

SCIENCE 6

(NCERT TEXTBOOK SOLUTION)



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CHAPTER 1.

FOOD: WHERE DOES IT COME FROM?

1. Do you find that all living beings need the same kind of food?

Ans. All living beings do not need the same kind of food. There is great variation in the food eaten by different living beings. For example, some animals eat only plants or plant products (herbivores) such as deer, cow, rat, etc. while some animals eat other animals as their food (carnivores) such as lion, tiger, etc. There are animals that eat plants as well as animals (omnivores) such as crow, bear, etc. We, the human beings, also eat a variety of food. We get our food from plants as well as animals.

2. Name five plants and their parts that we eat.

Ans. 1. Moong – seeds, 2. Spinach – leaves, 3. Pumpkin – fruit 4. Carrot – root 5. Potato – underground stem

3. Match the items given in Column A with that in Column B.

Column A

1. Milk, curd, *paneer*, *ghee*
2. Spinach, cauliflower, carrot
3. Lions and tigers
4. Herbivores

Column B

- eat other animals
- eat plants and plant products
- are vegetables
- are all animal products

Ans. 1. Milk, curd, *paneer*, *ghee* – are all animal products
2. Spinach, cauliflower, carrot – are vegetables
3. Lions and tigers – eat other animals
4. Herbivores – eat plants and plant products

4. Fill up the blanks with the words given:

herbivore, plant, milk, sugarcane, carnivore

- (a) Tiger is a _____ because it eats only meat.
- (b) Deer eats only plant products and so, is called _____.
- (c) Parrot eats only _____ products.
- (d) The _____ that we drink, which comes from cows, buffaloes and goats is an animal product.
- (e) We get sugar from _____.

Ans. (a) carnivore (b) herbivore (c) plant (d) milk (e) sugarcane

CHAPTER 2.

COMPONENTS OF FOOD

1. Name the major nutrients in our food.

Ans. The major nutrients in our food are carbohydrates, fats, proteins, vitamins and minerals.

2. Name the following:

- (a) The nutrients which mainly give energy to our body.
- (b) The nutrients that are needed for the growth and maintenance of our body.
- (c) A vitamin required for maintaining good eyesight.
- (d) A mineral that is required for keeping our bones healthy.

Ans. (a) Carbohydrates and fats (b) Vitamins and minerals (c) Vitamin A (d) Calcium

3. Name two foods each rich in:

- (a) Fats
- (b) Starch
- (c) Dietary fibre
- (d) Protein

Ans. (a) Butter, ghee (b) Potato, rice (c) Carrot, cabbage (d) Pulses, soyabean

4. Tick (✓) the statements that are correct.
- By eating rice alone, we can fulfill nutritional requirement of our body.
 - Deficiency diseases can be prevented by eating a balanced diet.
 - Balanced diet for the body should contain a variety of food items.
 - Meat alone is sufficient to provide all nutrients to the body.

Ans. (a) (X), (b) (✓), (c) (✓), (d) (X)

5. Fill in the blanks.

- _____ is caused by deficiency of Vitamin D.
- Deficiency of _____ causes a disease known as beri-beri.
- Deficiency of Vitamin C causes a disease known as _____.
- Night blindness is caused due to deficiency of _____ in our food.

Ans. (a) Rickets (b) Vitamin B₁ (c) Scurvy (d) Vitamin A

CHAPTER 3. FIBRE TO FABRIC

1. Classify the following fibres as natural or synthetic:

nylon, wool, cotton, silk, polyester, jute

Ans. Natural fibres: wool, cotton, silk, jute

Synthetic fibres: nylon, polyester

2. State whether the following statements are true or false:

- Yarn is made from fibres.
- Spinning is a process of making fibres.
- Jute is the outer covering of coconut.
- The process of removing seed from cotton is called ginning.
- Weaving of yarn makes a piece of fabric.
- Silk fibre is obtained from the stem of a plant.
- Polyester is a natural fibre.

Ans. (a) (T) (b) (F) (c) (F) (d) (T) (e) (T) (f) (F) (g) (F)

3. Fill in the blanks:

- Plant fibres are obtained from _____ and _____.
- Animals fibres are _____ and _____.

Ans. (a) stems, fruits (b) silk, wool

4. From which parts of the plant cotton and jute are obtained?

Ans. Cotton is obtained from fruits of cotton plant called cotton bolls and jute is obtained from the stem of jute plant.

5. Name two items that are made from coconut fibre.

Ans. Doormats, ropes, seats of public transport, carpets, etc. are made of coconut fibres.

