers are those which are synthesized, for example, urea and nitrates.

B. Write T for the correct statements and F for the wrong ones.

Ans. 1. F 2. T 3. F 4. T 5. F

C. Match the following :

A	B
Ans. 1. Spear grass	a. seedling
2. Stem cutting	b. coconut
3. Seed dispersed by explosion	c. spines
4. Baby plant	d. pea
5. Seed dispersed by water	e. rose

D. Give reasons for the following :

- Ans.**
1. Dispersal of seed is essential for the germination of seeds. Plants can not move on their own. Nature has, therefore, arranged some methods by which the seeds of plants get scattered to long distances.
 2. A seed germinates only when it gets the right condition for germination such as, there should be enough light, air, water and warmth. A seed fully immersed in water does not germinate because it does not get all other conditions for germination.
 3. Most of the flowers are brightly coloured because by this they attract insects which helps in the process of pollination.
 4. Seeds kept in a refrigerator do not germinate because they are destroyed by low temperature.
 5. The **harvested crop** should be stored properly to protect it from moisture. Moisture promotes the growth of fungi and bacteria. The harvested crops need to be protected from small animals like rats, birds and moles.

Section 3 Formative Assessment (CCE Pattern)

Do yourself.



Health and Hygiene

Look at the pictures given below. There are some activities one must do to stay healthy. Name each activity in the spaces provided.



Ans. 1. Teeth

2. Walking

Time to Answer

Name two foods each from the following groups :

Ans. 1. Rice, Wheat, 2. Potato, Tomato, 3. Mango, Apple,
4. Butter, Curd, 5. Fish, Egg,

Time to Answer

Write T for the correct statement and F for the wrong one :

Ans. 1. T 2. F 3. T

Time to Answer

Name the following :

Ans. 1. influenza 2. jaundice 3. malaria

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

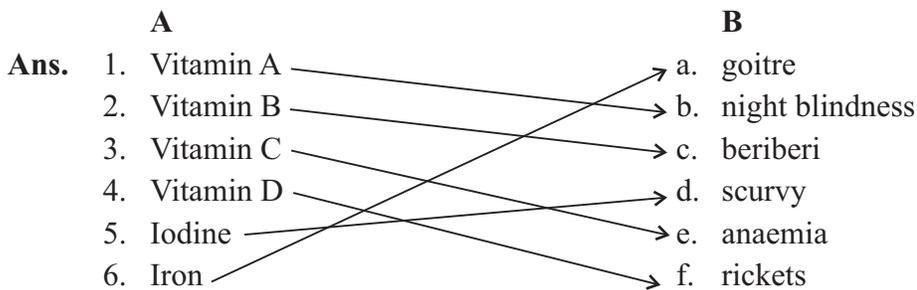
- Ans. 1. **Milk group** : Milk groups provides calcium that helps to build strong bones and teeth. They also provide other important nutrients like proteins and vitamins.
2. ● Everyone should cover their mouth and nose with a handkerchief while coughing or sneezing to prevent germs from spreading through air.
- Do not use any article used by the patient. All articles used by the

3. Diseases which do not spread from one person to another are known as **non-communicable diseases**.
4. Rickets is a deficiency disease caused by the deficiency of Vitamin D. The symptoms of rickets are bow legs (bent legs), bending of the spine etc. The disease can be prevented to eat vitamin D rich food, eg, milk, fish, egg, fish oil etc.
5. When a large number of people living in an area become ill with the same disease at the same time, it is called an **epidemic** or **outbreak** of the disease. Some diseases which cause an epidemic are jaundice, cholera, typhoid, malaria and plague.
6. Diseases are spread through food in many different ways.
 Germs grow on garbage and dirt. Flies sit on these and carry the germs that stick to their legs. When these flies sit on uncovered food, the germs are left on the food and contaminate it.
 There are germs in the dust and soil. When this dust and soil is blown away by wind and settles on food, the food gets contaminated.
 When people suffering from intestinal diseases do not wash their hands properly after going to toilet, the germs are likely to stay on their hands and under the nails. When they touch food, the germs in their hand get transferred and contaminate the food. Anybody eating contaminated food is likely to fall ill.

B. Write T for the correct statements and F for the wrong ones :

- Ans.** 1. F 2. T 3. F
 4. T 5. T 6. T

C. Match the following :

- | A | B |
|--------------|--------------------|
| 1. Vitamin A | a. goitre |
| 2. Vitamin B | b. night blindness |
| 3. Vitamin C | c. beriberi |
| 4. Vitamin D | d. scurvy |
| 5. Iodine | e. anaemia |
| 6. Iron | f. rickets |
- 

D. Give reasons for the following :

- Ans.** 1. We also need to rest our body. Our body gets a chance to repair worn out muscles and make them stronger when we rest. Sleeping for about six to eight hours is very important. It also helps to keep us alert and fresh.

2. A house should be airy and should get enough sunlight because sunlight kills the many harmful germs. It keeps the house clean. This helps us to keep the good health and prevent disease.
3. Disease like cholera, typhoid, jaundice and diarrhoea are spread by contaminated water. To prevent these disease water should be boiled before drinking.
4. Benefits of Exercise
 1. Exercise helps in maintaining physical fitness.
 2. Exercise strengthens bones and muscles.
 3. It increases the efficiency of the heart and improves blood circulation.
 4. Exercise makes us take deep and and strengthens our lungs. You should exercise and play in the open where there is fresh air.
 5. It also helps our nervous system by supplying more oxygen to the brain.
 6. After exercise we sweat. It helps to get rid of waste from our body.
5. Many water borne disease like joundiee, diarrhoea, cholera etc. are spread by the contaminated water. To avoid these disease water should be boiled before drinking. Boiled water is free from germs. It keeps us healthy and fit.

E. Define the following :

- Ans.**
1. A diet that includes all the nutrients in their right proportion is called a **balanced diet**.
 2. There are tiny living organisms present everywhere in the air, in water, in soil, in food and also inside the bodies of animals. We cannot see them with our bare eyes. They can be seen only through a microscope. So they are called **microbes**.
 3. **Disease** is a state of unhealthy condition of the body in which one or more parts are affected and the body does not function normally.
 4. Some of these microbes cause communicable diseases. These disease-causing microbes are called **germs**. The main types of germs are bacteria, protozoa, fungi and virus.

Section 3 Formative Assessment (CCE Pattern)

Do yourself.

3

Rocks and Minerals

Look at the pictures of the monuments given below, and match them to the rocks used to build them.



Marble



Sandstone

Time to Answer

A. Read the clues to unscramble the letters, and write the answers. One has been done for you.

- Ans.** 1. It is an igeous rock **BASALT** TALASB
 2. It is a sedimentary rock **SANDSTONE** EONNASDST
 3. It is a metamorphic rock **MARBLE** LBMAER

B. Match the columns. One has been done for you.

Ans.	Column A	Column B	Column C
	Granite	Metamorphic rock	Used in making glass and jewellery
	Limestone	Igneous rock	Used as a building material
	Quartzite	Sedimentary rock	Used in making lime, bricks, and cement

Times to Power

Look around yourself carefully and then decide what things might be made from the following.

Ans. Do yourself.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.** 1. The Earth's surface rocks are constantly broken down into smaller particles by wind, water and ice. Breaking down of rocks to smaller particles by natural agents is known as weathering. Weathering results in the formation of smaller pieces such as gravel, stones and pebbles.

crust. Both, the core and the crust are solids. Between the core and the crust lies a layer of partly solid rock mixed with molten rock and metal. It is the **mantle**.

