



Today SCIENCE

(Teacher Manual)

Class-4



2. **Terrestrial Plants** – Plants that live and grow on land are called terrestrial plants. For example: Neem, Mango etc.
Aquatic Plants – Plants that live and grow in water are called aquatic plants. For example: Lotus, Duckweed etc.
3. **Plains** – They have many branches. They shed their leaves in autumn. Example: Mango, Neem
Hills – The tree growing here are tall and straight. They have needle-like leaves with waxy coating to protect them from snow. Example: Pine, Cedar
Deserts – These plants have roots that spread out far away under the surface of the soil in search of water. Leaves are modified into spines to reduce the loss of water. Stems are green and fleshy. For example: Cactus, Kikar etc.
4. Three types of water plants are:
Floating Plants: These plants have fibrous root system but roots are not fixed at the bottom of the water body. Example: Duckweed, Hyacinth
Fixed Plants: These plants have roots that are fixed to the mud at the bottom of the water body. Examples: Lotus, Water Lily
Underwater Plants: These plants are completely submerged in water. They have roots that are fixed to the bottom of the water body. For examples: Hydrilla and Vallisneria.
5. Insectivorous plants have leaves that are modified to trap insects.
6. Two non-green plants are: toadstool and mushroom.

HOTS

1. Fixed plants can't grow underwater because their roots are fixed at the bottom of the plants and the leaves get destroyed under the water only.
2. Mangroves grow in marshy areas where there is clayey soil. If they have normal roots they will not be able to breathe i.e., they will not get enough air.
3. Cactus grow in deserts so to reduce loss of water their leaves are modified into spines.

Value-Based — Do it yourself.

Activity Bonanza — Do it yourself **IBQ** — Do it yourself.

National Cyber Olympiad Question

1. (b) They grow in soil that is poor in nutrients.
2. (b) mountain

Chapter - 3 — Reproduction in Animals

Let's Explore — Do it yourself

Research and Discover — Do it yourself

Research and Discover

Fish lay thousand eggs at a time because only few hundred eggs grow in baby fish.

Critical Thinking (HOTS)

1. a. caterpillar b. hatch c. nymph d. embryo

Life Skills — Do it yourself

Revisit and Relearn

- A. 1. (b) female 2. (b) yolk 3. (a) fish
4. (a) caterpillar 5. (c) Snake
- B. 1. Lifespan 2. embryo 3. metamorphosis
4. nymph 5. mammals
- C. 1. T 2. F 3. F 4. T 5. T

- D.1. The process by which animals produce their young ones is called reproduction.
2. Bird's egg has a hard outer shell which protect it. The yellow portion in the centre is called yolk. Yolk contains a dark spot called an embryo. The embryo grows into baby bird. The developing embryo gets its food from yolk.
3. A process by which an animal develops by undergoing many stages of development.
4. A female butterfly lay eggs in cluster under the leaves. An egg of butterfly hatches out into a young worm called larva. The larva of a butterfly is called a caterpillar. The caterpillar feeds on leaves and grows. Then it forms an outer covering around its body called cocoon. This stage is called pupa.
Inside the pupa, the caterpillar changes and finally grows into an adult and comes out. This type of growing in stage is known as metamorphosis.
5. Animals that give birth to young ones are called mammals. For example: cow, lioness etc.
Special features of mammals:
- They have four limbs.
 - They have well developed brain.
 - The body is covered by hair or fur.
- E. 1. c 2. b 3. d 4. e 5. a

HOTS

1. Without reproducing, no babies will be produced. So after 100-150 years, humans would be old and all humans would have died.

2. Both bat and whales are mammals and have four chambered heart.

Value Based Questions — Do it yourself

Activity Bonanza — Do it yourself

Problem solving

- a. frogs b. tadpole c. reproduction
d. spider e. human

National Cyber Olympiad Question

1. (b) snake, frog, duck, crow, parrot 2. (b)

Chapter - 4 — Adaptations in Animals

Let's Explore

1. Desert 2. Tree 3. Water, Land

Research and Discover — Do it yourself

Revisit and Relearn

- A. 1. (a) terrestrial animals 2. (b) lungs 3. (c) wings
4. (a) cow 5. (b) tiger skin
- B. 1. crawl 2. fins 3. lungs 4. arboreal
5. carnivores
- C. 1. T 2. T 3. T 4. T 5. F
- D. 1. (e) 2. (d) 3. (b) 4. (a) 5. (c)

E 1. The ability to adjust to ones surrounding is called adaptation.