6. Explain the process of making yarn from fibre.

Ans. The process of making yarn from fibres is called spinning. In this process, fibres from a mass of fibres are drawn out and twisted. This brings the fibres together to form a yarn. Hand spindle (takli) and charkha were used to make the yarn some time ago. Nowadays, spinning is done by huge machines in factories on large scale. The yarn is then woven to make fabric.

CHAPTER 4. SORTING MATERIALS INTO GROUPS

1. Name five objects which can be made from wood.

Ans. Table, chair, bed, door, wheel, bullock cart, etc.

2. Select those objects from the following which shine:

Glass bowl, plastic toy, steel spoon, cotton shirt

Ans. Glass bowl, steel spoon

3. Match the objects given below with the materials from which they could be made. Remember, an object could be made from more than one material and a given material could be used for making many objects.

<u>Objects</u>	<u>Materials</u>
Book	Glass
Tumbler	Wood
Chair	Paper
Toy	Leather
Shoes	Plastics

Ans. Book — paper, plastics
Tumbler — glass, plastics
Chair — wood, plastics
Toy — wood, paper, plastics, glass
Shoes — leather, plastics

4. State whether the statements given below are True or False.

- Stone is transparent, while glass is opaque.
- A notebook has lustre while eraser does not.
- Chalk dissolves in water.
- A piece of wood floats on water.
- Sugar does not dissolve in water.
- Oil mixes with water.
- Sand settles down in water.
- Vinegar dissolves in water.

Ans. (i) F (ii) F (iii) T (iv) T (v) F (vi) F (vii) T (viii) T

5. Given below are the names of some objects and materials:

Water, basket ball, orange, sugar, globe, apple and earthen pitcher

Group them as:

- Round shaped and other shapes
- Eatables and non eatables

Ans. (a) Round shaped — basket ball, orange, globe, apple, earthen pitcher
Other shapes — water, sugar
(b) Eatables — water, orange, sugar, apple
Noneatables — basket ball, globe, earthen pitcher

6. List all items known to you that float on water. Check and see if they will float on an oil or kerosene.

Ans. Wood, cork, sponge, plastics, butter, oil, leaf, etc. are some items that can float on water. Some of them like cork, sponge, leaf, etc. can also float on oil.

7. Find the odd one out from the following:

- Chair, Bed, Table, Baby, Cupboard
- Rose, Jasmine, Boat, Marigold, Lotus
- Aluminium, Iron, Copper, Silver, Sand
- Sugar, Salt, Sand, Copper sulphate

Ans. (a) Baby—as it is living thing but others are furniture
(b) Boat—as others are names of flowers
(c) Sand—as other are metals
(d) Sand—as others are soluble in water

CHAPTER 5.

SEPARATION OF SUBSTANCES

1. Why do we need to separate different components of a mixture? Give two examples.

Ans. The components of a mixture are separated for the following reasons:

- To obtain two different but useful components of a mixture (e.g., butter is a useful component which is separated from milk by churning).

- To remove harmful components or impurities of a mixture (e.g., small pieces of stones and husk are separated from rice or dal before cooking).
- To remove useless components of a mixture (e.g., tea leaves are separated from tea).

2. What is winnowing? Where is it used?

Ans. Winnowing is the method of separating husk from grains with the help of wind. It is used by farmers after threshing the crops.

3. How will you separate husk or dirt particles from a given sample of pulses before cooking?

Ans. By handpicking.

4. What is sieving? Where is it used?

Ans. Sieving is a method of separating a mixture of various sized particles by passing them through a suitable sieve. Sieving removes bran and impurities present in the flour. Similarly, pebbles are separated from sand by using a larger sieve at a construction site.

5. How will you separate sand and water from their mixture?

Ans. Take the mixture of sand and water in a test tube. Now, separate sand from water by slowly tilting the test tube and pouring the water into another test tube, without disturbing the sand. The mixture of sand and water can also be separated by using a filter paper.

6. Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Ans. Yes, it is possible.

Place the mixture of sugar and wheat flour in a beaker and pour some water into it. Stir well. Now, filter the mixture with the help of a filter paper. Wheat flour remains on the filter paper as residue while the water containing sugar flows down and collects in the beaker as filtrate. Heat the beaker containing mixture of sugar and water. The water starts evaporating and changes into water vapour. After all the water evaporates, sugar is left in the beaker.

A mixture of wheat flour and sugar can also be separated by using a suitable sieve.

7. How would you obtain clear water from a sample of muddy water?

Ans. We can obtain clear water from a given sample of muddy water by using the process of sedimentation, decantation and filtration.

