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# Infinity Science

Teacher's Manual  
**CLASS**

**5**

Ottimo Publications

# INFINITY SCIENCE

## Class – 5

### Chapter – 1 Plants Reproduction

#### Tell Me Now (Page 7)

Papaya, Guava, Watermelon

#### Tell Me Now (Page 10)

1. Seed coat: The outer covering of a seed which protects the baby plant
2. Cotyledon: The fleshy part of the seed that contains food for the baby plant
3. Monocot seed: Seeds of some plants like wheat, maize and rice have one seed leaf and are called monocot seeds.
4. Dicot seed: Seeds of some plants like grams, peas and beans have two seed leaves are called dicot seed.
5. Germination: The development of a seed into a seedling is called germination.

#### Tell Me Now (Page 14)

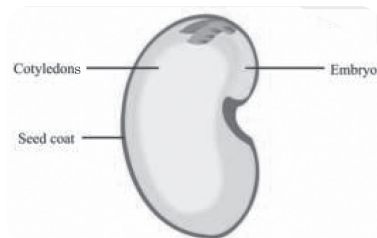
1. Spinach, Cauliflower
4. Wheat, Gram

2. Tomatoes, Cucumber
5. Rice, Maize

3. Rice, Wheat

#### Learn and Revise

- |                                   |                          |                |
|-----------------------------------|--------------------------|----------------|
| A. 1. (c) dicot seed              | 2. (a) germination       | 3. (a) Hiptage |
| 4. (b) cotyledons                 | 5. (b) rice and jute     |                |
| B. 1. germination                 | 2. summer                | 3. cotyledons  |
| 4. rabi                           | 5. monocot               |                |
| C. 1. Cotton, Madar seed          | 2. Coconut, Lotus        |                |
| 3. Xanthium seed, Tiger nail seed | 4. Lady's finger, balsam |                |
| D.                                |                          |                |



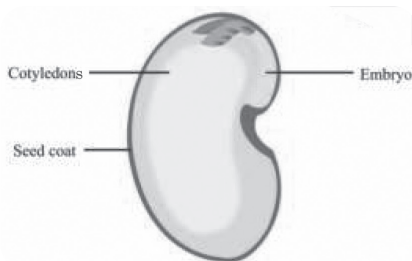
Seed coat: The outer covering of a seed which protects the baby plant

Cotyledons: The fleshy part of the seed that contains food for the baby plant

Embryo: The yellow fleshy parts are called the cotyledons or seed leaves. Separate these and you will find a cream coloured baby plant (called embryo) in it.

- E. 1. The outer covering of a seed is called seed coat.
2. Seeds of some plants like wheat, maize and rice have one seed leaf and are called monocot seeds.

3. The development of a seed into a seedling is called germination.
  4. Rice and wheat
- F.
1. All living things depend on plants, directly or indirectly for food. We also get hundreds of other useful things from plants. Most important of all is that they give us oxygen, the gas which is vital for all living things.
  2. For a seed to germinate and grow into a plant, it needs the following four things: Water, Oxygen, Warmth and Light
  - 3.



Seed coat: The outer covering of a seed which protects the baby plant

Cotyledons: The fleshy part of the seed that contains food for the baby plant

Embryo: The yellow fleshy parts are called the cotyledons or seed leaves. Separate these and you will find a cream coloured baby plant (called embryo) in it.

4. Dispersal is carried out by the wind, water, animals and by the explosion of fruits.

### Word Search

- |              |              |           |               |
|--------------|--------------|-----------|---------------|
| 1. DISPERSAL | 2. COTYLEDON | 3. MANURE | 4. IRRIGATION |
| 5. KHARIF    | 6. RABI      | 7. WATER  | 8. ROOT       |
| 9. RICE      | 10. JUTE     |           |               |

### Hots (Think and Answer)

All seeds cannot be dispersed by the wind because different seeds have different characteristics, and wind dispersal only works for certain types of seeds.