2. The Earth is very hot inside. The rocks inside the Earth are found in molten form. This hot liquid rocky material is called **magma**. The cooled magma solidifies either below the surface or on the surface of the Earth to form igneous rocks. When this magma is pushed out of the Earth's surface, it is called **lava**. This usually happens during volcanic eruptions.
3.
 - Rock salt that we use sometimes in our food is a mineral.
 - Talc is a soft mineral. It is used to make talcum powder.
 - Chalk too is a soft mineral. It is used for making **Portland cement** and also for writing on blackboards.
 - Some minerals contain metals which can be extracted. Some of these useful metals are copper, iron and aluminium. The mines from which these metals are obtained are called ores. Iron is used in making steel, **copper** in electrical wires and aluminium in making utensils and foil.
 - Precious metals such as **gold** and silver are used in making jewellery.
 - Some minerals like **diamond, ruby** and **emerald** are found in the form of crystals. They are very beautiful and shiny, so are used as **gemstones**.
4. The Earth is very hot inside. The rocks inside the Earth are found in molten form. This hot liquid rocky material is called magma. The cooled magma solidifies either below the surface or on the surface of the Earth to form igneous rocks. When this magma is pushed out of the Earth's surface, it is called lava. This usually happens during volcanic eruptions. Almost ninety-five percent of the Earth's crust is made up of igneous rocks.
The type of igneous rock formed depends on the type of minerals it contains, and the rate at which it cools. Some common igneous rocks are granite, basalt, pumice and obsidian.
5. **Fossils** are remains of dead plants or animals that get buried millions of years ago and hardened with the passage of time in the Earth. Fossils are found mostly in sedimentary rocks. Fossils help scientists discover the various forms of life that existed in the prehistoric period.
6. Most rocks are made up of minerals of various kinds. Some minerals like diamond and ruby are found in the form of crystals. They are used as gemstones. A mineral has the following properties.

- | | | |
|---|---|---|
| 2. Animal | Seed | Oil |
| 3. Bread | Meat | Maize |
| 4. Igneous rocks | Bedrock | Sedimentary rocks |
| 5. Diamond | Ruby | Calamine |
| 6. Basalt | Granite | Limestone |

D. Write one word for the following :

Ans. 1. Mantle 2. Crust 3. Pumice 4. Coal

E. Answer the following questions :

- Ans.** 1. Plants are very useful to us. They provide us food and other useful things. They also give us oxygen. Without plants life can not exist on the Earth.
2. Seed coat, cotyledon, embryo and micropyle are the different parts of a seed.
3. We need a balanced diet, exercise, rest and sleep to keep fit.
4. To 'morph' means to change form. Metamorphic rocks are those which have been formed from other kinds of rocks which changed or morphed. Metamorphic rocks were once either sedimentary or igneous. Huge amount of pressure and heat cause the transformation deep inside the Earth. It takes a few million years for the original rock to change into a metamorphic rock.
Examples of metamorphic rocks are marble, slate, quartzite and gneiss.

Unit – 3 The World of Living



Animals Everywhere

Time to Answer

Write 'T' for the correct statement and 'F' for the wrong one :

Ans. 1. F 2. T 3. T

Fill in the blanks by choosing the correct option :

- Ans.** 1. Animals need to breathe to get **oxygen**.
2. Mammals breathe with the help of **lungs**.
3. Bear and human beings are **omnivores**.
4. **Snakes** are reptiles.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.**
1. A fish breathes through its gills. So do prawns, crabs, oysters and tadpoles. Gills are special organs that are richly supplied with blood vessels.
 2. An adult frog breathes through its lungs on land.
 3. Most mammals have four limbs. The two at the front are called forelimbs and the two at the back are called hind limbs. Humans use their forelimbs to hold or catch the things. These are their hands. They use their hind limbs for walking.
 4. Insects breathe through air holes on their bodies. These holes are called spiracles.
 5. (a) Animals that crawl Snakes and turtles
(b) Animals that hop Frog and kangaroo
 6. Insects breathe through air holes on their bodies. These holes are called spiracles. The blood of insects does not contain the oxygen carrier called haemoglobin. The spiracles lead to air tubes which form a fine network that reaches every tissue of the body. Air enters the body through this network. The body tissues absorb oxygen and give out carbon dioxide which is expelled out from the body.

B. Tick (✓) the correct option :

- Ans.**
- | | | |
|---------------|-------------|-------------|
| 1. b. rodents | 2. d. two | 3. d. oars |
| 4. b. scales | 5. d. lungs | 6. b. frogs |

C. Fill in the blanks :

- Ans.**
1. The large animal **kingdom** consists of different types of animals.
 2. A **fish** breathes through its gills.
 3. Most mammals have **four** limbs.
 4. Turtles have four **paddle like** limbs to push water back and to swim.
 5. Lizards, crocodiles, and **turtles** and reptiles.
 6. Animals that feed on flesh of other animals are called **carnivores**.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. **Groups of Animals** : The large animals kingdom consists of different types of animals. They differ in size and shape. There are microbes, insects, fish, birds, reptiles and mammals.
 2. Insects breathe through air holes on their bodies. These holes are called spiracles. The blood of insects does not contain the oxygen

carrier called haemoglobin. This is why their blood is not red in colour. The spiracles lead to air tubes which form a fine network that reaches every tissue of the body. Air enters the body through this network. The body tissues absorb oxygen and give out carbon dioxide which is expelled from the body.

A fish breathes through its gills. So do prawns, crabs, oysters and tadpoles. Gills are special organs that are richly supplied with blood vessels. When water flows over the gills an exchange of gases takes place. The gills absorb oxygen from the water and release carbon dioxide from the blood.

3. A frog is an amphibian. A baby frog or a tadpole breathes through its gills. An adult frog breathes through its lungs. on land and through its moist skin in water.
4. Fish have fins for swimming. The two paired fins are used to move forward. The unpaired fin maintains balance and the tail fin helps to change the direction of movement.

Turtles have four paddle-like limbs to push water back and to swim. Penguins use their two forelimbs as flippers to push water and to swim. Frogs have webbed feet to swim. But when on land, they jump with the help of their long hind legs.

5. These six-legged creatures usually use their legs for movement. Insects like ants and cockroaches crawl on their legs.

A grasshopper uses its long hindlegs for hopping. Water insects like water boatmen use their legs as oars for swimming.

6. Snakes are reptiles. They do not have legs. They have scales or plates on the underside of their bodies. These plates are attached to their ribs. When snakes move, these plates act like feet and the ribs act like legs. Besides plates they have strong muscles and a flexible backbone which helps them to move forward.

B. Give reasons for the following :

- Ans.**
1. Animals need to breathe to get oxygen. Oxygen burns the food within their bodies and releases energy for various activities. Animals get their supply of oxygen from their surroundings. Land animals breathe in oxygen from the air while fishes and other aquatic animals take oxygen from water.
 2. Animals need to move in order to search for food, protect themselves and their babies from being hunted, and build resting and breeding places.

3. Animals migrate to escape harsh weather, to search for food and to reach their breeding grounds.

C. Match the columns to complete the sentences :

- Ans.**
- | | | |
|-----------------|---|-----------------------------------|
| 1. A fish | → | a. are harmful migratory insects. |
| 2. A frog | → | b. are reptiles without legs. |
| 3. Most mammals | → | c. breathes through gills. |
| 4. Snakes | → | d. have four limbs. |
| 5. Locusts | → | e. is an amphibian. |

D. Some animals have interesting feeding habits. Complete the table about the food, feeding organs and feeding habits of these animals.

Ans.	Animal	Food	Feeding Organs	Feeding Habits
		nector	hallow tube	herbivores
		soil, insects		omnivores
		insects	sticky tongue	omnivores
		insects	sticky tongue	omnivores
		grass	teeth, mouth	herbivores

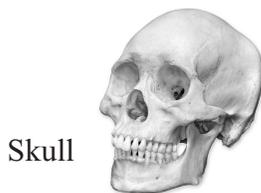
Section 3 Formative Assessment (CCE Pattern)

Do yourself.



Our Skeletal System

Look at the picture given below. Write their names in the boxes provided.



Skull



Rihbcage

Ans. These two pictures form a part of the skeletal system.

Time to Answer

Match the following organ system with their jobs :

Column A

Column B

- | | | |
|-------------|---------------------|---|
| Ans. | 1. Breathing system | a. helps us to breathe |
| | 2. Nervous system | b. helps us in thinking, feeling, learning and smelling, etc. |

- | | |
|------------------------|--|
| 3. Digestive system | c. breaks our food into simpler substances |
| 4. Circulatory system | d. transports nutrients and other substances |
| 5. Muscular system | e. helps us in movements |
| 6. Reproductive system | f. helps in producing babies |
| 7. Excretory system | g. throws out our body wastes |
| 8. Skeletal system | h. gives shape to our body |

Time to Answer

Name the following :

- Ans.**
- Any two internal organs: **heart, lungs.**
 - Two systems which work closely together to make movement of the body possible : **The skeletal system the muscular system.**
 - Two body parts with small bones: **palm, toe.**
 - The soft, fatty substance inside hollow bones which makes new blood: **pone marrow.**

Time to Answer

A. Fill in the blanks :

- Ans.**
- Eight flat bones in the **skull** protect the brain.
 - The 33 small bones in the spine are called **vertebra.**
 - The 12 pairs of bones in the chest form the **ribcage** which protects the heart and the lungs.