8. Fill up the blanks

- The method of separating seeds of paddy from its stalks is called _____.
- When milk, cooled after boiling, is poured onto a piece of cloth the cream (malai) is left behind on it. This process of separating cream from milk is an example of _____.
- Salt is obtained from seawater by the process of _____.
- Impurities settled at the bottom when muddy water was kept overnight in a bucket. The clear water was then poured off from the top. The process of separation used in this example is called _____.

Ans. (a) threshing (b) straining (c) evaporation (d) decantation

9. True or false?

- A mixture of milk and water can be separated by filtration.
- A mixture of powdered salt and sugar can be separated by the process of winnowing.
- Separation of sugar from tea can be done with filtration.
- Grain and husk can be separated with the process of decantation.

Ans. (a) F (b) F (c) F (d) F

10. Lemonade is prepared by mixing lemon juice and sugar in water. You wish to add ice to cool it. Should you add ice to the lemonade before or after dissolving sugar? In which case would it be possible to dissolve more sugar?

Ans. We should add ice to the lemonade after dissolving sugar. In this case, it would be possible to dissolve more sugar. If we add ice before dissolving sugar, then temperature of mixture falls down and very less sugar will dissolve in it.

CHAPTER 6. CHANGES AROUND US

1. To walk through a waterlogged area, you usually shorten the length of your dress by folding it. Can this change be reversed?

Ans. Yes.

2. You accidentally dropped your favourite toy and broke it. This is a change you did not want. Can this change be reversed?

Ans. No.

3. Some changes are listed in the following table. For each change, write in the blank column, whether the change can be reversed or not.

S. No.	Change	Can be reversed (Yes/ No)
1.	The sawing of a piece of wood	
2.	The melting of ice candy	
3.	Dissolving sugar in water	
4.	The cooking of food	
5.	The ripening of a mango	
6.	Souring of milk	

Ans. The changes listed as 2 and 3 can be reversed but 1, 4, 5 and 6 cannot be reversed.

4. A drawing sheet changes when you draw a picture on it. Can you reverse this change?

Ans. Yes, it can be changed by rubbing it with an eraser.

5. Give examples to explain the difference between changes that can or cannot be reversed.

Ans. Differences between reversible and irreversible changes can be explained with the help of following examples:

- Inflating and deflating a balloon is reversible but burning the same balloon is an irreversible change.
- Making a ball and rolling out a chapati using dough is an example of reversible change because it can be changed back to dough. But baking the chapati on tawa is an example of irreversible change because baked chapati cannot be changed into dough.
- Folding a paper to make a toy aeroplane is a reversible change because it can be unfold to get the same paper sheet. But cutting of paper sheet after drawing an aeroplane on it is an irreversible change because paper sheet cannot be got back in this case.

6. A thick coating of a paste of Plaster of Paris (POP) is applied over the bandage on a fractured bone. It becomes hard on drying to keep the fractured bone immobilised. Can the change in POP be reversed?

Ans. No, when POP is mixed with water, a chemical change occurs which is irreversible.

7. A bag of cement lying in the open gets wet due to rain during the night. The next day the sun shines brightly. Do you think the changes, which have occurred in the cement, could be reversed?

Ans. After wetting and drying, the cement becomes hard and cannot be changed into soft powder. Therefore, it is an irreversible change.

CHAPTER 7. GETTING TO KNOW PLANTS

1. Correct the following statements and rewrite them in your notebook.

- Stem absorbs water and minerals from the soil.
- Leaves hold the plant upright.
- Roots conduct water to the leaves.
- The number of petals and stamens in a flower is always equal.
- If the sepals of a flower are joined together, its petals are also joined together.
- If the petals of a flower are joined together, then the pistil is joined to the petal.

Ans. (a) **Roots** absorb water and minerals from the soil.

- Stem** holds the plant upright.
- Stem** conducts water to the leaves.
- The number of petals and sepals in a flower is always **different**.
- If the sepals of a flower are joined together, its **stamens** are also joined together.
- If the petals of a flower are joined together, then the **stamens** are joined to the petals.

2. Draw (a) a leaf, (b) a taproot and (c) a flower, you have studied for Table 7.3.

Ans. Do yourself.

3. Can you find a plant in your house or in your neighborhood, which has a long but weak stem? Write its name. In which category will you place it?

Ans. Money plant, Climbers

4. What is the function of a stem?

Ans. The stem conducts water and minerals from roots and food from leaves to all other parts of the plant.