2. Adaptation in terrestrial animals are:

- (i) They have well developed sense organs which helps them to hunt for food and protect themselves.
(ii) They have four legs which help them to move, jump and run.

3. Depending on the habitat in which animals live, can be grouped as terrestrial, aquatic, amphibians, aerials and arboreal animals.

4. Animals change their colour to blend themselves with the surroundings which is called camouflaging.

5. **Migration** – Movement of animals from one place to another for feeding or breeding is called migration.

Hibernation – Some animals hide themselves to protect themselves from a particular weather. This is called hibernation.

Aestivation – Animals like crocodile and lungfish go to sleep for long time in summer months. This is called aestivation.

HOTS

1. This feature help them to blend with the surroundings.

2. Frog, lizard and snake cannot survive in the cold winter months. So they eat a lot during summers and sleep in the caves or holes for a long time in winter.

Activity Bonanza — Do it yourself.

Value-Based Question — Do it yourself.

National Cyber Olympiad Question

1. (c) all of these 2. (a) They live in water. 3. (d) 1, 2, 3 and 4

Chapter - 5 — Food and Health

Let's Explore

2. Pulses 3. Maize 4. Egg

Research and Discover — Do it yourself

Revisit and Relearn

- A. 1. (b) rice 2. (b) Protein 3. (a) Vitamins

4. (c) 8 glasses 5. (a) boiling

- B. 1. food 2. five 3. carbohydrates

4. water 5. strong

- C. 1. T 2. T 3. F 4. T 5. F

- D. 1. (c) 2. (a) 3. (e) 4. (d) 5. (b)

- E.1. The substances that our body needs for energy and growth are called nutrients. These are five type of nutrients. They are carbohydrates, fats, proteins, vitamins and minerals.

2. **Carbohydrates:** It gives us energy to do work.

Fats: It keeps our body warm.

Proteins: It helps us to grow.

Vitamins and Minerals: Help our body to fight against diseases.

3. A balanced diet is one which contains all types of nutrients in right amounts.

4. Two ways of healthy cooking are:

- Wash fruits and vegetables before cutting them.
- Do not cook food for a long time.

5. The process by which we can preserve food items for long time is called food preservation. Two ways to preserve food are:

(i) Refrigeration: Food is kept in refrigerator so that germs do not grow in it.

(ii) Canning: Some food items like juices and jams can be sealed in cans after removing germs.

HOTS

1. Children have growing bodies hence they require most proteins because protein help growth.
2. Food gives energy to work and play and also helps in growth of our body.
3. a. Protein as it helps to grow.
b. Carbohydrates as it gives energy.

Value-Based — Do it yourself.

Activity Bonanza — Do it yourself.

National Cyber Olympiad Question

1. (a) minerals
2. (a) B and C

Chapter - 6 — Teeth and Digestion

Let's Explore — Do it yourself

Research and Discover — Do it yourself

Revisit and Relearn

- A. 1. (a) enamel 2. (c) Incisors 3. (a) mouth 4. (c) liver
5. (a) overeat
 - B. 1. permanent 2. dentine 3. canines 4. premolars
5. small
 - C. 1. T 2. F 3. F 4. T 5. T
 - D. 1. (b) 2. (a) 3. (c) 4. (e) 5. (d)
- E.1. Two set of teeth are temporary teeth and permanent teeth.
 2. A tooth is made up of three parts i.e. the crown, the neck and the root. The crown and neck are seen outside the gum while the root is inside the gum.
 3. Different types of teeth are:
 - Incisors — 8 front teeth, 4 in each jaw
 - Canines — On either sides of incisors, 4
 - Premolars — Behind canines, 4 in each jaw
 - Molars — 12, 6 in each jaw
 4. Microbes are very small organisms that cannot be seen with naked eyes. They are found everywhere. Some are useful to us while some are harmful. Microbes that cause diseases are called germs.
 5. The process of breakdown of complex food items into simpler forms for them to be absorbed by the body is known as digestion.
It begins with the ingestion of food via buccal cavity where food is

chewed and sent to the stomach through oesophagus. The stomach churns the food and mixes it with gastric juices which further break down the proteins in food. From here food passes into small intestine and most of it is digested here. The undigested food is then pushed into large intestine. The minerals and extra water are absorbed by the blood in large intestine. The waste called feces is then expelled out of the body through anus.

