

Key to

Soaring Higher and Higher in

Science

3



PROGRESS PUBLISHERS

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1. Living and Non-living Things

Section 1

- | | | |
|---------------------|--------------|-----------------|
| A. 1. fins | 2. stomata | 3. reproduction |
| 4. mayfly | 5. spiracles | |
| B. 1. living things | 2. Plants | 3. wings |
| 4. gills | 5. eggs | |
| C. 1. legs | 2. nose | 3. 80-110 years |
| 4. antennae | 5. mimosa | |
| D. 1. c | 2. e | 3. d |
| 4. b | 5. a | |
| E. 1. F | 2. T | 3. F |
| 4. T | 5. T | |
- F. Living things – tree, girl, fish, rabbit, sparrow
Non-living things – ball, chair, brick, smartphone, pencil

Section 2

- A. 1. Stomata are the minute pores present on the surface of leaf.
2. Lifespan is the period of time for which a living thing is normally expected to live.
3. Spiracles are air holes present on the insect's skin for breathing.
4. Gills are the organs through which fish breathe.
- B. 1. Living things need food to stay alive. Food gives them energy to work.
2. Plants breathe through minute pores present on their leaves called stomata.
3. Plants show movement through their parts. For example, the sunflower turns towards the sun.
4. The young ones of animals that have recently emerged from their eggs are called hatchlings.
5. The lifespan of a dog is around 10-13 years.
- C. 1. Living things change and grow with time. They need oxygen, water and food to grow. A baby grows into an adult. A

puppy grows into a dog. A seed grows into a seedling which may further grow into a big plant or tree.

2. All living things use their sense organs to feel changes around them. Human beings and most animals feel through their eyes, ears, nose, tongue, and skin.

3.

Plants	Animals
a. Plants make their own food.	a. Animals cannot make their own food.
b. Plants cannot move around from one place to another.	b. Animals can move around from one place to another.
c. Most plants reproduce through their seeds.	c. Animals reproduce by either laying eggs or giving birth to babies.

4. Reproduction is a process by which all living things give birth to the young ones of their own kind.

Most plants reproduce through their seeds. Seeds grow into new plants. Some plants are reproduced through stems, roots, buds or leaves.

5.

Living things	Non-living things
a. Living things breathe.	a. Non-living things do not breathe.
b. Living things need food.	b. Non-living things do not need food.
c. Living things grow.	c. Non-living things do not grow.

2. Human Body

Section 1

- | | | |
|-------------------|-----------------|--------------|
| A. 1. pollutants | 2. organ system | 3. digestion |
| 4. deep breathing | 5. bones | |
| B. 1. cell | 2. Brain | 3. muscles |
| 4. organism | 5. respiration | |

- | | | |
|-----------------|-------------|------------|
| C. 1. diaphragm | 2. liver | 3. kidneys |
| 4. heart | 5. windpipe | |
| D. 1. F | 2. T | 3. T |
| 4. F | 5. T | |

Section 2

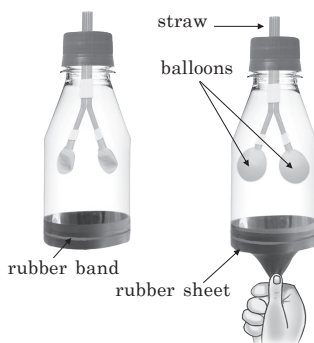
- A. 1. The system that helps us breathe is called respiratory system.
2. Diaphragm is a large, dome-shaped muscle, located below the lungs.
3. Deep breathing is a simple exercise that increases the supply of oxygen during inhalation.
4. Harmful substances that are added to the air making it unfit to breathe is called air pollution.
- B. 1. The organs that are located inside our body are called internal organs. Brain, heart, and stomach are some internal organs.
2. A group of organs that work together to perform a specific function is called an organ system. Respiratory system, digestive system, and circulatory system are some organ systems.
3. The movement of diaphragm helps the lungs to get more air when it contracts and push the air out when relaxes.
4. The kidneys filter blood and produce urine.
5. Two harmful effects of air pollution are as follows:
- Polluted air may cause many health related problems, such as shortness of breath, coughing, etc.
 - Polluted air can cause global warming.
- C. 1. a. The liver filters and detoxifies the blood coming from digestive tract in the human body.
- b. Brain controls all our thoughts and senses. It sends messages to different parts of the body and instructs them what to do.
- c. Heart pumps blood to various organs of the body.

2. Stomach and intestines are part of digestive system. The food we eat reaches the stomach through the food pipe. The stomach and the intestines breakdown the food into simpler substances.
3. *Aim:* To understand how lungs expand during inhalation and contract during exhalation.

Materials required: A two-litre empty water bottle with the lid, two equal-sized straws, a pair of scissors, a rubber band, a tape, two small balloons, and a thin rubber sheet.

Procedure:

1. Cut the bottom of the water bottle with a pair of scissors.
2. Cut the rubber sheet so that it fits the cut end of the bottle.
3. Fix the rubber sheet at the bottom of the bottle with the help of a rubber band.
4. Take both the straws and make a Y-shaped straw. Attach both the balloons at the two ends of the Y-shaped straw. Use the tape to fix them. Insert it into the mouth of the bottle.
5. Make a hole in the lid and pass the straw through it. Fasten the lid on the mouth of the bottle.
6. Pull the rubber sheet down and observe the change in the balloons.