5. Which of the following leaves have reticulate venation?

Wheat, tulsi, maize, grass, coriander (*dhania*), China rose

Ans. Tulsi, coriander, china rose

6. If a plant has fibrous root, what type of venation do its leaves have?

Ans. Parallel venation

7. If a plant has leaves with reticulate venation, what kind of roots will it have?

Ans. Taproot

8. Is it possible for you to find out whether a plant has taproot or fibrous roots by looking at the impression of its leaf on a sheet of paper?

Ans. Yes. If a plant has taproot, its leaves have reticulate venation whereas the plant with fibrous roots has parallel venation in its leaves.

9. What are the parts of a flower?

Ans. Sepals, petals, stamens and pistil.

10. From the following plants, which of them have flowers?

Grass, maize, wheat, chilli, tomato, *tulsi*, *peepal*, *shisham*, banyan, mango, *jamun*, guava, pomegranate, papaya, banana, lemon, sugarcane, potato, groundnut

Ans. Do yourself.

11. Name the part of plant which produces food. Name the process.

Ans. Leaf, Photosynthesis

12. In which part of a flower, you will find the ovary?

Ans. Pistil

13. Name two plants in which one has joined sepals and the other has separate sepals.

Ans. Joined sepals – Brinjal, Pea; Separated sepals – Mustard, Carrot

CHAPTER 8. BODY MOVEMENTS

1. Fill in the blanks:

- Joints of the bones help in the _____ of the body.
- A combination of bones and cartilages forms the _____ of the body.
- The bones at the elbow are joined by a _____ joint.
- The contraction of the _____ pulls the bones during movement.

Ans. (a) movement (b) skeleton (c) hinge (d) muscles

2. Indicate true (T) and false (F) among the following sentences.

- The movement and locomotion of all animals is exactly the same.
- The cartilages are harder than bones.
- The finger bones do not have joints.
- The fore arm has two bones.
- Cockroaches have an outer skeleton.

Ans. (a) (F) (b) (F) (c) (F) (d) (T) (e) (T)

3. Match the items in Column I with one or more items of Column II.

<u>Column I</u>	<u>Column II</u>
Upper	jaw have fins on the body
Fish	has an outer skeleton
Ribs	can fly in the air
Snail	is an immovable joint
Cockroach	protect the heart shows very slow movement have a streamlined body

Ans. Upper jaw – is an immovable joint
Fish – have a streamlined body, have fins on the body
Ribs – protect the heart
Snail – shows very slow movement
Cockroach – has an outer skeleton, can fly in the air

4. Answer the following:

- What is a ball and socket joint?
- Which of the skull bones are movable?
- Why can our elbow not move backwards?

Ans. (a) A ball and socket joint is a freely-movable joint in which the round end of one bone fits into the socket of other bone.
(b) Lower jaw.
(c) Elbow cannot move backwards because it has hinge joint which allows movement of bones in one direction and up to 180° only.

CHAPTER 9.

THE LIVING ORGANISMS — CHARACTERISTICS AND HABITATS

1. What is a habitat?

Ans. The surroundings where an organism lives, is called its habitat.

2. How are cactus adapted to survive in a desert?

Ans. The leaves of cactus are modified into spines to reduce loss of water from the leaves through transpiration. Its stem becomes green to carry out photosynthesis. Also, it is covered with a thick waxy layer, which helps to retain water. Its roots go very deep into the soil for absorbing water.

3. Fill up the blanks

- The presence of specific features, which enable a plant or an animal to live in a particular habitat, is called _____.
- The habitats of the plants and animals that live on land are called _____ habitat.
- The habitats of plants and animals that live in water are called _____ habitat.
- Soil, water and air are the _____ factors of a habitat.
- Changes in our surroundings that make us respond to them, are called _____.

Ans. (a) adaptation (b) terrestrial (c) aquatic (d) abiotic (e) stimuli

4. Which of the things in the following list are nonliving?

Plough, Mushroom, Sewing machine, Radio, Boat, Water hyacinth, Earthworm

Ans. Plough, sewing machine, Radio, Boat.

5. Give an example of a non-living thing, which shows any two characteristics of living things.

Ans. Moon, a nonliving thing shows two characteristics of living things. These are:

- It moves in the sky.
- It grows in the size.

6. Which of the non-living things listed below, were once part of a living thing?

Butter, Leather, Soil, Wool, Electric bulb, Cooking oil, Salt, Apple, Rubber

Ans. Butter, leather, wool, cooking oil, apple, rubber

7. List the common characteristics of the living things.

Ans. Common characteristics of living things are:

- (a) All living things need food.
- (b) All living things show growth.
- (c) All living things respire to get energy.
- (d) All living things respond to stimuli.
- (e) All living things excrete to expel wastes from the body.
- (f) All living things reproduce their own kind.
- (g) All living things move.