HOTS — Do it yourself.

Activity Bonanza — Do it yourself.

Value-Based — Do it yourself

National Cyber Olympiad Question

(b)

Chapter - 7 — Clothes We Wear

Let's Explore — Do it yourself

Research and Discover — Do it yourself

Critical Thinking

- (c) Uniform
- (c) Wool
- (a) Rain
- (a) Pods
- (b) Silk

Revisit and Relearn

- A. 1. (a) cotton clothes 2. (b) plant 3. (c) Silkworm
4. (c) Rayon 5. (c) both of them
- B. 1. sweat 2. natural 3. detergent 4. woollen
5. Rayon
- C. 1. F 2. T 3. F 4. T 5. T
- D. 1. (d) 2. (c) 3. (e) 4. (b) 5. (a)
- E. Judge Doctor Soldier Student
- F.1. Clothes protect us from heat, cold, rain, dust and insect bites.
2. Doctor, nurse, soldier, lawyers, judge etc.
3. Clothes are made of fine thread material called fibres.
4. Natural fibre: Cotton, Wool, Silk
Synthetic fibre: Rayon, Nylon
5. We should take care of our clothes in following way:
(i) We should wash them regularly with detergents.
(ii) We should dry them under sunlight.

HOTS

The clothes might not have been washed properly.

Value-Based — Do it yourself.

Activity Bonanza — Do it yourself.

Problem Solving

- a. Nylon b. natural c. silkworm d. heat and cold
e. white

National Cyber Olympiad Question

1. (c) Cotton handkerchief 2. (d) all of these

Chapter - 8 — Air, Water and Weather

Let's Explore — Do it yourself

Research and Discover

This is due to the sea breeze effect.

Research and Discover — This is done to the sea breeze effect.

Revisit and Relearn

- A. 1. (b) breeze 2. (a) Nitrogen 3. (a) dew
4. (a) 15 to 20 minutes
- B. 1. Sun 2. Wind 3. evaporation 4. forest
5. boiling
- C. 1. T 2. F 3. F 4. T 5. T
- D.1. The sun causes changes in weather and seasons.
2. The cool air from the sea that blows towards the land and takes the place of hot air is called sea breeze. The warm air rises above the sea and cool air from the land rushes towards the sea which is called land breeze.
3. The process by which water changes into water vapour is called evaporation.
4. The continuous movement of water through the earth and atmosphere in various states is called water cycle.
5. When water is allowed to stand in a container for an hour, heavier impurities settle down. This process is called sedimentation. Now the clear water is poured in another container so that settled impurities are not disturbed. This process is called decantation.
- E. 1. (b) 2. (d) 3. (e) 4. (a) 5. (c)

HOTS — Do it yourself.

Activity Bonanza — Do it yourself.

National Cyber Olympiad Question

1. (d) Summer 2. (c) filter through filter paper

Value-Based Questions

1. (c)
2. (a)

Chapter - 9 — The Solar System

Let's Explore — Do it yourself

Research and Discover

The atmosphere of Venus is thick and made of green house gases like carbon dioxide that traps heat.

Critical Thinking

1. F
2. F
3. F
4. T

Revisit and Relearn

- A. 1. (b) Earth 2. (a) Mercury 3. (b) red 4. (a) Crust
5. (a) rotation

- B. 1. Sun 2. Earth 3. Uranus 4. 24 5. five

- C. 1. T 2. F 3. T 4. F 5. T

- E.1. Planet is a celestial body that revolves around a star in a fixed orbit.
2. The, eight planets and their satellites and other heavenly bodies like comets and asteroids form the solar system.
3. Mercury, Venus, Earth and Mars are inner planets. Jupiter, Saturn, Uranus and Neptune are outer planets.
4. The spinning of the earth around its axis is called rotation.
5. Rotation of the earth causes day and night.
6. The movement of the earth around the sun is called revolution.
E. 1. (c) 2. (e) 3. (a) 4. (b) 5. (d)
F. Inner core, Outer core, Mantle, Crust

Value-Based — Do it yourself.