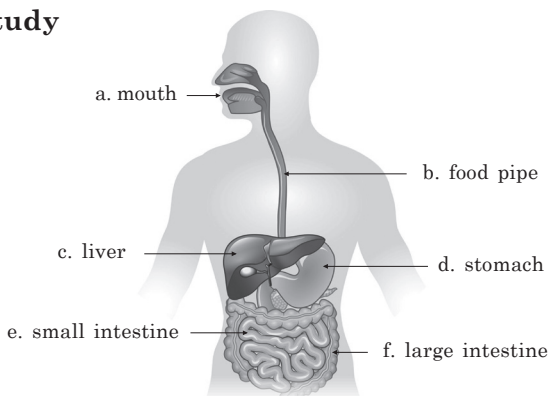


Observation: When the rubber sheet is pulled down, the balloons inside the bottle expand and get filled with air. On releasing the rubber sheet, the balloons inside the bottle contract and regain the original shape.

Conclusion: The process of breathing is similar to the activity performed above. The balloons inside the bottle represent our lungs. The bottle represents our chest wall and rib cage. The rubber sheet represents our diaphragm. During inhalation, the diaphragm moves down and the air enters our lungs. During exhalation, the diaphragm moves upwards and the air leaves the lungs.

4. The process of deep breathing is as follows:
 - a. Sit down comfortably on a mat. Take a deep breath through your nose. Let the air fill your lungs. At the same time, let your belly expand by a few inches. This allows the lungs to expand completely.
 - b. Next, try to breathe out fully. Let the air empty your lungs. At the same time, let your belly collapse and go in. This allows the lungs to contract completely.
5. The main causes of air pollution are as follows:
 - a. Smoke and other toxic gases containing particles of dust and heavy metals released by industries and factories.
 - b. Harmful gases and fumes emitted from vehicles.
 - c. Smoke released due to burning of crop residue, and fuels such as coal, diesel, wood, and cow dung cakes.

Picture Study



3. Animals: Birds

Section 1

- | | | |
|----------------|------------------|----------------|
| A. 1. ostrich | 2. woodpecker | 3. hummingbird |
| 4. Arctic tern | 5. peacock | |
| B. 1. feathers | 2. tail | 3. beak |
| 4. cup-shaped | 5. flightless | |
| C. 1. duck | 2. down feathers | 3. parrot |
| 4. woodpecker | 5. weaver bird | |

- | | | |
|--------------|------------|------|
| D. 1. F | 2. T | 3. F |
| 4. T | 5. T | |
| E. 1. pigeon | mynah | |
| 2. hen | peacock | |
| 3. parrot | woodpecker | |
| 4. duck | swan | |
| 5. heron | crane | |
| 6. eagle | vulture | |
| F. 1. b | 2. d | 3. a |
| 4. e | 5. c | |

Section 2

- A. 1. Eyes, beak, feathers, wings, tail, feet, and claws are the body parts of a bird.
2. A bird flap its wings in both upward and downward directions to fly. Bird uses its tail to change the direction.
3. Birds build nests to lay eggs and take care of their young ones.
4. Birds that cannot fly are called flightless birds. Ostrich and penguin are flightless birds.
5. Ducks and geese have tiny holes on the sides of their beaks to drain out the muddy water they have taken in along with the food.
6. Birds migrate to escape unfavourable weather conditions. Arctic tern is a migratory bird.
- B. 1. We can take care of birds by placing the bird baths and bird feeders around the houses and gardens and refilling them regularly.
2. Different birds eat different types of food. Some birds eat plant products while others eat insects, worms, fish, and flesh of other animals. Parrots and pigeons eat grains and fruits. Eagles and vultures eat the flesh of other animals. Hummingbirds and sunbirds suck nectar from flowers.
3. The weaver bird uses its beak to weave pieces of grass, leaves, or twigs to build a nest. The nest hangs upside down from the branch of a tree. It has a small opening at the bottom. It acts like a cradle for the young ones.

The tailorbird uses its beak like a needle to sew the leaves closely together to build a nest. The inside of the nest is lined with cotton, wool, hair, and dry grass to keep the nest cosy.

4. Wading birds have long legs and widely spread-out toes. Their toes help them to walk through muddy shores.

Perching birds have three toes pointing forward and one backward on each foot. Their toes help them to hold the branch of a tree firmly.

5. There are three types of feathers in birds:
- Down feathers:** Down feathers are soft, short, and fluffy feathers located close to the bird's skin. They keep their body warm.
 - Body feathers:** Body feathers are present over the down feathers. They cover the whole body of the bird.
 - Flight feathers:** Flight feathers are strong and stiff feathers. They are found on the wings and tail of the bird. They help the bird to fly and change directions.
6. An eagle has a strong, sharp, and hooked beak. It uses its beak to tear and eat flesh.

A woodpecker has a strong, pointed, and chisel-shaped beak. It uses its beak to make holes in the trunk of a tree and pull out insects for food.

Picture Study

1. a. Hummingbird
c. Penguin

- b. Ostrich
d. Cuckoo

2.



Weaver bird



Woodpecker



Tailorbird



Bulbul



4. Animals: Common Insects

Section 1

- | | | |
|-------------|---------------------|------------|
| A. 1. ant | 2. female anopheles | 3. termite |
| 4. thorax | 5. bedbug | |
| B. 1. six | 2. antennae | 3. social |
| 4. chitin | 5. caterpillar | |
| C. 1. ant | 2. thorax | 3. lice |
| 4. honeybee | 5. queen ant | |
| D. 1. T | 2. T | 3. F |
| 4. F | 5. F | |