8. Explain, why speed is important for survival in the grasslands for animals that live there. (Hint: There are few trees or places for animals to hide in grasslands habitats.)

Ans. The speed is important for survival in grasslands both for prey and predator animals because to hunt efficiently, predators like lion have to run fast. On the other hand, as there are a few trees to hide, prey animals like deer have to run fast in order to save themselves.

CHAPTER 10.

MOTION AND MEASUREMENT OF DISTANCES

1. Give two examples each, of modes of transport used on land, water and air.

Ans. Modes of transport used on land are bus, car; on water are ship, boat; and in air are aeroplane, helicopter.

2. Fill in the blanks:

- (i) One metre is _____ cm.
- (ii) Five kilometre is _____ m.
- (iii) Motion of a child on a swing is _____.
- (iv) Motion of the needle of a sewing machine is _____.
- (v) Motion of wheel of a bicycle is _____.

Ans. (i) 100 (ii) 5000 (iii) oscillatory (periodic) (iv) periodic (v) rotatory and translatory (multiple motion)

3. Why can a pace or a footstep not be used as a standard unit of length?

Ans. Because of varying from person to person, a pace or a footstep cannot be used as a standard unit of length.

4. Arrange the following lengths in their increasing magnitude:

1 metre, 1 centimetre, 1 kilometre, 1 millimetre.

Ans. 1 mm < 1 cm < 1 m < 1 km

5. The height of a person is 1.65 m. Express it into cm and mm.

Ans. The height of the person is 1.65 m. It means he is 165 cm or 1650 mm tall.

6. The distance between Radha's home and her school is 3250 m. Express this distance into km.

Ans. As 1000 m = 1 km, 3250 m = $3250 \div 1000 = 3.250$ km

Thus, distance between Radha's home and her school is 3.250 km.

7. While measuring the length of a knitting needle, the reading of the scale at one end is 3.0 cm and at the other end is 33.1 cm. What is the length of the needle?

Ans. The actual length of the knitting needle
= marking of other end – marking of first end
= 33.1 cm – 3.0 cm = 30.1 cm.

8. Write the similarities and differences between the motion of a bicycle and a ceiling fan that has been switched on.

Ans. Wheels of a moving bicycle and blades of a switched on ceiling fan both have rotatory motion about their centre-point (axis). But a ceiling fan is at rest with respect to ceiling and wall while a bicycle is in motion (translatory) with respect to the path and surroundings.

9. Why would you not like to use a measuring tape made of an elastic material like rubber to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with such a tape?

Ans. The length between two markings on an elastic measuring tape can be increased easily. Therefore, measurements taken by an elastic tape are not considered to be standard. Hence, we would never tell someone about the exact measurement with full confidence.

10. Give two examples of periodic motion.

Ans. Motion of a pendulum, motion of a child on a swing, strings of a guitar or the surface of drums being played, etc., are all examples of periodic motion.

CHAPTER 11. LIGHT, SHADOWS AND REFLECTIONS

1. Rearrange the boxes given below to make a sentence that helps us understand opaque objects.

OWS
 AKE
 OPAQ
 UE O
 BJEC
 T SM
 SHAD

Ans. OPAQUE OBJECTS MAKE SHADOWS.

2. Classify the objects or materials given below as opaque, transparent or translucent and luminous or non-luminous:

Air, water, a piece of rock, a sheet of aluminium, a mirror, a wooden board, a sheet of polythene, a CD, smoke, a sheet of plane glass, fog, a piece of red hot iron, an umbrella, a lighted fluorescent tube, a wall, a sheet of carbon paper, the flame of a gas burner, a sheet of cardboard, a lighted torch, a sheet of cellophane, a wire mesh, kerosene stove, sun, firefly, moon.

Objects	Luminous	Nonluminous
Opaque	A piece of red hot iron, a lighted fluorescent tube, a lighted torch, kerosene stove, sun, firefly	A piece of rock, sheet of aluminium, a mirror, moon, a wooden board, a CD, an umbrella, a wall, a sheet of carbon paper, a sheet of cardboard
Transparent		Air, water, a sheet of polythene, a sheet of plane glass
Translucent	The flame of the gas burner	A sheet of cellophane Smoke, fog, a wire mesh

3. Can you think of creating a shape that would give a circular shadow if held in one way and a rectangular shadow if held in another way?

Ans. Yes, a cylindrical object can give a circular shadow if it is held in one any and a rectangular shadow if held in another way.

4. In a completely dark room, if you hold up a mirror in front of you, will you see a reflection of yourself in the mirror?