### Let's Talk

1. Since Rajasthan is very hot, dry, and has less rainfall, it is not the right place for growing tea. Tea grows best in cool, rainy, and moist places like Assam and Darjeeling, where the climate is perfect for it.
2. Coconut: Seeds dispersed by water  
Hiptage seed: Seeds dispersed by wind  
Pea seeds: Seeds dispersed by explosion

### Explore More

Do it yourself

## Chapter – 2 Food and Health

### Tell Me Now (Page 19)

Butter and oil:	Unhealthy
Bread, cereal:	Unhealthy
Fruits and vegetables:	Healthy
Milk and fish:	Healthy

### Tell Me Now (Page 22)

Nutrients	Found in
Carbohydrate:	Wheat, rice, sugar, cereals
Protein:	Pulses, egg, fish, meat, cheese
Vitamin-C:	Oranges, lemons, papaya, guava
Iron:	Chicken, liver, fish, spinach, beans
Vitamin-A:	Carrots, sweet potatoes, eggs, spinach

### Tell Me Now (Page 29)

1. False      2. True      3. False      4. True      5. True

### Learn and Revise

- A. 1. (b) balanced diet      2. (c) proteins      3. (c) proteins  
4. (a) Chickenpox      5. (c) Typhoid      6. (a) mosquitoes
- B. 1. blood red      2. roughage      3. outdoor  
4. Vitamin A      5. insecticides
- C. i. Tuberculosis  
ii. Diphtheria, whooping cough and tetanus  
iii. Measles  
iv. Tetanus  
v. Polio
- D. Playing football, Yoga, Running in morning are good exercises for health.
- E. 1. Regular exercise carries fresh blood to the heart and keeps muscles in good shape and improves posture.  
2. Diseases caused by deficiency of a particular nutrient.  
3. Vitamin A  
4. A diet which contains all the nutrients needed by the body in right proportions is called balanced diet.  
5. Vaccination develops resistance to prevent the diseases.
- F. 1. The communicable diseases spread through direct contact, air, infected food and water, insect bites and through carrier.  
2. The communicable diseases can be prevented by preventing the breeding of germs, preventing spread of germs from sick person to a healthy person and by vaccination.  
3. Vaccination develops resistance to prevent the diseases.  
4. Germs in milk are killed by pasteurization. The milk is boiled at a high temperature for at least half an hour and then cooled down quickly. It kills harmful bacteria.  
5. Isolate the patient from other members of the family. Only the persons looking after the patient should go near them.

### Hots (Think and Answer)

To prevent from dengue, follow following steps: Avoid Mosquito Bites, Keep Your Surroundings Clean, Use Mosquito Nets, Keep your Home and School Clean.

### Let's talk

1. Cold and cough are caused by germs that can spread to your friends and teachers in schools. Staying home helps keep them safe.
2. Healthy Food: Salad, Eggs, bean sprout  
Junk Food: French Fries, Chow Mein, Cold drink, Samosa, Burger

### Explore More

Do it yourself

### Have Fun

Do it yourself

## Chapter – 3 Safety and First Aid

### Tell Me Now (Page 34)

Bandage, scissors, antiseptic, cotton, burnol

### Tell Me Now (Page 37)

- |                             |   |
|-----------------------------|---|
| 1. (c) an antiseptic lotion | 2. (a) splint                               |
| 3. (b) fracture             | 4. blood vessels in the upper nasal passage |

### Tell Me Now (Page 40)

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

### Learn and Revise

- |  |  |
|--|--|
| A. 1. (c) dogs   | 2. (c) poison                                  |
| 3. (c) rabies  | 4. (a) Apply cold water or ice cubes           |
| 5. (c) Anti-rabies   | 6. (c) Sit with head tilted slightly backwards |
| B. 1. first  | 2. antitetanus                                 |
| 3. care  | 4. water                                       |
| 5. infections  |  |
| C. 1. First-aid box  | (e) bandage                                    |
| 2. Tourniquet  | (c) a tight band.                              |
| 3. Severe burns  | (d) do not prick the blister                   |
| 4. In case of cloth's fire   | (b) use blanket                                |
| 5. For poisoning   | (a) induce vomiting                            |
| D. 1. No entry   | 2. No pedestrians                              |
| 3. No honking  | 4. No left turn                                |
| 5. No U-turn   | 6. Speed breaker                               |
| E. 1. Cover the wound with clean cotton dressing to stop bleeding. |  |
| 2. Apply cold water or ice-cubes on the burnt organ.               |  |
| 3. Put out the fire by throwing lots of sand or mud on it.         |  |
| 4. A crack or a break in a bone is called a fracture.              |  |
| 5. Consult the doctor and get anti tetanus injection.              |  |

- F.
  1. Keep the patient up right in a comfortable position with his head held back. Apply wet cloth on the nose and on the head of patient.
  2. Switch off the main power supply. Throw sand or mud on the fire. It may extinguish the fire.
  3. Any easily available article like sheets of newspaper, magazines, a piece of cardboard or a pillow can also be used as a splint around the fractured bone. This will prevent movement and help the broken bone to heal.
  4. Remove any clothing from the affected area. Use plenty of water to wash off the chemical. Cover the burn with sterile gauze.
  5.
    - i. Make the person lie down.
    - ii. Loosen his clothes.
    - iii. Open the window of the room for fresh air.