Section 2

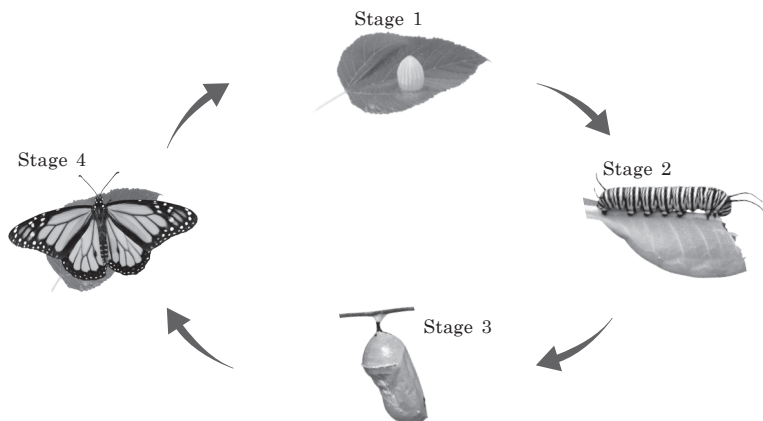
- A. 1. The two characteristics of an insect are as follows:
- An insect has six legs.
 - Most insects have wings to fly.
2. Female anopheles mosquito carries germs that cause malaria.
3. Aedes mosquito carries germs that cause chikungunya.
4. A housefly breeds on garbage. We can keep it away by keeping the garbage bin covered all the time and disposing the waste regularly at a proper place.
5. We should not allow water to stagnate in and around our house because stagnant water is the breeding ground of mosquitoes.
- B. 1. An insect body has three parts—head, thorax, and abdomen.
- Head is located in the front part of the body of an insect. It contains eyes, antennae, and mouth.
 - Thorax is located in the middle part of the body of an insect. It bears three pairs of legs and one or two pairs of wings.
 - Abdomen is located in the rear part of the insect body. It contains the digestive and reproductive organs.
2. The life cycle of a butterfly has four stages.

Stage 1: A female butterfly lays eggs.

Stage 2: The egg of a butterfly hatches into a larva called caterpillar.

Stage 3: The caterpillar sheds its skin and becomes a pupa.

Stage 4: The pupa bursts open and the butterfly comes out.

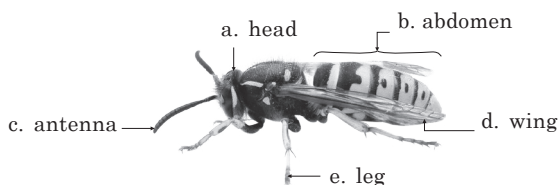


3. Insects that live together in groups or colonies are called social insects. They depend upon each other for survival. Ants, bees, wasps, and termites are some social insects.
4. Five harmful effects of insects are as follows:
 - a. Mosquitoes carry germs that cause malaria, dengue and chikungunya.
 - b. Houseflies and cockroaches carry many disease-causing germs.
 - c. Termites eat up wooden furniture, paper, and drywalls.
 - d. Lice stick to the scalp of our head and suck blood.
 - e. Silverfish damages grains, vegetables, sugar, and clothes.
5. A simple remedy for insect bites is given below:
 - a. Remove the sting, if present in the skin.
 - b. Wash the affected area with soap and water.
 - c. Rub an ice pack over the affected area for an immediate relief.
 - d. Apply calamine lotion.

6. Five preventive measures to keep insects away are as follows:
- Never allow water to stagnate in and around the house.
 - Wear full sleeves clothes to protect from insect bites.
 - Apply insect repellent cream to the exposed skin.
 - Use mosquito net to keep mosquitoes away.
 - Keep the garbage bin covered all the time.

Picture study

1.



- | | |
|----------------|---------------------------------|
| 2. a. Mosquito | It bites and sucks our blood. |
| b. Ant | It lives in a group or colony. |
| c. Housefly | It generally breeds on garbage. |

5. Plants in the Surroundings

Section 1

- | | | |
|----------------|-----------------|----------------|
| A. 1. taproot | 2. fibrous root | 3. leaf blade |
| 4. germination | 5. seed coat | |
| B. 1. Plants | 2. Flowers | 3. Roots |
| 4. stem | 5. Monocot | |
| C. 1. root | 2. stem | 3. chlorophyll |
| 4. flowers | 5. veins | |
| D. 1. T | 2. T | 3. T |
| 4. F | 5. T | |
| E. 1. c | 2. e | 3. a |
| 4. b | 5. d | |

Section 2

- A. 1. The flat, broad, and green part of a leaf is called the leaf blade.
2. The process by which a seed grows into a young plant is called germination.
3. The process of making food by the plant is called photosynthesis.

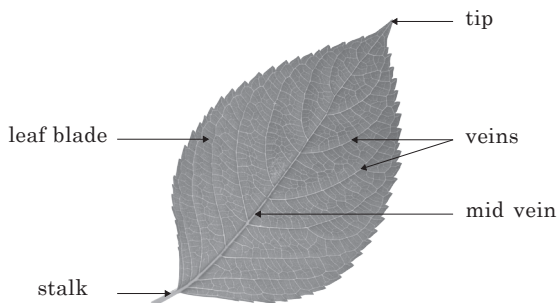
B. 1.	Taproot	Fibrous root
	a. It has one main deep root with many thin roots at its sides.	a. It has many thin, shallow, and bushy roots growing from the base of the stem.
	b. Pea and carrot plants have taproots.	b. Wheat and maize plants have fibrous roots.

2.	Monocot seeds	Dicot seeds
	a. Seeds have only one cotyledon inside them.	a. Seeds have two cotyledons inside them.
	b. Example maize and rice	b. Example pea and bean

3.	Root	Shoot
	The part of a plant that usually grows below the soil.	The part of a plant that grows above the soil.

- C. 1. Chlorophyll is a green colour pigment present in all green leaves.
2. The taproot has one main deep root with many thin roots at its sides. Pea and carrot plants have taproots.
3. Two functions of leaves are as follows:
- Leaves prepare food for the plants with the help of water, carbon dioxide, chlorophyll, and sunlight.
 - Leaves have tiny pores called stomata, that help the plant to take in and give out air.
4. Flowers are important to a plant because they help the plant in the process of reproduction.
5. Seeds are future plants. Fruits contain seeds inside them.