B. Fill in the blanks by choosing the correct option :

- Ans.**
- The **skeletal** system forms the framework of the body.
 - The vertebral column protects the **spinal cord.**
 - The **rib cage** protects the heart and lungs.

C. Write the correct numbers for the following :

- Ans.**
- The number of bones in an adult human skeleton **206.**
 - The number of bones in a skull **22.**
 - The number of pairs of ribs **12.**
 - The number of vertebrae in the backbone **33.**

Time to Answer

Fill in the blanks :

- Ans.**
- A group of organs together make up an **organ** system.
 - The skull is made up of **22** bones.
 - The backbone is made up of 33 small bones called a **vertebra.**

Times to Answer

Ans. Do yourself.

Section 1. Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.**
1. The skeleton is a framework of bones which gives the body a form and shape. It also protects the internal organs.
 2. The skeleton system forms the framework of bones in our body.
 3. The different kinds of movable joints are: pivot joints, ball-and-socket joints, sliding joints and hinge joints.
 4. The hinge joints work like the hinges in a door. They move the bones through 180° only in one direction.

B. Tick (✓) the correct option :

- Ans.**
- | | |
|-----------------------|----------------|
| 1. c. skeletal system | 2. a. 22 bones |
| 3. c. 12 | 4. a. brain |

C. Fill in the blanks with the correct option :

- Ans.**
1. The heart is an **organ**.
 2. The strongest and the longest bone in the body is the **femur**.
 3. The long bones which are hollow have **bone-marrow** inside them.
 4. The **lower** jaw is the only movable part in the skull.
 5. Fibres that join one bone with another are called **ligaments**.

D. Answer in one sentence :

- Ans.**
1. Skull, Ribs and Spine
 2. Bones are held together by strong bands of fibre-like structure called ligaments.
 3. A joint is a place where two or more bones fit together.
 4. Pivot joints, ball-and-socket joints, sliding joints and hinge joints.
 5. Stomach.
 6. Voluntary muscles are attached to bones by strong bands of fibres called tendons.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. The skeleton gives shape and support to our body. It protects our internal organs. For example, the skull protects the brain, and the ribcage protects the heart and the lungs.
 2. **Ball-and-socket joint :** A ball-and-socket joint allows a circular movement. Here, one bone that ends in a ball fits into the socket or

hollow of another bone. Ball and socket joints are found in shoulders and hips.

At the shoulder, the long bone ends in a ball and fits into the socket to the shoulder blade. At the hips, the femur ends in a ball and fits into the socket to the hip bone

3. **Voluntary or skeletal muscles** : These muscles are attached to our skeleton and are under our control. These muscles are found in the arms, legs, eyes, etc.

Involuntary muscles or smooth muscles : These muscles are not under our control, they work automatically. They are found in our stomach, intestine, etc.

4. The muscular system helps the body in movement. Some muscles are attached to the bones. These muscles pull the bones and help in movement. The leg muscles help to walk and jump. The arm muscles help to lift things. The face muscles help to smile, blink, and wink.

B. Match the following :

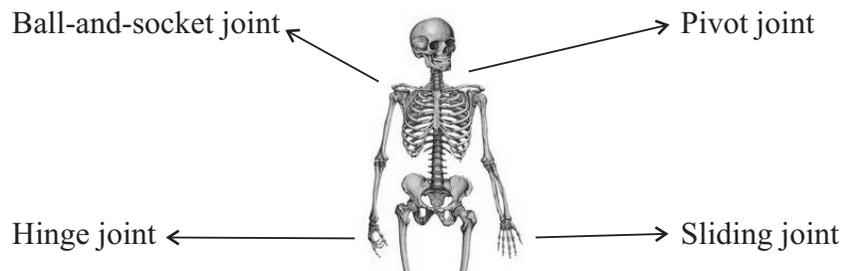
Joint	Movement
1. Ball-and-socket joint	a. allows rotatory movement
2. Pivot joint	b. allows movement of bones through 180°
3. Sliding joint	c. allows circular movement
4. Hinge joint	d. allows movement of bones over each other

C. Define the following terms :

- Ans. 1. **Skeleton** : The skeleton is a frame work of bones which gives the body a form and shape. It also protects the internal organs.
2. **Tendon** : Voluntary muscles are attached to bones by strong bands of fibres called tendons.
3. **Joint** : A joint is a place where two or more bones fit together.

Section 3 Formative Assessment CCE Pattern

Lable the various joints in the following figure.



Find 10 words in this word search that are related to the skeletal system. You can move horizontally or vertically. Write the words you have found.

H	I	P	K	S	R	I	B	R	L
M	M	N	N	K	S	P	I	N	E
Q	B	T	E	N	D	O	N	T	R
L	S	K	E	L	E	T	O	N	B
I	T	F	C	G	F	E	M	U	R
M	S	K	U	L	L	I	T	L	A
B	O	K	N	V	W	R	I	B	S
L	I	G	A	M	E	N	T	V	I
W	J	O	I	N	T	C	X	Z	U
N	A	L	A	T	L	A	S	F	S

- Ans. HIP SKULL
 SPINE RIBS
 TENDON LIGAMENT
 SKELETON JOINT
 FEMUR KNEE

Section 3 Formative Assessment (CCE Pattern)

Do yourself.



Nervous System

Look at the pictures given below. Name the activity that the kids are doing in these pictures.



1. Eating



2. Smelling



3. Thinking



4. Singing



5. Laughing

Time to Answer

A. Name the following :

- Ans. 1. The nervous system 2. The Brain 3. The cerebrum
 4. The cerebellum 5. Mixed nerver

B. Match the following :

- | Column A | Column B |
|------------------|------------------------------|
| 1. Cerebrum | Blinking of eyes |
| 2. Medulla | Thick bundle of nerve fibres |
| 3. Spinal cord | Largest part of the brain |
| 4. Reflex action | Brainstem |

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.**
1. The tongue helps us to acquire taste. The surface of the tongue has **taste buds**, which contain nerves. The taste buds are located in different areas of the tongue. Humans can identify four tastes sweet, sour, salt and bitter. Special nerves carry the sensation of taste to an area in the brain.
 2. The nervous system consists of the brain, the spinal cord and the nerves.
 3. The sense organs in our body are eyes, ears, nose, tongue and skin.

B. Tick (✓) the correct option :

- Ans.**
- | | |
|-------------------|-------------------|
| 1. b. skin | 2. b. spinal cord |
| 3. b. optic nerve | 4. a pupil |

C. Name the following :

- Ans.**
- | | | |
|-----------------|-------------------|----------|
| 1. The Cerebrum | 2. Auditory nerve | 3. Pinna |
| 4. Medulla | 5. Reflex action | |

D. Fill in the blanks by choosing the correct option :

- Ans.**
1. The system that controls all the other organ systems of our body is called the **nervous** (nervous/circulatory) system.
 2. The **brain** (brain/spinal cord) is located inside the skull.
 3. The **cerebrum** (cerebrum/cerebellum) controls the functions of our sense organs.
 4. **Cerebellum** (Medulla/Cerebellum) is situated below the cerebrum.
 5. Spinal cord is a thick bundle of nerves that arises from the **medulla** (medulla/cerebrum).

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. The sense organs function through the **nervous system**. The information we receive from our environment through our eyes, nose, ears, tongue, and skin is called **stimuli**. We experience various sensations such as colour, form and shape through our eyes. We smell different odours with the nose. The skin which is spread all over the body, helps us to receive sensation of heat, cold and pain. It also helps us to feel textures such as smooth or rough. We receive the sensation of taste through our tongue.
 2. The brain has three main regions the cerebrum, the cerebellum and the medulla or the brain stem.