### Hots (Think and Answer)

## Let's Talk

## Explore More

## Chapter – 4 Houses All Around

1. Pucca            2. Two            3. Flat

## Tell Me Now (Page 48)

## Tell Me Now (Page 49)

## Learn and Revise

4. In big cities where there is a shortage of space, people build multi-story buildings.
  5. A house can be made safe by fitting the doors and windows with grills.
- C. 1. T                      2. F                      3. F                      4. F
- D. 1. Igloo                  2. Houseboats              3. Skyscrapers              4. Stilt house
- E. 1. Kutch houses are made from materials like mud, straw, and bamboo.  
 2. Materials of pucca houses include brick, cement, concrete, steel.  
 3. A stilt house is built on raised platforms supported by stilts, usually to protect from flooding.  
 4. We use houseboats in lakes to provide shelter on water bodies in regions like Kashmir.  
 5. Multistory buildings are tall buildings with multiple floors.
- F. 1. In some rainy areas, people make houses with curved roofs. Curved roofs are also sloping roofs. They too allow the water to flow down quickly.  
 2. In coastal areas, big waves of the sea damage houses near the sea coast. For this reason, they build only temporary houses. If such a house is damaged, it does not cost much to rebuild. It can be built again after collecting some reed, wood and leaves of coconut tree.  
 3. So people in these areas make house of wood. These do not collapse in a minor earthquake. Even they collapse during a major earthquake, wood does not cause much injury to human beings.  
 4. Houses in the hills are designed to withstand cold, winds, and difficult terrain, with sloping roofs and raised foundations. Houses in the plains are built on stable, flat ground, typically using materials like brick and concrete, and can have larger, more spread-out structures.  
 5. Environmental features of a place affect the style of houses that people build.

### Hots (Think and Answer)

So, sloping roofs are most commonly found in regions with cold, snowy, or rainy climates such as hilly, mountainous, or temperate areas.

### Let's Talk

So, the flat roof gives them extra space and is easier to maintain.

### Explore More

Do it Yourself

## Chapter – 5 States of Matter

### Tell Me Now (Page 53)

S, S, L, G, L

### Tell Me Now (Page 56)

- |              |             |             |             |
|--------------|-------------|-------------|-------------|
| 1. a. matter | 2. b. atoms | 3. b. gases | 4. c. gases |
|--------------|-------------|-------------|-------------|

### Tell Me Now (Page 59)

- |                  |                 |                            |
|------------------|-----------------|----------------------------|
| 1. Salt in water | 2. Oil in water | 3. Carbon dioxide in water |
|------------------|-----------------|----------------------------|

### Learn and Revise

- |                 |              |                       |                |
|-----------------|--------------|-----------------------|----------------|
| A. 1. (c) solid | 2. (c) solid | 3. (c) Melting of ice | 4. (b) melting |
| 5. (b) solute   |              |                       |                |

- B. 1. Space, weight                      2. atoms                      3. physical  
 4. solid, liquid and gas              5. chemical
- C. 1. T                      2. T                      3. F                      4. F                      5. F
- D.



Solid



Liquid



Gas

- E. 1. In solids, there is less space between molecules. This is why, solids have a definite shape.  
 2. In liquids, molecules are less tightly packed. They can move around each other. That is why, liquids have no shape and they can flow.  
 3. Mixture of solid and liquid is called solution.
- F. 1. Liquids have no definite shape but they have a definite volume. In liquids, molecules are less tightly packed.  
 Gases do not have a definite shape or volume. In gases, molecules have wide gap among them.
2. A change in which a matter changes its state without forming a new substance is called the physical change.  
 Examples:  
 i. Melting of wax is a physical change.  
 ii. Changing of water into steam or ice is a physical change.  
 iii. Dissolving Salt in Water.
3. A change in which a matter changes its state giving rise to a new substance that is entirely different from the original one is called the chemical change.  
 Examples:  
 i. Burning of a paper is a chemical change.  
 ii. Burning of Wood.
4. An atom is the smallest particle of a substance that cannot be broken down further by any chemical means.  
 A molecule is the smallest particle of a substance that shows all the properties of a substance.
5. Objective: To show that 'solids dissolve in liquids.'