HOTS

1. Earth is called a blue planet because about 70% of its surface is covered with water.
2. Earth is a unique planet because it is the only planet that supports life.

Activity Bonanza — Do it yourself.

Problem Solving

1. Revolution
2. Mercury
3. Mercury
4. Venus
5. Earth

National Cyber Olympiad Question

1. (c)
2. (c)

Chapter - 10 — Soil

Let's Explore — Do it yourself

Research and Discover — Do it yourself

Critical Thinking

1. Loamy 2. Soil 3. Clayey

Revisit and Relearn

- A. 1. (a) uppermost 2. (a) Sandy soil
3. (b) clayey 4. (a) Topsoil 5. (b) Subsoil
- B. 1. soil 2. sandy 3. Loamy 4. plants 5. Bedrock
- C. 1. T 2. F 3. T 4. T 5. T
- D. 1. (b) 2. (c) 3. (d) 4. (e) 5. (a)

- E.1. Soil is the uppermost layer of Earth's surface.
2. Soil is formed by weathering of rocks and minerals. The rocks get heated up by the sun and then cooled down by rain and wind. Due to this heating and cooling, crack develop and they become bigger with time. As a result, the rock breaks into smaller pieces and is carried away by wind and water. When these pieces rub against each other, they break down into small pieces and form gravel and finally sand. This sand gets mixed with dead plants and animals and form soil.
3. **Sandy Soil:** It has largest particles among all types of soil. It is dry and light. It cannot hold much water. It is found in desert and on sea shore.

Clayey soil: It has smallest particles. It is sticky in nature and can hold much water.

Loamy Soil: It contains sand and clay. It can hold enough water and air. It contains humus.

4. Different layers of soil are:
- (i) Topsoil – It is the uppermost layer of the soil where plants grow.
- (ii) Subsoil – It is below the topsoil. It contains broken pieces of rocks and small amount of humus.
- (iii) Bedrock – It is the bottom layer of soil and contains large pieces of rocks.

HOTS

1. Wind and running water help in breaking the big rocks that later become soil.
2. Soil plays an important role as it helps plants to grow which are very important for us.

Value-Based — Do it yourself

Activity Bonanza — Do it yourself.

Problem Solving

1. (b) Clayey 2. (c) Earthworm 3. Sandy

National Cyber Olympiad Question

1. (d) 2. (d)

Chapter - 11 — Status of Matter

Let's Explore — Do it yourself

Research and Discover — Do it yourself

Revisit and Relearn

- A. 1. (b) Molecules 2. (b) three 3. (c) solids
4. (b) liquids 5. (b) soluble
- B. 1. matter 2. solids 3. liquids 4. solute 5. soluble
- C. 1. (e) 2. (d) 3. (b) 4. (c) 5. (a)
- D. 1. F 2. F 3. T 4. F 5. F
- E.1. Any substance that has mass and occupies space is called matter.
2. Molecules are tiny particles of which a matter is made up of.

3.

Solid	Liquid	Gas
Molecules are very closely packed.	Molecules are not so closely packed.	Molecules are very loosely packed.
Have fixed shape and size.	Have fixed volume	Do not have fixed shape and volume.
Ex.: Book, pencil etc.	Ex.: milk, water etc.,	Ex.: oxygen, nitrogen

4. **Freezing:** When liquid changes into solid it is called freezing.
Melting: When solid turns into liquid it is called melting.
Evaporation: The process of changing of a liquid into gas is called evaporation.
5. When a liquid dissolves a solid substance in it, it is called solution.
The solid substance that dissolves in a liquid is called solute.
The liquid in which the solute dissolves, it is called solvent.
- F. Solid Solid Liquid Liquid
Gas Solid Liquid Solid

Value-Based

1. Solute 2. Caring and concerned



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