3. **a. The Cerebrum :** It is the largest part of our brain. This part is responsible for thinking and reasoning. It controls our memory, thoughts, intelligence and learning. It also controls the sense organs. This part is much bigger in human than in other animals. That is why humans are more intelligent than them.
 - b. The Cerebellum :** This region lies below the largest part of the brain. It controls the movements of our muscles, and helps to keep our balance.
 - c. Medulla or the Brain Stem :** Beneath the cerebellum lies the bulb shaped medulla. It is also called brainstem. It connects the brain to the spinal cord. It controls involuntary actions like the movements of the lungs and the heart. The medulla is active even when we sleep.
4. A nerve carries messages between the brain, spinal cord, and other parts of the body. Motor nerves, sensory nerves, and mixed nerves are three types of nerves.

Sensory nerves carry messages from the sense organs to the spinal cord or brain.

Motor nerves carry instructions from the brain or the spinal cord to the muscles.

Mixed nerves carry messages to the brain as well as bring back instructions from the brain.
5. **Spinal Cord :** Spinal cord is a thick bundle of nerves which extends down from the medulla. It is surrounded and protected by the backbone. It carries messages to and from the brain and the rest of the body.
6. **Two Functions of the Spinal Cord :**
 - (i) Spinal cord carries messages to the brain from other parts of body.
 - (ii) It also carries messages to other parts of body from the brain.
7. **Reflex Actions :** If you accidentally touch something very hot, you withdraw your hand immediately. This is an automatic reaction. It happens so fast that you have no time to think about it. It happens by itself, even if you are concentrating elsewhere! Such actions are called **reflex actions**. In such cases, the messages do not go to the brain. The spinal cord is able to sense the danger and take action quickly, to avoid damage to the body. Other examples of reflex actions are blinking of eyes, sneezing, and salivating.
8. **Sense Organs :** Our sense organs help us to get information from our surroundings. Eyes, ears, nose, tongue and skin are our sense organs.

The Eyes : Our eyes give us the sensation of sight.

3. The skeleton is a framework of bones which gives the body a form and shape. it also protects the internal organs.
4. The skeleton system forms the fram work of bones in our body.
5. The tongue helps us to acquire taste. The surface of the tongue has taste buds, which contain nerves. The taste buds are located in different areas of the tongue. Humans can identify four tastessweet, sour, salt and bitter. Special nerves carry the sensation of taste to an area in the brain.

Summative Assessment-1

A. Write T for the correct statements and F for the wrong ones :

Ans. 1. T 2. F 3. F 4. F 5. T

B. Match the following :

Ans.

1. Stem cutting	→	a. goitre
2. Iodine	→	b. is an amphibian
3. Pumice	→	c. allows movements of bones through 180°
4. Frog	→	d. rose
5. Hinge joint	→	e. quick cooling of lava

C. Give reasons for the following :

- Ans.**
1. Dispersal of seed is essential for the germination of seeds. Plants can not move on their own. Nature has, therefore, arranged some methods by which the seeds of plants get scattered to long distances.
 2. Most of the flowers are brightly coloured because by this they attract insects which helps in the process of pollination.
 3. We also need to give rest to our body. Our body gets a chance to repair worn out muscles and make them stronger when we rest. Sleeping for about six to eight hours is very important. It also helps to keep us alert and fresh.
 4. Disease like cholera, typhoid, jaundice and diarrhoea are spread by contaminated water. To prevent these disease water should be boiled before drinking.
 5. Animals need to breathe to get oxygen. Oxygen burns the food within their bodies and releases energy for various activities. Animals get their supply of oxygen from their surroundings. Land animals breathe in oxygen from the air while fishes and other aquatic animals take oxygen from water.

D. Define the following :

- Ans.**
1. **Reproduction** : The process by which living organisms produce new organisms of the same kind is called reproduction.
 2. **Dispersal of seeds** : The process by which seeds and fruits are scattered away from the parent plant is called dispersal.
 3. **Communicable diseases** : Disease which can spread from one person to another are known as communicable diseases.
 4. **Nutrients** : Our food contains nutrients like carbohydrate, protein, fat, vitamin and mineral. The amount of a type of nutrient varies from food to food.
 5. **Metamorphic rocks** : Metamorphic rocks are those which have been formed from other kinds of rocks which changed or morphed.
 6. **Fossils** :
 7. **Migration** : Some animals move great distances at certain times of the year. This mass movement of animals from one place to another is known as migration.
 8. **Carnivores** : Carnivores are the animals which feed on the flesh of other animals. Lion, tiger, vultures, eagles etc, are the examples of carnivores.
 9. **Vertebral column** : The skull is attached to the backbone at its base. The backbone forms the main axis of the body. But it is not made up of a single long bone. It consists of a series of 33 small bones. Each of these bones is called a vertebra (plural : vertebrae). Therefore, the backbone is also known as the vertebral column. The vertebral column protects the spinal cord, which is a bundle of nerves that extends downwards from the brain. Since the backbone is made up of many small bones, we are able to bend and twist the backbone in different directions.
 10. **Reflex Actions** : If you accidentally touch something very hot, you withdraw your hand immediately. This is an automatic reaction. It happens so fast that you have no time to think about it. It happens by itself, even if you are concentrating elsewhere! Such actions are called **reflex actions**. In such cases, the messages do not go to the brain. The spinal cord is able to sense the danger and take action quickly, to avoid damage to the body. Other examples of reflex actions are blinking of eyes, sneezing, and salivating.

E. Answer the following questions :

Ans. 1. Plants reproduce through seeds or a part such as leaves, stem or root. Some plants reproduce through spores.

2.
 - Rock salt that we use sometimes in our food is a mineral.
 - Talc is a soft mineral. It is used to make talcum powder.
 - Chalk too is a soft mineral. It is used for making **Portland cement** and also for writing on blackboards.
 - Some minerals contain metals which can be extracted. Some of these useful metals are copper, iron and aluminium. The minerals from which these metals are obtained are called ores. Iron is used in making steel, copper in electrical wires and aluminium in making utensils and foil.
 - Precious metals such as **gold** and silver are used in making jewellery.
 - Some minerals like **diamond, ruby** and **emerald** are found in the form of crystals. They are very beautiful and shiny, so are used as **gemstones**.

3. **Insects** : These six-legged creatures usually use their legs for movement. Insects like ants and cockroaches crawl on their legs.

A grasshopper uses its long hindlegs for hopping. Water insects like water boatmen use their legs as oars for swimming.

Some insects have one or two pairs of wings and can fly.

4. A joint is a place where two or more bones fit together.

5. **The Cerebrum** : It is the largest part of our brain. This part is responsible for thinking and reasoning. It controls our memory, thoughts, intelligence and learning. It also controls the sense organs. This part is much bigger in human than in other animals. That is why humans are more intelligent than them.

The Cerebellum : This region lies below the largest part of the brain. It controls the movements of our muscles, and helps to keep our balance.

Medulla or the Brain Stem : Beneath the cerebellum lies the bulb shaped medulla. It is also called brainstem. It connects the brain to the spinal cord. It controls involuntary actions like the movements of the lungs and the heart. The medulla is active even when we sleep.



Force and Energy

Identify the simple machine in the following pictures.



1. Bucket



2. Screw

Time to Answer

Fill in the blanks :

- Ans. 1. When the fulcrum is in between the load and the effort it is a **first-class lever**.
2. A **pulley** is a small wheel with a groove around its outer edge.
3. A pulley does not reduce the effort. It changes the **direction** of force.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans. 1. A force can be used to :
- move a stationary object.
 - stop a moving object.
 - make a moving object move faster.
 - slow down a moving object.
 - change the direction of a moving object.
 - change the shape and size of an object.
2. **Law of Conservation of Energy** : Energy can neither be created nor destroyed. Energy just changes from one form to another. The total energy of an object never decreases or increases.
3. Forces are of different types muscular, gravitational, frictional, elastic, mechanical and buoyant.

B. Tick (✓) the correct option :

- Ans. 1. a. gravitational force 2. c. wheel-and-axle arrangement
3. d. screw 4. a. buoyant force

C. Fill in the blanks :

- Ans.**
1. **Push** or **pull** means applying force.
 2. Most simple machines make use of **mechanical** force.
 3. We are able to walk because of the presence of **frictional** force.
 4. Simple machines change the **direction** of applied force.
 5. **Energy** is the ability to do work.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. **Types of Forces :** There are different types of forces.

Muscular Force : When we push, pull or lift something we apply muscular force.

Gravitational Force : On television you must have seen astronauts floating in space. They are able to float because there is no gravitational force pulling them down. We are able to stay on the ground because of gravitational force.