Materials:

- A glass of warm water
- A teaspoon of sugar
- A spoon for stirring

Steps:

1. Take two teaspoons full of sugar.
2. Add a teaspoon of sugar into the water.
3. Put the sugar in water and mix with a spoon.
4. Observe the sugar disappears into the water, leaving no solid particles visible.

Explanation: In the above activity, the sugar is a solid and water is liquid. When a solid dissolve in a liquid to form a solution, the solution is called the solid in liquid solution. demonstrates that solids like sugar or salt can dissolve in liquids like water.

## Hots (Think and Answer)

You cannot put a solid into a space smaller than itself because solids have a fixed shape and size.

## Let's Talk

1. Carbon dioxide                      2. Matter                      3. Water                      4. Atom

## Explore More

- A. 1. Melting of ice                      Physical change  
2. Boiling an egg                      Chemical Change  
3. Burning of sugar                      Chemical Change  
4. Blowing air into a balloon                      Physical change

B.

<b>Sugar</b>	Will dissolve in water.	Sugar dissolves in water, forming a solution.
<b>Pepper</b>	Will float on the surface of water or spread out.	Pepper floats on water and does not dissolve. It forms a suspension.
<b>Flour</b>	Will form a mixture, but not dissolve.	Flour forms a cloudy mixture, does not dissolve completely. It forms a suspension.
<b>Honey</b>	Will dissolve in water, but may take time.	Honey dissolves in warm water and forms a solution, but may take longer in cold water.
<b>Cooking Oil</b>	Will not mix with water and float on top.	Oil floats on top of the water, forming a separate layer. It does not dissolve.
<b>Milk</b>	Will mix with water to form a uniform mixture.	Milk mixes with water, forming a uniform, cloudy solution.

## Chapter – 6 Soil Erosion and Conservation

### Tell Me Now (Page 63)

- i. No                      ii. Yes                      iii. Many                      iv. Yes

### Tell Me Now (Page 67)

1. a. Soil                      2. a. Bihar                      3. b. Flood                      4. b. silting

## Learn and Revise

- A. 1. (b) reduces the fertility of the soil                      2. (b) growing grass  
3. (a) Afforestation                      4. (a) Afforestation  
5. (b) China
- B. 1. Wind, Running water                      2. soil conservation  
3. roots                      4. Embankments  
5. fertility
- C. 1. T                      2. T                      3. F                      4. F                      5. T
- D. i. Afforestation                      ii. Deforestation  
iii. Soil erosion                      iv. Terrace farming

- E. 1. The removal of top layer of the soil is called soil erosion.  
 2. Soil is formed from the weathering and breaking down of rocks over time, through the action of wind, water.  
 3. The deposition of the top layer of soil in the river bed is called silting.  
 4. The dams and embankments hold water between the banks and prevent the soil erosion.
- F. 1. Water causes soil erosion in several ways: Rainfall, Flooding, Water Flow in Slopes.  
 2. (i) If forests destroyed, the amount of carbon dioxide in air will increase  
 (ii) In the absence of trees and plants, the animals will not get food and shelter.  
 (iii) In the absence of trees, the soil will not hold water, which will cause floods.  
 3. On hill slopes, rainwater flows very rapidly. It carries away a lot of top soil. The soil erosion can be reduced by cutting the slope into steps and terraces. This slows down the flow of water and helps in the conservation of soil.  
 4. Man responsible for the soil erosion in the following ways: Deforestation, Overgrazing, Urbanisation and Construction, overuse of land.

### Hots (Think and Answer)

Plants protect the soil by holding it together with their roots, covering it with leaves, and blocking wind and water.