D. 1.



Leaf blade: The flat, broad, and green part of a leaf is called the leaf blade.

Veins: The tiny tubes that cover the entire leaf blade are called veins.

Mid vein: The thin long tube running through the middle of the leaf blade is called the mid vein or midrib.

Stalk: The leaf is attached to the stem or the branch with the help of a stalk.

Tip: The pointed portion of the leaf is called the tip.

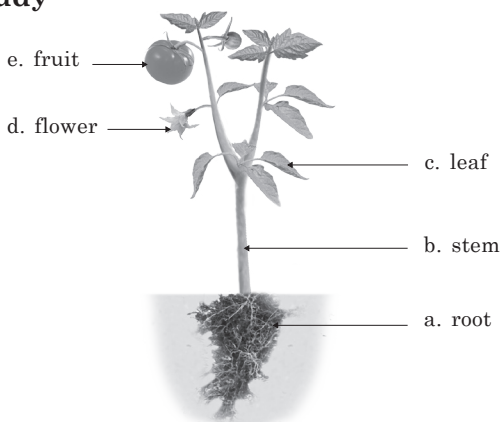
2. a. The main functions of stems are as follows:
 - i) The stem holds the plant erect to get sunlight and air.
 - ii) The stem bears leaves, flowers, and fruits.
 - iii) The stem transports water and nutrients absorbed by the roots to other parts of the plant.
- b. The main functions of roots are as follows:
 - i) Roots hold the plant firmly to the soil.
 - ii) Roots absorb water and essential nutrients from the soil and send them to the stem.
 - iii) Roots of some plants store extra food in them.
3. A seed has hard or semi-hard outer covering around it. The seed has a baby plant inside it. A seed contains food for the baby plant in the seed leaves.
4. A seed germinates into a new plant when it gets right amount of air, water, sunlight, and nutrients.
5. Plants are the building blocks of all life on earth. They provide us oxygen, fruits, vegetables, oils, spices, medicines, and timber.

Some steps to take proper care of plants are as follows:

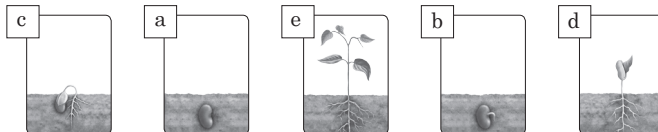
- Make sure plants get adequate sunlight.
- Water the plants regularly.
- Add manure and fertilisers to make the soil fertile.
- Remove weeds regularly.
- Spray pesticides on the plants to protect them from pests.

Picture Study

1.



2.



6. Food we get from plants

Section 1

- | | | |
|----------------|--------------|-----------|
| A. 1. lettuce | cabbage | |
| 2. cauliflower | broccoli | |
| 3. potato | sugar cane | |
| 4. tulsi | neem | |
| 5. mint | spinach | |
| B. 1. Climbers | 2. seeds | 3. shrubs |
| 4. Spices | 5. beverages | |
| C. 1. herb | 2. climbers | 3. roots |
| 4. trunk | 5. creepers | |
| D. 1. T | 2. T | 3. T |
| 4. F | 5. F | |
| E. 1. b | 2. c | 3. a |
| 4. e | 5. d | |

Section 2

- A. 1. Tall and big plants are called trees. Trees have a single, woody stem called a trunk.
2. Drinks other than water are called beverages. Tea and coffee are some beverages.

3. We obtain oil from the seeds of plants such as groundnut, mustard, and sunflower.
4. Nuts are seeds within hard shells of plants. Cashew nuts and almonds are examples of nuts.
5. Cereals and pulses are the edible seeds of the plants. Wheat and rice are examples of cereals. Gram and peas are examples of pulses.

B. 1.

Herbs	Shrubs
a. Herbs are small plants.	a. Shrubs are medium-sized bushy plants.
b. They have a single, green, and non-woody stem.	b. They have thin and woody stems.
c. Mint and spinach are examples of herbs.	c. Lemon and jasmine are examples of shrubs.

2. Climbers are weak-stemmed plants. They need support of other plants, walls, or sticks to climb up. Grapevine and pea are examples of climbers.
 Creepers are weak-stemmed plants. Their stems cannot hold themselves erect. They grow creeping along the ground. Melons and watermelons are examples of creepers.

3. Plants store food in certain parts such as stems, roots, leaves, fruits, flowers, and seeds.

Stems: Some plants store food in their swollen and juicy stems. We eat stems of such plants as food. Sugar cane and potato are some edible stems.

Roots: Some plants store food in their thick and fleshy roots. We eat roots of such plants as food. Turnip and radish are some edible roots.

Leaves: Some plants store food in the form of starch in their leaves. We eat leaves of such plants as food. Spinach and cabbage are some edible leaves.

Fruits: Some plants store food in their fruits. We eat fruits of such plants as food. Mango and banana are some edible fruits.

Flowers: Some plants store food in their flowers. We eat flowers of such plants as food. Cauliflower and broccoli are some edible flowers.

Seeds: Some plants store food in their seeds. We eat seeds of such plants as food. Rice and wheat are some edible seeds.

4. We obtain medicines from some plants. Extracts of ginger, lemon grass, and leaves of tulsi (Holy Basil) are used to treat common cold and fever. Parts of neem tree are used for skin care and to make some medicines.
5. Spices are plant products used as ingredients to add flavour to food. The flower buds of clove plants, the fruits of cardamom plants, the seeds of cumin plants, the roots of turmeric plants, and the barks of cinnamon plants are used as spices.

Picture Study

1.