Frictional Force : Why does a rolling ball stop after some time? This is because of the force of friction. Frictional force slows down a moving object. We are able to walk because of frictional force.

Elastic Force : A stretched rubberband regains its original position on being released because of elastic force. Elastic force arises when a body deforms.

Mechanical Force : Most simple machines make use of mechanical force. For example, a pair of scissors uses mechanical force to cut something.

Buoyant Force : If we push down a mug or a block of wood floating on water, we feel an upward thrust. The upward push of water on a floating object is called **buoyant force** or **upthrust**. This force acts on every object, even on you when you enter a swimming pool.

2. **Simple Machines :** Simple machines are tools which make our work easier and faster. They help us to do work by applying force at a convenient point which either changes the direction of force or increases the force applied. Some examples of simple machines are lever, inclined plane, wheel and axle, pulley and screw.
3. **Levers :** Commonly used tools like scissors, pliers, screwdrivers and hammers are levers.

A small stone is kept as a support for the rod, very close to the rock under the rod. One uses a downward force on the other end of the rod.

The rock is lifted upwards. Here the rod is a lever. The weight lifted by the person is the **load** (see figure given on below). The point of support or the pivot point of the rod where it touches the small stone is the **fulcrum**. The force used is the **effort**.

Lever can be classified according to the position of the fulcrum, the load and the effort.

When the fulcrum is in between the load and the effort it is a **first-class lever**.

When the load is in between the fulcrum and the effort, it is a **second-class lever**.

When the effort is in between the fulcrum and the load, it is a **third-class lever**.

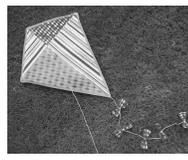
4. **The Inclined Plane** : Walking up a slope is easier than climbing a ladder to the same height. An **inclined plane** is a slope which makes work easier. When workers have to load or unload a truck they use a plank of wood as an inclined plane. In hospitals and some other building inclined planes called ramps are provided next to staircases. This helps in pushing up wheelchairs.
5. A **screw** is a simple machine used to hold things tightly together. Why is a screw better than a nail? When we join things together with a screw they are held together through a longer distance and thus cannot be forced apart easily. On the other hand, when we join things with a nail, they are held together only for a short distance, that is through the length of the nail.

6. **Different Forms of Energy** :

Mechanical Energy : Mechanical energy is the energy which is possessed by an object due to its motion or due to its position. Mechanical energy can be either kinetic energy (energy of motion) or potential energy (stored energy of position). A moving car possesses mechanical energy due to its motion (kinetic energy). A drawn bow possesses mechanical energy due to its stretched position (elastic potential energy).

Solar Energy : Solar energy is the most readily available source of energy. It is the most important source of energy because it is non-polluting. When we hang our clothes to dry in the sun, we use the energy of the sun. Similarly, solar panels absorb the energy of the sun to provide heat for cooking.

Geothermal Energy : The word geothermal comes from the Greek words geo (earth) and therme (heat). So, geothermal energy is heat



Times to Answer

Write 'T' for the correct statement and F for the wrong one :

Ans. 1. T 2. T 3. T 4. T 5. T

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans. 1. The sun and the stars fire are the luminous objects.
2. A solar eclipse takes place when the moon comes between the sun and the Earth.
3. Wood and store are non-luminous objects.

B. Fill in the blanks by choosing the correct option :

- Ans. 1. The Earth is a **non-luminous** object.
2. Light travels in the form of **rays**.
3. Substances that allow only a little light to pass through them are called **translucent** substances.
4. A shadow increases in size as the distance of the object from the source of light **decreases**.
5. A **lunar** eclipse occurs when the earth comes between the sun and the moon.

C. Tick (✓) the correct word :

- Ans. 1. Earth is **spherical** in space.
2. Light travels in a **straight** line in the form of rays.
3. Those objects through which light cannot pass at all are **opaque**.
4. A solar eclipse takes place only on a **new moon day**.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans. 1. We see so many things around us every day from the moment we wake up in the morning. We are able to see things because light that falls on these objects bounces off and travel through space to reach our eyes. We see a thing when light from it reaches our eyes.
2. Certain things produce light. For example, the sun, the stars fire, torch, electric bulbs, etc. give out light. These bodies are called **luminous bodies**.

3. Light can pass through a few substances like glass and water. Substances that allow light to pass through them are called transparent substances.
4. Light travels in the form of rays. It does not need a medium to travel through. It can even travel through vacuum.
5. **Characteristics of a Shadow :** Three things are needed for the formation of a shadow.
 1. a light source
 2. an opaque object
 3. an opaque screen or surface where the shadow is to be formed

Position of a shadow : Observe the formation of shadow in the diagram.

A shadow is always formed opposite to the source of light.

Shape of a shadow : The shape of shadow depends the angle in which light falls on it or the shape of the part of the object that blocks the path of light.

Size of a shadow : The size of a shadow is long when the light source is placed along the length of an object and it is short when the light source is placed along the width of an object.

6. **Lunar Eclipse :** When the Earth comes between the Sun and the moon in a straight line, the Earth casts its shadow on the moon. It stops the light of the Sun from reaching the moon and, hence, the moon cannot be seen partly or wholly. When this happens, we say a lunar eclipse has taken place.

When the moon is completely in the dark shadow of the Earth, it is called a **total lunar eclipse**. The bright night of purnima (**full moon**) becomes totally dark during the time of total lunar eclipse. When the moon is partly hidden by the dark shadow of the Earth, it is called **partial lunar eclipse**.

So, we can say that a lunar eclipse occurs when the Earth comes between the Sun and the moon in a straight line and shadow of the Earth falls on the moon. A lunar eclipse occurs on a full moon night but not on every full moon night.

B. Correct the following statements :

- Ans.**
1. A burning candle is a luminous body.
 2. Substances that do not allow light to pass through them are called opaque substances.
 3. A shadow is always formed behind the object.

4. Penumbra is in partial darkness and receives some light from the source.
5. A lunar eclipse occurs when the shadow of the Earth falls over the moon.
6. Solar eclipse can occur only on a new moon day.

C. Distinguish between the following :

Ans. 1. Light can pass through a few substances like glass and water. Substances that allow light to pass through them are called **transparent** substances.

Light cannot pass through some substances like wood, stone and metal. Substances that do not allow light to pass through them are called **opaque** substances.

2. A solar eclipse occurs when the moon comes between the Sun and the Earth.

A lunar eclipse occurs when the earth comes between the Sun and the moon.

D. Match the following :

A	B
Ans. 1. Umbra	a. a little light can pass through
2. Penumbra	b. light can pass through
3. Opaque	c. a lighter shadow
4. Translucent	d. dark shadow
5. Luminous	e. light cannot pass through
6. Transparent	f. gives off light

Section 3 Formative Assessment (CCE Pattern)

Draw any two luminous objects.

Do yourself.

Why do the length and position of the shadow of an object change during the day?

Do yourself

Answer these questions.

- Ans.** 1. Which gives out more light, the torch or the candle? **torch**
2. Which light casts a darker shadow, the candle or the torch? **torch**
Move the candle closer to the object.
3. Does the shadow become bigger or smaller? **bigger**
Move the candle further away from the object.
4. Does the shadow become smaller or bigger? **smaller**



Natural Disasters

Time to Answer

Fill in the blanks :

- Ans. 1. The crust or the upper layer of the Earth is made of **soil**.
2. Seismologists study **earthquake**.
3. Earthquake is measured in **richter scale**.
4. The liquid that comes out of a volcano is called **magma or lava**.
5. **Barren Island** is the only active volcano in the Indian subcontinent.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans. 1. Relief and rescue operations are carried on by the government and international organisations like the UN (United Nations) and USAID (United States Agency for International Development) and also by NGOs. The community as a whole also provides relief by contributing money, medicines, food and clothing.
2. The plates slide past each other and cause an earth quake.
3. Volcanoes and floods are natural disasters.
4. Two types of volcanoes:-
(i) Active Volcano (ii) Dormant Volcano

B. Tick (✓) the correct option :

- Ans. 1. c. seismometer
2. d. Planting of trees on a large scale helps prevent earthquakes.
3. d. epicentre
4. a. Ring of fire