Ans. No, as we (human beings) are nonluminous, without any light source reflection from our body or face does not take place. Thus, we will not be able to see a reflection of ourselves in the mirror if we hold up a mirror in front of us in a completely darkroom.

CHAPTER 12. ELECTRICITY AND CIRCUITS

1. Fill in the blanks:

- (a) A device that is used to break an electric circuit is called _____.
- (b) An electric cell has _____ terminals.

Ans. (a) Switch (b) Two

2. Mark 'True' or 'False' for following statements:

- (a) Electric current can flow through metals.
- (b) Instead of metal wires, a jute string can be used to make a circuit.
- (c) Electric current can pass through a sheet of thermocol.

Ans. (a) T (b) F (c) F

3. Explain why the bulb would not glow in the arrangement shown in Fig. 12.13.



Fig. 12.13

Ans. In the given arrangement, a part of circuit is made of wood or plastic (handle of screwdriver) which is bad conductor of electricity. This is the reason of not glowing the bulb.

4. Complete the drawing shown in Fig. 12.14 to indicate where the free ends of the two wires should be joined to make the bulb glow.



Fig. 12.14

Ans. Join one end of key (switch) with the positive terminal of dry cell and other end with the lower end of bulb to complete the circuit.

5. What is the purpose of using an electric switch?

Name some electrical gadgets that have switches built into them.

Ans. Switch is a simple device that is used to break and complete the electric circuit when required. It is used to ON or OFF the flow of current without disturbing the connection of appliances in the circuit. Some electrical gadgets that have switches built into them are TV, radio, table fan, audio and video player systems, etc.

6. Would the bulb glow after completing the circuit shown in Fig. 12.14 if instead of safety pin we use an eraser?

Ans. No, as a safety pin made of metal is a good conductor of electricity but an eraser made of rubber is a bad conductor of it, so the bulb would not glow on using an eraser instead of a safety pin.

7. Would the bulb glow in the circuit shown in Fig. 12.15?



Fig. 12.15

Ans. No, as both the terminals (positive and negative) are connected with the same terminal of the bulb.

8. Using the “conduction tester” on an object it was found that the bulb begins to glow. Is that object a conductor or an insulator? Explain.

Ans. The object tested using conduction tester is a conductor because glowing of bulb shows that it passed the current through itself.

9. Why should an electrician use rubber gloves while repairing an electric switch at your home? Explain.

Ans. Rubber is an insulator that prevents the flow of current from circuit to a conducting material. Hence, an electrician takes the precaution wearing rubber gloves when he repairs an electric switch.

10. The handles of the tools like screwdrivers and pliers used by electricians for repair work usually have plastic or rubber covers on them. Can you explain why?

Ans. Plastic and rubber are bad conductors of electricity so they are used to cover the handles of screwdrivers and pliers used by electricians.

CHAPTER 13. FUN WITH MAGNETS

1. Fill in the blanks in the following

- (i) Artificial magnets are made in different shapes such as _____, _____ and _____.
- (ii) The Materials which are attracted towards a magnet are called _____.
- (iii) Paper is not a _____ material.
- (iv) In olden days, sailors used to find direction by suspending a piece of _____.
- (v) A magnet always has _____ poles.

Ans. (i) bar magnet, horseshoe magnet, cylindrical or ball-ended magnet
(ii) magnetic materials (iii) magnetic (iv) natural magnet (v) two

2. State whether the following statements are true or false:

- (i) A cylindrical magnet has only one pole.
- (ii) Artificial magnets were discovered in Greece.
- (iii) Similar poles of a magnet repel each other.
- (iv) Maximum iron filings stick in the middle of a bar magnet when it is brought near them.
- (v) Bar magnets always point towards North-South direction.
- (vi) A compass can be used to find East-West direction at any place.
- (vii) Rubber is a magnetic material.

Ans. (i) F (ii) F (iii) T (iv) F (v) T (vi) F (vii) F

3. It was observed that a pencil sharpener gets attracted by both the poles of a magnet although its body is made of plastic. Name a material that might have been used to make some part of it.

Ans. A pencil sharpener has a blade made of iron due to which it is attracted towards a magnet.

4. Column I shows different positions in which one pole of a magnet is placed near that of the other. Column II indicates the resulting action between them for each situation. Fill in the blanks.

Column I	Column II
N - N	_____
N - _____	Attraction
S - N	_____
_____ - S	Repulsion

Ans. Column I Column II
N - N *Repulsion*
N - S *Attraction*
S - N *Attraction*
S - S *Repulsion*

5. Write any two properties of a magnet.

Ans. A magnet has maximum magnetic strength near its poles. A freely suspended bar magnets always takes rest in north-south direction.