Stem



Flower



Fruit



Leaf



Root

7. Forms of Matter– Solids, Liquids, and Gases

Section 1

- | | | |
|-------------------|------------|-----------|
| A. 1. table | chair | |
| 2. milk | water | |
| 3. oxygen | nitrogen | |
| B. 1. matter | 2. space | 3. Gases |
| 4. Air | 5. liquids | |
| C. 1. three forms | 2. solid | 3. solids |
| 4. liquid | 5. gases | |
| D. 1. F | 2. F | 3. T |
| 4. T | 5. T | |

Section 2

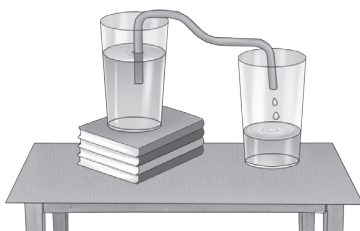
- A. 1. The three forms of matter are solids, liquids, and gases.
2. Solids are matter that have a definite shape. Book and eraser are examples of solids.

3. Liquids are matter that do not have a definite shape. Water and milk are examples of liquids.
 4. Gases are matter that do not have a definite shape. Oxygen and water vapour are examples of gases.
- B. 1. Any substance that occupies space and has mass is called matter.
- Three uses of matter are as follows:
- a. All living things and non-living things are made up of matter.
 - b. The air we breathe and the water we drink are all made up of matter.
 - c. The food we eat is made up of matter.
2. Two properties of solids are as follows:
- a. Solids have a definite shape and size.
 - b. Solids occupy space.
3. Two properties of liquids are as follows:
- a. Liquids do not have a definite shape. They take the shape of the containers in which they are kept.
 - b. Liquids can flow easily. They can be poured from one vessel to another.
4. Two properties of gases are as follows:
- a. Gases do not have a definite shape. They take the shape of the containers in which they are kept.
 - b. Gases flow easily and spread in all directions.
5. *Aim:* To understand that liquids flow.

Materials required: Four books, an empty glass, a glass filled with water, and a rubber pipe.

Procedure:

1. Place the glasses on the table as shown in the picture.
2. Put one end of the pipe into the glass filled with water.



3. Suck some water from the other end of the pipe and quickly put it into the empty glass.

Observation: Water is flowing into the empty glass.

Conclusion: Liquids flow from higher level to lower level.

Picture Study

- 1.



L



S



G



L



S



S



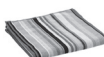
L



S



G



S

8. Some Properties of Water

Section 1

- A.
- | | |
|-----------|-------|
| 1. chalk | stone |
| 2. salt | sugar |
| 3. oil | wood |
| 4. pebble | nail |
- B.
- | | | |
|------------|-------------|----------------|
| 1. float | 2. solution | 3. evaporation |
| 4. solvent | 5. cooling | |
- C.
- | | | |
|-------------------------|-------------------|-----------|
| 1. solvent | 2. solidification | |
| 3. insoluble substances | | 4. solute |
| 5. soluble substances | | |
- D.
- | | | |
|------|------|------|
| 1. F | 2. T | 3. F |
| 4. T | 5. T | |

Section 2

- A. 1.

Evaporation	Condensation
a. The process of changing liquid into gas is called evaporation.	a. The process of changing gas into liquid is called condensation.
b. It becomes faster on heating the liquid.	b. It becomes faster on cooling the gas.

2.	Melting	Solidification
	a. The process of changing solid into liquid is called melting.	a. The process of changing liquid into solid is called solidification or freezing.
	b. It becomes faster on heating the solid.	b. It becomes faster on cooling the liquid.

- B. 1. Water evaporates on heating.
 2. Water freezes on cooling.
 3. Water is called a universal solvent because it can dissolve a number of substances to make solutions.
 4. A solution is formed when substances of solute and solvent mix together.
 5. In the salt solution, salt is the solute and water is the solvent.
- C. 1. The four physical properties of water are as follows:
 a. Water is colourless, odourless, and tasteless.
 b. Water does not have a definite shape.
 c. Water flows from a higher level to a lower level.
 d. Many substances can dissolve completely in water.
2. The conditions that affect the making of a solution are as follows:
 a. **Heat:** When the solvent is heated, the solute dissolves quickly and forms the solution.
 b. **Stir:** When the solute is stirred with the solvent, it dissolves quickly and forms the solution.
 c. **Size of solute particles:** When the size of solute particles is smaller, they dissolve quickly in the solvent and form the solution.
3. The substances which dissolve in water are called soluble substances. Salt and sugar are soluble in water.
 The substances which do not dissolve in water are called insoluble substances. Sand and chalk are insoluble in water.
4. *Aim:* To show that objects lighter than water float and remain on its surface.
Materials required: Few dry leaves, a table tennis ball, an iron nail, a coin, a pebble, a plastic spoon, a spoonful of oil, and a beaker filled with water.

1. Put each object one by one in the beaker filled with water.
2. Observe which object floats on water and which object sinks in it.



Conclusion: Dry leaves, table tennis ball, plastic spoon, and oil are lighter than water, so they float on it.

Picture Study

1.



Melting



Condensation



Cooling

9. Water as a Resource

Section 1

- A.
- | | |
|-------------------------|-------------------------|
| 1. rain | 2. insoluble impurities |
| 3. evaporation | 4. chlorination |
| 5. Rainwater harvesting | |
- B.
- | | | |
|-------------|-------------------------|--------------|
| 1. potable | 2. impurities | 3. Rainwater |
| 4. chlorine | 5. Rainwater harvesting | |
- C.
- | |
|---------------------------------|
| 1. insoluble impurities |
| 2. rooftop rainwater harvesting |
| 3. boiling |
| 4. condensation |
| 5. water purification |
- D.
- | | | |
|------|------|------|
| 1. T | 2. F | 3. T |
| 4. T | 5. F | |

Section 2

- A. 1. The substances that make the water impure are called impurities.