C. Tick (✓) the correct word :

- Ans. 1. Volcanoes are **cracks** in the Earth's crust.
2. **Extinct** volcanoes are those that have stopped erupting.
3. The point under the ground where the earthquake begins is called the **focus**.
4. The most common scale to measure an earthquake is called the **Richter** scale.
5. **Tidal wave** is the common name for a tsunami.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
- 1. Natural Disasters :** A natural disaster is a natural even that causes immense loss of life and property, often leaving people injured and homeless. Floods, earthquakes, cyclones, volcanic eruptions, hurricanes and droughts are all natural disasters.
 - 2. Earthquakes are** sudden movements of parts of the Earth's surface. The Earth's crust is like a covering of the Earth. It is made up of many huge pieces called plates. The plates float over the thick liquid layer inside the Earth called mantle. Sometimes, the plates slide past each other causing an earthquake. The surfaces where the plates slip are weak points called fault lines. The location directly above the fault line on the Earth's surface is called epicentre of the earthquake.
 - 3.** A drought happens when there are no rains for a long time-several months or year. Without rains, rivers and natural water bodies dry up, and ground water level goes down as it is not replenished. Lack of water affects all living beings. All vegetation including food crops dry and die. This leads to shortage of food which causes starvation.
In the absence of water the soil becomes dry and loses its fertility. Useful insects, worms and microorganisms living in the soil die too. All this results in vast damage and destruction.
 - 4.** Though we cannot prevent earthquakes, we can minimise the damage to life and property with better planning, and suitable building construction. The timely rescue and relief provided to the victims can help reduce **loss** of life and property.
 - If you live in an apartment building, find out if it is earthquake proof.
 - 5. Rescue and Relief :** If a natural disaster strikes an area, the government makes arrangement for evacuation, that is, removal of people from disaster affected areas. Helicopters are used to rescue by airlifting people stranded in the affected area. Immediate relief is supplied in the form of food, shelter, clothing, water and medical services. Rehabilitation of displaced victims is done by finding shelter, clothing, jobs and slowly rebuilding their lives.
 - 6.** The severity of an earthquake is measured by an instrument called seismometer. The strength of an earthquake can be recorded on a Richter scale.
Most minor earthquakes measure no more than 2 on Richter scale, but a reading of 8 means that towns or cities could be destroyed.

7. **Types of volcanoes :** According to the level of activity, volcanoes can be of three type-sactive, dormant and extinct.

Active volcanoes are those which erupt quite often. Many active volcanoes are found around the Pacific Ocean, forming an area called the Ring of fire. Mount Etna in Italy, Mount Erebus in Antarctica and Barren Island in the Andaman Sea in India are some of the active volcanoes. Dormant volcanoes are those that have not erupted for a long time, but may erupt any time.

Extinct volcanoes are those that are dead and inactive.

B. One word is wrong in each of the following statements. Identify the wrong word and rewrite the statement correctly :

- Ans.**
1. **Drought** occur due to shortage to rainfall.
 2. **Extinct** volcanoes are those that are dead and inactive.
 3. **Earthquake** is measured on a Richter scale.
 4. **Floods** are common during rainy season.

C. Use a dictionary and match the words on the right with events on the left :

- Ans.**
- | | |
|-------------------|----------|
| Volcanic eruption | → Bolt |
| Thunder | → Jolt |
| Lightning | → Patter |
| Gale | → Rumble |
| Earthquake | → Roll |
| Rain | → Roll |

Section 3 Formative Assessment (CCE Pattern)

Do yourself.

Formative Assessment-3

A. Answer the following questions :

- Ans.**
1. **A force can be used to :**
 - move a stationary object.
 - stop a moving object.
 - make a moving object move faster.
 - slow down a moving object.
 - change the direction of a moving object.
 - change the shape and size of an object.
 2. Forces are of different types muscular, gravitational, frictional, elastic, mechanical and buoyant.

3. A solar eclipse takes place when the moon comes between the sun and the Earth.
4. Wood and stone are non-luminous objects.
5. The plates part each other and cause an earthquake.

B. Tick (✓) the correct option :

- Ans.** 1. a. gravitational force 2. d. screw 3. d. epicentre

C. Fill in the blanks :

- Ans.** 1. **Pull** or **push** means applying force.
 2. Simple machines change the **direction** of applied force.
 3. The Earth is a **non-luminous** object.
 4. A **lunar** eclipse occurs when the Earth comes between the Sun and the moon.

D. Tick (✓) the correct word :

- Ans.** 1. Earth is **spherical** in space.
 2. Light travels in a **straight** line in the form of rays.
 3. Volcanoes are **cracks** in the Earth's crust.
 4. **Tidal wave** is the common name for a tsunami.

E. Name the following :

- Ans.** 1. Muscular Force 2. Non-luminous
 3. Umbra 4. Extinct

Unit – 6 Natural Resources



Air and Water

Observe the following pictures and mark C for clean environment and D for dirty environment.

Ans.



(D)



(C)

5. Purifying water by passing through a filter paper is called **filtration**.

D. Answer in one sentence :

- Ans.**
1. The atmosphere is divided into five layer-stroposphere, mesosphere, thermosphere, and exosphere.
 2. The clear water on top is poured gently into another container taking care not to disturb the sediment at the bottom. This process is called **decantation**.
 3. **Soluble impurities** are those that completely mix or dissolve with water, for example, salt.

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

- Ans.**
1. **Stratosphere :** Stratosphere is the second layer. Jet aircrafts fly in this layer because there is no disturbance due to weather here. It contains ozone gas. Ozone absorbs the harmful ultraviolet rays of the Sun.
 2. **Properties of Air :**
 1. Air is colourless, tasteless and odourless.
We cannot see air. It has no colour. Pure air is also without any taste or smell.
 2. Air occupies space.
 3. Air has weight.
 4. Air exerts pressure.
 5. Hot air rises up.
 6. Hot air expands.
 3. As rain water falls down to the Earth, some of it seeps through the layers of soil and the rocks till it reaches the layer of non-porous rocks. It collects on top of these non-porous rocks. The top of this underground water is called the **water table**. Wells are dug to draw this water out. When there is more rainfall, the water table gets higher. Sometimes it reaches the top of the ground. Then it trickles out in the form of a spring.
 4. **Filtration :** Another method of purifying water is to pass it through a thin cloth or filter paper. A filter paper acts like a strainer. It allows the water to pass through it but holds back the solid particle.
A circular piece of filter paper is folded into a cone and placed in a funnel as shown in the picture. The water along with its impurities is gently poured into the funnel with the help of a glass rod. The insoluble particles settle on top of the filter paper and the clear water is collected in a container kept below the funnel. This method is called

filtration.

5. **Chlorination** : This clear water may still contain germs which cause water-borne diseases.

So, it is treated with chlorine to kill the germs.

This water is then stored in a water tank at a higher level. As water always flows from a higher level to a lower level, it is distributed to various localities in the city.

Though the piped water we get at home is usually safe for drinking, sometimes leakages and poor maintenance can still let in impurities and germs.

To be absolutely sure, the water should be boiled for at least 10 minutes to kill the germs and then filtered with a water purifier.

6. **Distillation** : The process of purifying water by first boiling it and then condensing the steam is called **distillation**. It involves two processes: evaporation and condensation of water.

This method is used to separate soluble impurities from water. Impure water is heated till it boils. On boiling, water evaporates leaving impurities behind in the flask. The steam is passed through a condenser which is kept cool by circulating cold water around it. The steam cools down in the cool condenser and changes into water. This water is collected in another flask. This water is absolutely pure.

B. Complete the following sentences :

- Ans.**
1. Meteoroids burn up in **mesosphere**.
 2. Oxygen helps in **burning**.
 3. Sedimentation is the **second step of water treatment**.
 4. Before collecting on non-porous rocks, rain water **seeps through the layers of soil and the rocks**.
 5. Drinking impure water causes **diseases**.

C. Match the following :

- | A | B |
|----------------------|---------------------------|
| 1. Rotation of Earth | a. filter paper |
| 2. Filtration | b. day and night |
| 3. Snow | c. kills germs |
| 4. Vapour | d. solid state of water |
| 5. Boiling | e. gaseous state of water |

Section 3 Formative Assessment (CCE Pattern)

Find the names of the five layers of the atmosphere in the crossword.