### Let's Talk

Do it Yourself

### Explore More

Do it Yourself

## Chapter – 7 Rocks and Minerals

### Tell Me Now (Page 71)

- i. White marble
- ii. Red sandstone
- iii. Sedimentary rock

### Tell Me Now (Page 73)

1. Yes
2. Red Fort
3. Hard
4. Yes

### Tell Me Now (Page 77)

1. Dhanbad (Jharkhand), Raniganj (West Bengal)
2. Ankleswar and Kalol in Gujarat, Digboi in Assam
3. Copper, zinc
4. Sandstone, Limestone
5. Marble, Slate

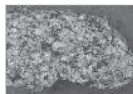
### Learn and Revise

- |                         |                     |                 |
|-------------------------|---------------------|-----------------|
| A. 1. (b) Slate         | 2. (a) Granite      | 3. (c) Marble   |
| 4. (b) Sedimentary rock | 5. (a) Igneous rock | 6. (c) Granite  |
| B. 1. Pumice            | 2. metamorphic      | 3. lava         |
| 4. igneous              | 5. Geologists       |                 |
| C. 1. Slate             | 2. Marble           | 3. Coal         |
|                         |                     | 4. Conglomerate |

D.



a. (iii) Sandstone



b. (iv) Granite



c. (v) Obsidian



d. (ii) Coal



e. (i) Petroleum product

- E. 1. The hot liquid mineral mass that comes from deep inside the earth is called magma.  
2. Igneous, sedimentary and metamorphic  
3. Obsidian looks almost like black glass because of its sharp edges it is used to make cutting tools.  
4. Minerals are underground natural resources which may be simple or complex.
- F. 1. Sedimentary rocks are formed from the deposition of sediments.  
2. The petroleum is believed to be formed from the remains of dead plant and sea animals. These got buried under the earth millions of years ago and gradually turned into petroleum by the action of heat and pressure. It is obtained by drilling a hole in to the earth's crust and sinking pipes into it. It is then pumped out from the well and then used to make petrol.  
3. Petroleum is used for making lubricating oil, printing ink and medicines. Paraffin wax also obtained from petroleum.  
4. Potassium, phosphorus, coal, petroleum are important minerals found in the rock.

### Word Search

1. SLATE      2. MARBLE      3. GNEISS

### Hots (Think and Answer)

Coal is used as a fuel

- (i) for cooking
- (ii) for heating homes and buildings
- (iii) for producing electricity in power plants
- (iv) for producing motion in engines
- (v) in blast furnaces in industries

Many chemicals come from coal which help us to make drugs, medicines, nylon and fertilisers. It is used in industries for obtaining metals from their ores.

### Let's Talk

1. Diamond
2. a. Obsidian                      b. Igneous rock                      c. Metamorphic rock

### Explore More

A. & B. Do it Yourself

## Chapter – 8 Animals World

### Tell Me Now (Page 82)

Desert, Tree, Water, Tree whole, Both on land and in water, Flower

### Tell Me Now (Page 88)

1. a. four limbs                      2. a. Turtles                      3. b. Emu
4. a. Siberian cranes              5. a. salmon

### Learn and Revise

- A.
  1. (a) Lungs                      2. (c) Arctic tern                      3. (b) Mammals
  4. (a) Fish                      5. (c) Ostrich
- B.
  1. Cow, elephant              2. Lion, tiger                      3. Arctic tern, Siberian cranes
  4. Lice, Bug
- C.
  1. Gills                      2. Body surface                      3. Lungs
  4. Lungs                      5. Trachea                      6. Lungs
- D. Tortoise has paddle like legs, Penguin has flippers, Fish has fins, Frog has webbed feet
- E.
  1. Respiration is the process by which living organisms take in oxygen and release carbon dioxide to produce energy.
  2. Snake, lizard
  3. Herbivores eat plants. Carnivores eat other animals.
  4. Rat, squirrel
- F.
  1. Frogs have webbed feet to swim. On land they use their long hind legs to jump.
  2. The fore-limbs of a bird are in the form of wings which help it to fly.
  3. Animals migrate mainly to find Food, Better climate and breeding. For example, Arctic Tern and Monarch Butterfly migrate.
  4.
    - Insects: They breathe through tiny holes in their body called spiracles, which lead to tubes inside their body called trachea. These tubes carry air directly to their cells.
    - Fish: Fish have gills to breathe. Gills take oxygen from water and help fish breathe while swimming.
  5. The strong and flexible muscles of the snake contract and expand and thus help it to move forward.

### Hots (Think and Answer)

These birds are called flightless because their bodies are not adapted for flying, but instead, they are adapted for running, swimming, or walking.

### Let's Talk

1. Owls are flying birds. They have wings that help them fly and hunt at night.  
Ostriches are flightless birds. They cannot fly because they have small wings and are too large and heavy.