Soluble impurities and insoluble impurities are the two types of impurities.

2. Water purification is the process of removal of harmful substances from water to make it fit for human consumption.

Boiling, filtration, and chlorination are the different methods to purify water.

3. Water-borne diseases are the diseases such as diarrhoea and cholera. They are caused by drinking impure water that contains harmful substances and germs.

4. The process of collecting rainwater and storing it for future use is called rainwater harvesting. It is useful because it prevents rainwater from running into the drains and go waste.

- B. 1. The water from the water bodies evaporates due to the heat of the sun and goes into the air as water vapour. The water vapour rises in the air, cools, and changes into water drops. These water drops collect and form clouds. As more and more droplets collect, the clouds become heavy. Now, these water droplets fall in the form of rain, hail, and snow. The process goes on repeating. This continuous process is called the water cycle.

2. Two methods to purify drinking water are as follows:

a. **Boiling:** Boiling the water for about 10 minutes can kill all the germs and make it safe for drinking.

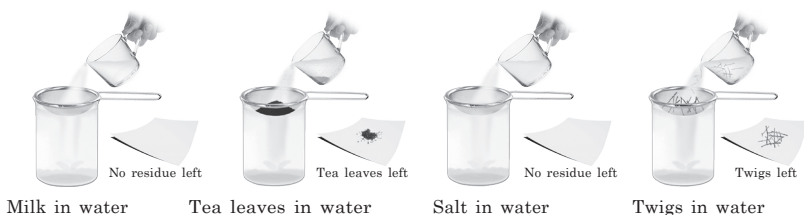
b. **Filtration:** Filtration is the process of separating solid impurities from water by passing it through a filter paper or fine cloth. The impurities remain on the filter paper or cloth and clean water is collected.

3. *Aim:* To identify soluble and insoluble impurities.

Materials required: Four empty cups, an empty beaker, a beaker filled with water, a stirrer, a strainer, some tea leaves, milk, salt, small twigs, and four white sheets of paper.

Procedure:

1. Fill the cups with water.
2. Add some tea leaves to the first cup, milk to the second, salt to the third, and twigs to the fourth.
3. Stir the contents of each cup with a stirrer.
4. Place the strainer over the empty beaker and strain the content of first cup into it.
5. Transfer the residue left on the strainer to the sheet of paper.
6. Likewise, strain the contents of other three cups and transfer the residue left to the other sheets of paper.



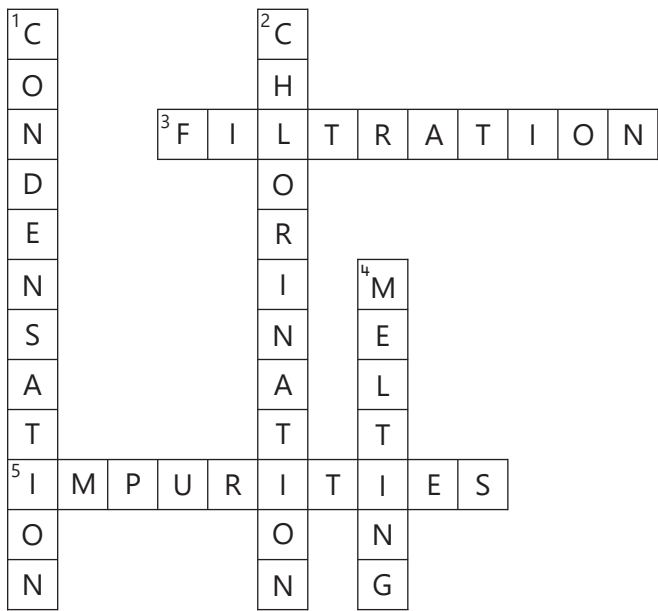
Observation: Tea leaves and twigs are left as residue but milk and salt pass through the strainer.

Conclusion: Tea leaves and twigs do not dissolve in water and therefore, are insoluble impurities. Salt and milk dissolve in water and therefore, are soluble impurities.

4. The rainwater from the roof of houses or buildings is brought down through pipes to a storage tank. The stored water can be used for watering the plants or drinking after purifying it.



Think and Answer



Picture Study



Rooftop rainwater harvesting



Condensation

10. Sun as a Natural Resource

Section 1

- A. 1. Sun

2. season

3. renewable energy

4. solar cell
- B. 1. heat

2. solar energy

3. electricity

4. non-renewable

5. earth
- C. 1. sun

2. cook food

3. hydro energy

4. sun

5. non-renewable energy
- D. 1. F

2. T

3. F

4. T

5. T

Section 2

- A. 1. The light from the sun helps the plant to grow. A seed grows into a new plant if it gets right amount of air, water, and nutrients in the presence of sunlight.
2. The sun help plants to prepare food by converting water, carbon dioxide, and minerals into food.
3. A season is the period of a few months during which the weather remains consistent. Summer, Monsoon, Autumn, and Winter are the four main seasons in India.
4. A solar cell is a device that converts light energy into electricity.

Solar cells are used in toys and calculators.

5. Solar power is called the 'Green Power' as it creates no pollution.
- B. 1. The energy that we receive from the sun is called solar energy.

Three uses of solar energy are as follows:

- a. Solar energy is used to run vehicles, and make electricity.
- b. Solar energy is used in solar cooker to cook food.
- c. Solar energy is used in solar water heater to heat water.
2. The sun, wind, and water are the natural sources of energy. The energy that we obtain from the sun is called solar energy. The energy that we obtain from the wind is called wind energy. The energy that we obtain from water is called hydro energy.

3.

Renewable energy	Non-renewable energy
The energy that we obtain from the natural sources such as the sun, wind and water is called renewable energy. It can be renewed over and over again.	The energy that we obtain from natural sources such as coal, petroleum, and natural gas is called non-renewable energy. It cannot be renewed or regenerated.