TROPOSPHERE, STRATOSPHERE, MESOSPHERE, THERMOSPHERE, EXOSPHERE

F	L	S	T	U	L	M	X	T	Q	U	M
V	K	T	O	R	I	E	J	H	P	L	A
B	T	R	O	P	O	S	P	H	E	R	E
T	V	A	K	Z	I	O	E	H	D	K	X
S	A	T	E	O	M	S	N	I	T	R	O
Y	R	O	T	D	N	P	V	P	Q	W	S
E	G	S	A	H	F	H	S	I	R	S	P
N	O	P	G	I	J	E	T	A	O	D	H
O	N	H	C	L	K	R	P	S	X	P	E
N	I	E	Q	B	Y	E	N	U	Y	M	R
R	H	R	B	U	G	D	Z	P	G	C	E
T	H	E	R	M	O	S	P	H	E	R	E

Which of these children need more air? Why?

Do yourself.

Make your own water purifier.

Do yourself.

Make your own fountain.

Do yourself.



Soil Erosion and Conservation

Fill in the blanks by looking at the pictures.



SOIL



FOREST



WATER

Time to Answer

Fill in the blanks :

Ans. 1. The **soil** is the foundation of life on earth.

2. River Kosi caused havoc in **Bihar**.
3. Felling of trees or **deforestation** causes soil erosion.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans.**
1. When the Earth was formed, there were only water, air and hard rocks. The Sun heated the rocks. The rain made them cold, and the wind blew over them. This continued for thousands of years. As a result, the rocks broke into small pieces. These small pieces broke into still smaller pieces. They were carried around by wind and water. They rubbed against each other till they became tiny particles. It took millions of year for these tiny particles to change into the loose material which we call soil.
 2. Heavy rains cause floods. Flooded rivers and running water remove the top soil. Running water washes the soil off the hill slopes.
 3. **Human Beings also Cause Soil Erosion** : Roots of trees and plants hold the soil together. Felling of trees or deforestation is a major cause of soil erosion. When trees are cut down the soil becomes loose and is easily carried away.
Ploughing of hill slopes is yet another human factor that leads to soil erosion. Overgrazing by cattle also causes soil erosion.
 4. **Human Beings also Cause Soil Erosion** : Roots of trees and plants hold the soil together. Felling of trees or deforestation is a major cause of soil erosion. When trees are cut down the soil becomes loose and is easily carried away.
Ploughing of hill slopes is yet another human factor that leads to soil erosion. Overgrazing by cattle also causes soil erosion.

B. Tick (✓) the correct option :

- Ans.** 1. b. deforestation 2. b. hill-slopes 3. b. infertile

C. Tick (✓) the correct word :

- Ans.**
1. Process of wearing away of soil is called **erosion**.
 2. In 2008 river Kosi caused a flood in **Bihar**.
 3. Plants and trees hold the soil by their **roots**.
 4. Soil erosion occurs due to soil **deforestation**.

D. Fill in the blanks :

- Ans.**
1. The breaking down of rocks into soil is called **weathering**.
 2. The removal of fertile topsoil is called **soil erosion**.
 3. **The roots of plants** act as soil-binders to prevent soil erosion.
 4. The protection of soil from its erosion is called **soil conservation**.

E. Identify the following pictures. Write their names in the spaces provided :

Ans.



1. Deforestation



2. Overgrazing



3. Terrance Farming

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

Ans. 1. Soil is the uppermost layer of the Earth. It supports plants which provide food to all living things on this planet. Thus, soil is the foundation of all life on Earth.

2. **Running Water Causes Soil Erosion :** Heavy rains cause floods. Flooded rivers and running water remove the top soil. Running water washes the soil off the hill slopes. This makes the slopes unfit for cultivation. The Chambal Valley of Madhya Pradesh is one such example.

A river coming down the hill carries a lot of mud with it. Upon reaching the plains, the flow of the river slows down. It leaves part of the soil on its way. Over a period of time soil accumulates and makes the river change its course. You may heard of the Yellow River in China, called Hwang Ho. It was known as the **Sorrow of China**, because it changed its course very often. This resulted in loss of life and property. In Bihar, River Kosi which changes its course frequently caused great havoc in 2008 when lakhs of people were affected.

Wind Causes Soil Erosions : In desert and semi-desert where strong winds blow, a lot of top soil is carried away. This affects the farmers because manure too is blown away. Quite often the roots of plants lose their soil cover and the plants die.

Human Beings also Cause Soil Erosion : Roots of trees and plants hold the soil together. Felling of trees or deforestation is a major cause of soil erosion. When trees are cut down the soil becomes loose and is easily carried away.

Ploughing of hill slopes is yet another human factor that leads to soil erosion. Overgrazing by cattle also causes soil erosion.

3. **Soil Conservation :** Nature took millions of years to form soil. It is our responsibility to preserve and protect it. The protection is soil against erosion is called **soil conservation**.

We cannot stop natural forces like wind and water from causing soil erosion. However, soil can be conserved by controlling the actions of these agents of erosion. This can be done in a number of ways.

4. A river coming down the hill carries a lot of mud with it. Upon reaching the plains, the flow of the river slows down. It leaves part of the soil on its way. Over a period of time soil accumulates and makes the river change its course. You may have heard of the Yellow River in China, called Hwang Ho. It was known as the Sorrow of China, because it changed its course very often.
5. **On Flat, Open Grounds :** After harvesting and before raising the next crop, fields lie bare. This is when the wind blows off the top soil. To prevent the soil from getting blown away, farmers grow cover crops such as grass and creepers. The roots of plants of these cover crops hold the soil particles together and prevent them from being blown away. Trees and bushes are grown along the boundary of the fields. They act as a shield against strong winds.

On Hill Slopes : Cutting the slope into steps or terraces can reduce soil erosion. Steps slow down the flow of water. As the water flow slows down, some soil from one step is left on the next step, reducing the amount of soil lost.

Afforestation or **growing trees** is another effective method of soil conservation on hill slopes.

On Fields near Rivers : During the monsoon many rivers overflow and flood the field. To prevent floods, embankments along river banks are built. This holds the water between the banks and prevents soil erosion.

B. Match the following :

- | | | | |
|-------------|------------------------|---|----------------------|
| Ans. | 1. Loss of soil | → | a. afforestation |
| | 2. Sorrow of China | → | b. deforestation |
| | 3. Cutting down trees | → | c. Hwang Ho |
| | 4. Protection of soil | → | d. soil erosion |
| | 5. Planting more trees | → | e. soil conservation |

Section 3 Formative Assessment CCE Pattern

Mention whether the following activities encourage soil erosion (SE) or soil conservation (SC). Colour the box brown for SE and green for SC.

- | | | | | | |
|-------------|-------|-------|-------|-------|--------|
| Ans. | 1. SC | 2. SE | 3. SE | 4. SC | 5. SC |
| | 6. SC | 7. SE | 8. SC | 9. SE | 10. SC |

Stop soil erosion!

Do yourself

Can plants break up rock?

Do yourself



The Moon

Time to Answer

Fill in the blanks :

- Ans. 1. The moon takes **29.5 days** to complete one rotation.
2. The moon **reflects** the light of the sun.
3. Each day there are two **high** tides and two **low** tides.

Section 1 Formative Assessment CCE Pattern

A. Answer the following questions orally :

- Ans. 1. An artificial satellite is one of the most useful things for mankind. Different kinds of artificial satellites are designed for different purposes.

Communication satellites send telephone, television and other electronic signals to and from different places on the earth.

Navigation satellites send message from one country to another, from the land to an aircraft or to a ship. They determine the exact locations which help people who travel in remote places.

Weather satellites help to study weather pattern and forecast the weather. They take pictures of the movement of clouds. They have special infra-red cameras which take photographs of the heat waves given off by the Earth. The temperatures of different parts of the Earth can be calculated from these photographs.

2. Tides are caused mainly by the gravitational pull of the moon and the sun. The moon's pull on the sea-water is more than that of sun because the moon is much closer to the Earth. As a result, the sea-water on the side of the Earth facing the moon rises. At the same time, the Earth spins and shifts slightly towards the moon causing a high tide on the opposite side.

In the areas between two high tides, the water forms low tides. Almost every twelve hours, there is one high tide followed by one low tide.