6. Where are poles of a bar magnet located?

Ans. Poles of a bar magnet are located near its ends.

7. A bar magnet has no markings to indicate its poles. How would you find out near which end is its north pole located?

Ans. To identify the north pole of a bar magnet, tie a thread in its middle and suspend it freely. Wait still it comes to rest. As we know that the freely suspended bar magnet always comes to rest indicating north pole in north direction and south pole in south direction, so the end which points in north direction is the north pole.

8. You are given an iron strip. How will you make it into a magnet?

Ans. Lay the iron strip on a table. Hold a bar magnet vertically at one end of the iron strip such that one of the poles of the magnet (say N-pole) touches the iron bar. Rub the magnet along the length of the iron strip till you reach its other end. Lift the magnet from the other end vertically and bring it back to the initial point so that the same pole touches the iron strip again. Repeat the process for at least 40–50 times, until the iron strip gets magnetised. Now, test it for magnetic property by bringing small iron pins near it.

9. How is a compass used to find directions?

Ans. When the magnetic compass is placed on a horizontal surface and the needle is allowed to come to rest, the needle aligns itself along north-south direction. The north pole of needle points towards the north and the south pole points towards the south. So the directions can be located easily with the help of a magnetic compass.

10. A magnet was brought from different directions towards a toy boat that has been floating in water in a tub. Affect observed in each case is stated in Column I. Possible reasons for the observed affects are mentioned in Column II. Match the statements given in Column I with those in Column II.

Column I	Column II
Boat gets attracted towards the magnet	Boat is fitted with a magnet with north pole towards its head
Boat is not affected by the magnet	Boat is fitted with a magnet with south pole towards its head
Boat moves towards the magnet if north pole of the magnet is brought near its head	Boat has a small magnet fixed along its length
Boat moves away from the magnet when north pole is brought near its head	Boat is made of magnetic material
Boat floats without changing its direction	Boat is made up non-magnetic material

Ans. Boat gets attracted towards the magnet–Boat is made of magnetic material
Boat is not affected by the magnet–Boat is made up of non-magnetic material
Boat moves towards the magnet if north pole of the magnet is brought near its head–Boat is fitted with a magnet with south pole towards its head
Boat moves away from the magnet when north pole is brought near its head–Boat is fitted with a magnet with north pole towards its head
Boat floats without changing its direction–Boat has a small magnet fixed along its length

CHAPTER 14. WATER

1. Fill up the blanks in the following:

- (a) The process of changing of water into its vapour is called _____.
- (b) The process of changing water vapour into water is called _____.
- (c) No rainfall for a year or more may lead to _____ in that region.
- (d) Excessive rains may cause _____.

Ans. (a) Evaporation (b) Condensation (c) Drought (d) Flood

2. State for each of the following whether it is due to evaporation or condensation:

- (a) Water drops appear on the outer surface of a glass containing cold water.
- (b) Steam rising from wet clothes while they are ironed.
- (c) Fog appearing on a cold winter morning.
- (d) Blackboard dries up after wiping it.
- (e) Steam rising from a hot girdle when water is sprinkled on it.

Ans. (a) Condensation (b) Evaporation (c) Condensation (d) Evaporation (e) Evaporation

3. Which of the following statements are “true”?

- (a) Water vapour is present in air only during the monsoon.
- (b) Water evaporates into air from oceans, rivers and lakes but not from the soil.
- (c) The process of water changing into its vapour, is called evaporation.

(d) The evaporation of water takes place only in sunlight.

(e) Water vapour condenses to form tiny droplets of water in the upper layers of air where it is cooler.

Ans. (a) F (b) F (c) T (d) F (e) T

4. Suppose you want to dry your school uniform quickly. Would spreading it near an anghiti or heater help? If yes, how?

Ans. An anghiti or a heater heats up the uniform quickly when it is spread near it. Thus, water evaporates rapidly with increasing the temperature and uniform dries up soon.

5. Take out a cooled bottle of water from refrigerator and keep it on a table. After some time you notice a droplets of water around it. Why?

Ans. Water vapour present in air comes in contact with cold bottle and gets condensed to form water droplets. These water droplets form a puddle of water around the bottle.

6. To clean their spectacles, people often breathe out on glasses to make them wet. Explain why the glasses become wet.

Ans. Human beings release water vapour with the exhaled air. When people breathe out on glasses, water vapour coming out makes the glasses wet.

7. How are clouds formed?

Ans. The water vapour that evaporates from waterbodies mixes with the air and after rising up higher, condenses into tiny droplets of water. These droplets of water form the clouds.