4. We need to conserve energy to preserve the resources for longer use.

Four measures to conserve energy are as follows:

- a. Turn OFF the fans and lights when not in use.
- b. Replace the light bulbs with LED bulbs.
- c. Always shut the door after using the refrigerator.
- d. Walk or use a bicycle to travel to nearby places.

Picture Study



R



NR



R



R



NR

11. Cleanliness, Health, and Hygiene

Section 1

- | | | |
|-----------------|------------------------|-------------|
| A. 1. clean | 2. spit | 3. Exercise |
| 4. Sleep | 5. Yoga | 6. water |
| B. 1. 7-8 hours | 2. energy-giving foods | |
| 3. dustbin | 4. exercise regularly | |
| 5. grow plants | 6. oral hygiene | |
| C. 1. F | 2. T | 3. T |
| 4. F | 5. T | 6. F |

Section 2

- A. 1. We should take a bath daily because bathing removes dirt and sweat from the skin and makes us feel fresh.
2. We take care of our hair by washing it with a soap or shampoo, oil and comb properly. We should also get a haircut regularly.
3. It is important to exercise daily because it makes us fit, strong, and active.
4. Rest is necessary for our body because it helps us to regain strength and energy.
5. Throwing garbage on the roadsides, in parks, or into lakes, ponds, and rivers are some causes of unhealthy surroundings.

6. We should wash our hands-
 - a. before and after eating food
 - b. after using the toilet
 - c. after playing a game
 - d. after sneezing or coughing
 - e. after visiting a sick person
- B. 1. Personal cleanliness means keeping our bodies clean. It includes washing hands, brushing teeth, taking bath, caring for hair, etc. An unhygienic lifestyle may cause various diseases.
2. A good oral hygiene can be maintained by following the given steps:
 - a. Brush your teeth twice a day, once in the morning and once again at night before going to bed.
 - b. Rinse the mouth with water after every meal.
 - c. Clean your tongue with a tongue cleaner to prevent bad breath.
3. The correct way to wash the hands are as follows:
 - Wet hands with clean water.
 - Apply soap and rub your hands together to lather up for about 20-30 seconds.
 - Clean in between the fingers, under the nails, and up to the wrists.
 - Wash away the soap completely with clean water.
 - Dry hands using a clean towel.
4. The four habits we must develop to keep our body healthy are as follows:
 - a. We should eat different types of food in right quantities.
 - b. We should go to bed early at night and sleep for at least 7-8 hours.
 - c. We should do some simple exercises regularly.
 - d. We should play some indoor as well as outdoor games for recreation.
5. Four ways to keep our surroundings clean are as follows:
 - a. Always throw garbage in the dustbin rather than throwing it here and there.

- b. Never litter on roadside, school premises or parks.
 - c. Never spit on roads, walls, or public places.
 - d. Use a cloth bag or paper bag instead of a polythene or plastic bag for shopping.
6. In order to ensure cleanliness, the Government of India had launched 'Swachh Bharat Abhiyan' or 'Clean India Mission'. It has created awareness among the people to keep the surroundings clean.

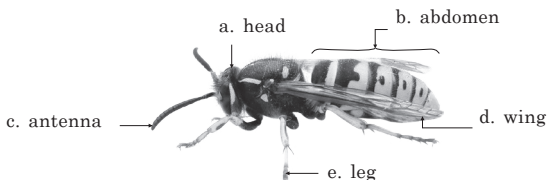
Picture Study

1.



Model Test Paper 1

- A. 1. mayfly 2. pollutants
 3. ostrich 4. termites
 5. leaf blade
- B. 1. Plants 2. organism 3. feathers
 4. six 5. climbers
- C. 1. antennae 2. heart 3. down feathers
 4. ant 5. creepers
- D. 1. F 2. T 3. T
 4. F 5. F
- E.



- F. 1. Flowers are important to a plant because they help the plant in the process of reproduction.

2. Plants show movement through their parts. For example, the sunflower turns towards the sun.
3. The kidneys filter blood and produce urine.
4. Birds migrate to escape unfavourable weather conditions. Arctic tern is a migratory bird.
5. Housefly breeds on garbage. We can keep it away by keeping the garbage bin covered all the time and disposing the waste regularly at a proper place.

G. 1.

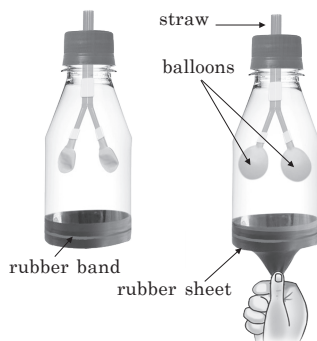
Living things	Non-living things
a. Living things breathe.	a. Non-living things do not breathe.
b. Living things need food.	b. Non-living things do not need food.
c. Living things grow.	c. Non-living things do not grow.

2. *Aim:* To understand how lungs expand during inhalation and contract during exhalation.

Materials required: A two-litre empty water bottle with the lid, two equal-sized straws, a pair of scissors, a rubber band, a tape, two small balloons, and a thin rubber sheet.

Procedure:

1. Cut the bottom of the water bottle with a pair of scissors.
2. Cut the rubber sheet so that it fits the cut end of the bottle.
3. Fix the rubber sheet at the bottom of the bottle with the help of a rubber band.
4. Take both the straws and make a Y-shaped straw. Attach both the balloons at the two ends of the Y-shaped straw.



Use the tape to fix them. Insert it into the mouth of the bottle.

5. Make a hole in the lid and pass the straw through it. Fasten the lid on the mouth of the bottle.
6. Pull the rubber sheet down and observe the change in the balloons.