3. Every night, the illuminated part grows in size till we see the **full moon** on the 15th day. From the next day, the illuminated part

decreases in size, and becomes completely invisible on 15th day. This is known as the **new moon** day. From one new moon to another it takes roughly 30 days and this period is called a lunar month (lunar related to the moon). The part of the moon visible to us is called the **phase** of the moon.

B. Tick (✓) the correct option :

Ans. 1. c. Mercury 2. 27 1/3 days 3. a. new-moon day

C. Fill in the blanks with the correct option :

Ans. 1. The gravitational force on the moon is **1/6** th of that on the Earth.
2. The rise of water level is called **high** tide.
3. The **moon** is the only heavenly body in space where man has landed.
4. **Weather** satellites help to study weather pattern and forecast the weather.
5. Astronauts have to undergo intensive **training**.

D. Give one word for the following :

Ans. 1. Meteorities 2. Phase 3. Tides
4. Communication satellites 5. Spacesuit

Section 2 Summative Assessment CCE Pattern

A. Answer the following questions :

Ans. 1. There are many big bowl-shaped holes or **craters** on the moon. The craters are made by chunks of rocks called **meteorities** that strike the moon.

2. There is almost no atmosphere on the moon. Therefore, there are no plants and animals there.
Sunlight does not get scattered on the moon because of the absence of air. So, the sky looks dark and the stars are visible even during daytime.
Sound waves are not able to travel on moon since there is no air. So, there is no sound on the moon.
There is no wind to move the dust on the surface of the moon. So the footprints of the astronauts will be preserved for many years on the surface of the moon.

3. The moon does not have its own light. It reflects the light of the Sun. When the moon passes between the Earth and the Sun, sunlight falls on the part turned away from us and so the moon is not visible to us. This happens on the new moon night.

4. An artificial satellite is a man-made object which orbits the Earth or some other celestial body in space. When an artificial satellite is launched, a rocket takes it up in space. Later, the satellite is put into orbit.

5. An artificial satellite is one of the most useful things for mankind. Different kinds of artificial satellites are designed for different purposes.

Communication satellites send telephone, television and other electronic signals to and from different places on the earth.

Navigation satellites send message from one country to another, from the land to an aircraft or to a ship. They determine the exact locations which help people who travel in remote places.

Weather satellites help to study weather pattern and forecast the weather. They take pictures of the movement of clouds. They have special infra-red cameras which take photographs of the heat waves given off by the Earth. The temperatures of different parts of the Earth can be calculated from these photographs.

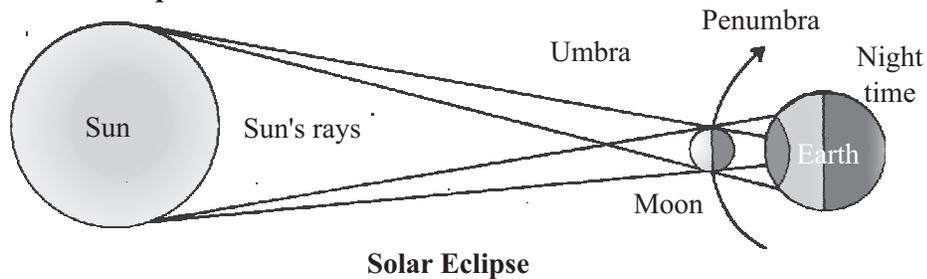
6. Astronauts have to undergo intensive training to acquire all the skills and knowledge required on a space mission. They learn how to deal with emergencies. In special laboratories on the ground, they learn how everything will feel in space. They use the latest computer technology. Therefore, they have to be well educated, possessing technical skills. Now there are many women astronauts too.

B. Write T for the correct statements and F for the wrong ones :

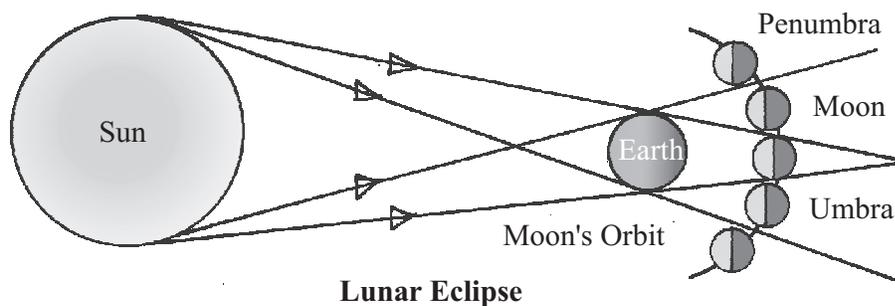
Ans. 1. F 2. F 3. T 4. T 5. F

C. Draw well-labelled diagram of :

Ans. 1. **Solar Eclipse :**



2. **Lunar eclipse :**



- | | |
|----------------------|------------------|
| 4. Boiling | d. killing germs |
| 5. Rotation of Earth | e. day and night |

C. Define the following :

- Ans.**
- Natural disaster :** A natural disaster is a natural event that causes immense loss of life and property, often leaving people injured and homeless. Floods, earthquakes, cyclones, volcanic eruptions, hurricanes and droughts are all natural disasters.
 - Force :** A push or pull is called force. A force can be used to move a stationary object, stop a moving object, make a moving object move faster, slow down a moving object, change the direction of a moving object and change the shape and size of an object.
 - Soil erosion :** The condition of wearing off or carrying away of top soil by the action of water or wind is known as soil erosion.
 - Energy :** Energy is the ability to do work.
 - Communication Satellites :** Communication satellites send telephone, television and other electronic signals to and from different places on the earth.
 - Reflection :** Non-luminous bodies can be seen only when light falls on them and bances off their surface to reach our eyes. The bouncing off of light is called reflection.
 - Hydropoeer :** Of the renewable energy sources that generate electricity, hydropower is the most often used. It is one of the oldest sources of energy. It was used thousands of years ago to turn a paddle wheel to grind grain. Because the sources of hydropower is water, hydroelectric power plants must be located on a water sources.
 - Food :** A flood is an overflow of water that submergest land. Floods occur when rivers break riverbanks and water surges into surroundings areas. In our country, floods are common during the monsoon season. Sometimes, heavy rainfall also results in floods which are short-lived, but devastating. Due to water-logging and unhygienic conditions, germs spread and there is an outbreak of diseases such as jaundice, typhoid, malaria and cholera.
 - Total eclipse :** When the moon hides the whole bright surface of the sun, it is called total solar eclipse.
When the moon is completely in the dark shadow of the Earth, it is called a total lunar eclipse.
 - Sedimentation :** Sedimentation is the second step of water treatment. Water is collected in large tanks and left undisturbed. The heavier insoluble impurities settle down at the botton of the tank.

D. Correct the following statements :

- Ans.**
1. When the load is in between the fulcrum and the effort, it is a second - class lever.
 2. A large source of light forms both umbra and penumbra.
 3. Active volcanoes are those which erupt quite often.
 4. The two main gases present in the atmosphere are nitrogen and oxygen.
 5. The process of change of water in to water vapour due to heating is called evaporation.

E. Answer the following questions :

- Ans.**
1. A screw is a simple machine used to hold things together. Why is a screw better than a nail? When we join things together with a screw they are held together through a longer distance and thus cannot be forced apart easily. On the other hand, when we join things with a nail, they are held together only for a short distance, that is through the length of the nail.
 2. Certain things produce light. For example, the sun, the stars fire, torch, electric bulbs, etc. give out light. These bodies are called luminous bodies.
 3. Earthquakes are sudden movements of parts of the Earth's surface. The Earth's crust is like a covering of the Earth. It is made up of many huge pieces called plates. The plates float over the thick liquid layer inside the Earth called mantle. Sometimes, the plates slide past each other causing an earthquake. The surfaces where the plates slip are weak points called fault lines. The location directly above the fault line on the Earth's surface is called epicentre of the earthquake.
 4. As rain water falls down to the Earth, some of it seeps through the layers of soil and the rocks till it reaches the layer of non-porous rocks. It collects on top of these non-porous rocks. The top of this underground water is called the water table. Wells are dug to draw this water out. When there is more rainfall, the water table gets higher. Sometimes it reaches the top of the ground. Then it trickles out in the form of a spring.
 5. The moon does not have its own light. It reflects the light of the Sun. When the moon passes between the Earth and the Sun, sunlight falls on the part turned away from us and so the moon is not visible to us. This happens on the new moon night.