8. When does a drought occur?

Ans. When it does not rain for a long time in a particular region, it leads to drought.

CHAPTER 15. AIR AROUND US

1. What is the composition of air?

Ans. The composition of the air is as follows:

Nitrogen–78%, Oxygen – 21%, Carbon dioxide – 0.03%, Noble gases– 0.95% and small amounts of water vapour, smoke and dust particles.

2. Which gas in the atmosphere is essential for respiration?

Ans. Oxygen

3. How will you prove that air supports burning?

Ans. Oxygen gas is required for burning. It can be shown by following activity:

Take a bowl and fix a small candle in its centre. Pour some water into the bowl. Note the level of water. Light the candle. Invert a glass jar over it. The candle keeps burning for some time and then gets extinguished. Also, there is a rise in the water level in the glass jar.

4. How will you show that air is dissolved in water?

Ans. Pour some water into a beaker. Ask an elder to heat it on a burner. On heating, some bubbles are seen on the inner surface of the beaker. These bubbles come from the air dissolved in water. This activity shows that air is dissolved in water.

5. Why does a lump of cotton wool shrink in water?

Ans. A lump of cotton wool has a lot of air spaces inside it. When the lump of cotton wool is kept in water, air comes out in the form of bubbles and hence the cotton wool shrinks.

6. The layer of air around the earth is known as _____.

Ans. Atmosphere

7. The component of air used by green plants to make their food, is _____.

Ans. Carbon dioxide gas

8. List five activities that are possible due to the presence of air.

Ans. Winnowing, flying of kite, playing with a pinwheel (*firki*), burning of fire and breathing are possible due to presence of air.

9. How do plants and animals help each other in the exchange of gases in the atmosphere?

Ans. All living things (plants and animals) take up oxygen present in the air. This oxygen combines with food during respiration and carbon dioxide gas is released into the atmosphere. Now, green plants take in carbon dioxide from atmosphere to complete the process of photosynthesis and liberate oxygen into the atmosphere. Thus, plants and animals help each other to maintain the balance of gases in the atmosphere.

CHAPTER 16. GARBAGE IN, GARBAGE OUT

1. (a) Which kind of garbage is not converted into compost by the redworms?
(b) Have you seen any other organism besides redworms, in your pit? If yes, try to find out their names. Draw pictures of these.

Ans. (a) The garbage that contains plastics, metals and glass.
(b) Do yourself.

2. Discuss :

- (a) Is garbage disposal the responsibility only of the government?
(b) Is it possible to reduce the problems relating to disposal of garbage?

Ans. (a) No, each one of us can play its part in the management of garbage. We can set up a central compost pit for composting kitchen and plant and animal waste in our locality, can keep separate bins for compostable and noncompostable wastes and also can ensure proper disposal of waste generated from different sources.

(b) Yes, if we create as less waste as possible and reuse as many things as possible, this will reduce the problems relating to disposal of garbage.

3. (a) What do you do with the left over food at home?
(b) If you and your friends are given the choice of eating in a plastic plate or a banana leaf platter at a party, which one would you prefer and why?

Ans. (a) The left over food at home is given to animals on road or used to make compost.
(b) Banana leaf platter because it can be set into composting.

4. (a) Collect pieces of different kinds of paper. Find out which of these can be recycled.
(b) With the help of a lens look at the pieces of paper you collected for the above question. Do you see any

Ans. (a) As paper is recyclable, all kinds of paper pieces can be recycled.
(b) Do yourself.

5. (a) Collect different kinds of packaging material. What was the purpose for which each one was used? Discuss in groups.
(b) Give an example in which packaging could have been reduced?
(c) Write a story on how packaging increases the amount of garbage.

Ans. (a) and (b) Do yourself.

(c) Today, whatever article we buy from market, it is nicely packed in some kind of material. Packaging makes the product attractive and saves it from jerks. But on the other hand, it increases waste. However, there are certain articles that cannot be sold unpacked such as medicines, cosmetics, glassware, etc. Generally, cardboard, papers plastic sheets, thermocol sheets, etc., are used as packaging materials. We throw them as waste though they can be used for some other purposes also. To reduce the amount of garbage, articles should be packed in reusable materials and we should try to use such items that have less packaging.

6. Do you think it is better to use compost instead of chemical fertilisers? Why?

Ans. Compost is better than chemical fertilisers because it provides humus containing all the nutrients to the soil. This improves the quality of soil and makes it porous and airy. On the other hand, the regular use of chemical fertilisers makes the soil acidic or basic and kills the useful bacteria of the soil. They are easily soluble in water, therefore, easily flow to nearby waterbody and cause soil and water pollution.

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