Observation: When the rubber sheet is pulled down, the balloons inside the bottle expand and get filled with air. On releasing the rubber sheet, the balloons inside the bottle contract and regain the original shape.

Conclusion: The process of breathing is similar to the activity performed above. The balloons inside the bottle represent our lungs. The bottle represents our chest wall and rib cage. The rubber sheet represents our diaphragm. During inhalation, the diaphragm moves down and the air enters our lungs. During exhalation, the diaphragm moves upwards and the air leaves the lungs.

3. There are three types of feathers in birds:
 - a. **Down feathers:** Down feathers are soft, short, and fluffy feathers located close to the bird's skin. They keep their body warm.
 - b. **Body feathers:** Body feathers are present over the down feathers. They cover the whole body of the bird.
 - c. **Flight feathers:** Flight feathers are strong and stiff feathers. They are found on the wings and tail of the bird. They help the bird to fly and change directions.

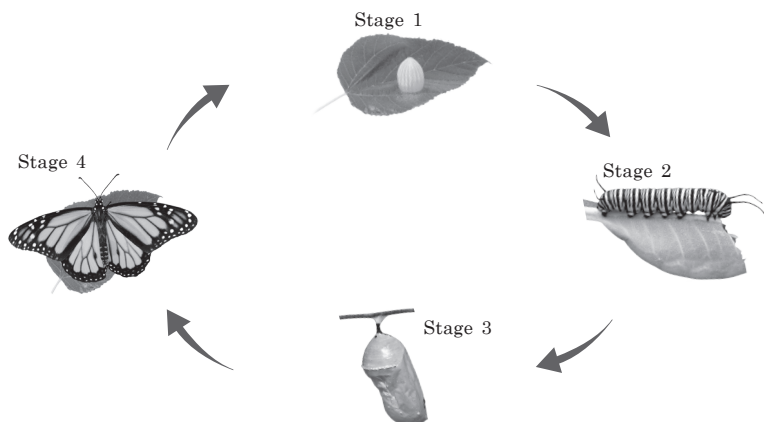
4. The life cycle of a butterfly has four stages.

Stage 1: A female butterfly lays eggs.

Stage 2: The egg of a butterfly hatches into a larva called caterpillar.

Stage 3: The caterpillar sheds its skin and becomes a pupa.

Stage 4: The pupa bursts open and the butterfly comes out.

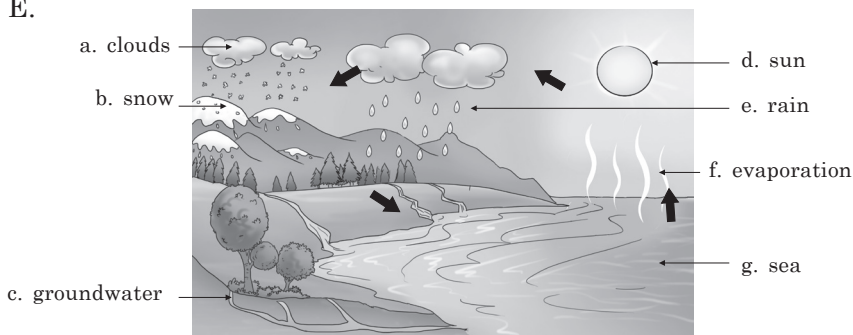


5. A seed germinates into a new plant when it gets right amount of air, water, sunlight, and nutrients.

Model Test Paper 2

- | | | |
|--------------------|----------------|----------|
| A. 1. sun | 2. evaporation | 3. rain |
| 4. solar cell | 5. solid | |
| B. 1. solvent | 2. spit | 3. earth |
| 4. liquids | 5. potable | |
| C. 1. oral hygiene | 2. sun | |
| 3. condensation | 4. three forms | |
| 5. solute | | |
| D. 1. T | 2. F | 3. T |
| 4. F | 5. F | |

E.



- F. 1. Water evaporates on heating.
2. Gases are matter that do not have a definite shape. Oxygen and water vapour are examples of gases.
 3. The process of collecting rainwater and storing it for future use is called rainwater harvesting. It is useful because it prevents rainwater from running into the drains and go waste.
 4. A season is the period of a few months during which the weather remains consistent. Summer, Monsoon, Autumn, and Winter are the four main seasons in India.
 5. It is important to exercise daily because it makes us fit, strong, and active.
- G. 1. Any substance that occupies space and has mass is called matter.
- Three uses of matter are as follows:
- a. All living things and non-living things are made up of matter.
 - b. The air we breathe and the water we drink are all made up of matter.
 - c. The food we eat is made up of matter.
2. The four physical properties of water are as follows:
- a. Water is colourless, odourless, and tasteless.
 - b. Water does not have a definite shape. It occupies space and takes the shape of the container in which it is kept.
 - c. Water flows from a higher level to a lower level.
 - d. Many substances can dissolve completely in water.
3. Personal cleanliness means keeping our bodies clean. It includes washing hands, brushing teeth, taking bath, caring for hair, etc. An unhygienic lifestyle may cause various diseases.

4. We need to conserve energy to preserve the resources for longer use.

Four measures to conserve energy are as follows:

- a. Turn OFF the fans and lights when not in use.
 - b. Replace the light bulbs with LED bulbs.
 - c. Always shut the door after using the refrigerator.
 - d. Walk or use a bicycle to travel to nearby places.
5. Two methods to purify drinking water are as follows:
 - a. **Boiling:** Boiling is the simplest method for purifying water. Boiling the water for about 10 minutes can kill all the germs and make it safe for drinking.
 - b. **Filtration:** Filtration is the process of separating solid impurities from water by passing it through a filter paper or fine cloth. The impurities remain on the filter paper or cloth and clean water is collected.