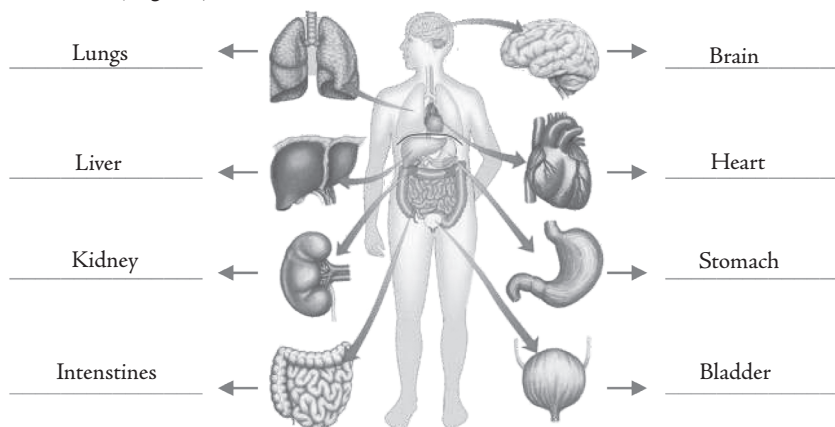
2. Rodents: Rat, rabbit, squirrel  
Flightless bird: Penguin, ostrich, kiwi  
Reptiles: Snake, lizard, crocodile

### Explore More

- A. Do it Yourself
- B. Birds: Pigeon, Crow, Woodpecker, Bat  
Tree animals: Monkey, Woodpecker  
Water animals: Fish, Whale, Crocodile  
Reptiles: Crocodile, Snake, Lizard  
Mammals: Camel, Elephant, Dog, Cow, Whale  
Insects: Grasshopper

## Chapter – 9 Our Skeletal System

### Tell Me Now (Page 94)



### Learn and Revise

- A.
  1. (a) Bones in the skull
  2. (b) Pivot joint
  3. (a) muscles
  4. (b) brain
  5. heart
- B.
  1. cardiac
  2. 206
  3. brain
  4. spinal cord
  5. tendons
- C.
  1. (c) rib cage
  2. (a) vertebral column
  3. (d) skull
  4. (b) knee
- D.
  1. 12 pairs
  2. They form a cage and enclose the heart and the lungs.
  3. The lowest two pairs, called floating ribs, are joined only to the backbone.
- E.
  1. skeleton is a hard structure that supports and protects our body.
  2. Our body has many separate bones that are joined together at places called joints. Hinge Joint, Ball and Socket Joint
  3. Ankle joint Wrist joint
  4. Voluntary muscles, Involuntary muscles

- F. 1. i. The skeleton provides shape and support to our body.  
 ii. The skeletal system provides protection to our soft and delicate organs.  
 2. A ball and socket joint allows the bones to move easily in all directions. This joint is formed by the round end of a long bone fitting into a hole or a socket of another bone. Our shoulder is an example of ball and socket joint.  
 3. i. The muscles that are attached to our skeleton are under our control, so we call them voluntary muscles.  
 ii. The muscles which are not under our control are called involuntary muscles.  
 4. Bones cannot move by themselves. They are attached to the muscles which help in all movements of the body.

### Hots (Think and Answer)

Muscles are essential for movement, posture, circulation, digestion, breathing and maintaining the body's stability and protection. Without muscles, the body would not be able to function properly.

### Let's Talk

- Our backbone is made up of many small bones that work together to help us move, stay balanced, and protect important parts of our body. If it were just one bone, we would have many problems with movement, balance, and protection.
- Do it Yourself

### Explore More

Do it Yourself

## Chapter – 10 Our Nervous System)

### Tell Me Now (Page 102)

V, I, V, I

### Tell Me Now (Page 105)

- |                |              |                     |
|----------------|--------------|---------------------|
| 1. c. cerebrum | 2. a. oxygen | 3. b. reflex action |
| 4. a. Sensory  |              |                     |

### Tell Me Now (Page 108)

- |              |             |            |
|--------------|-------------|------------|
| 1. (b) Smell | 2. (d) Hear | 3. (e) See |
| 4. (c) Taste | 5. (a) Feel |            |

### Learn and Revise

- |   |                  |               |
|---|------------------|---------------|
| A. 1. (c) nerves  | 2. (b) brain     | 3. (a) eyes   |
| 4. (b) epidermis  | 5. (b) tongue    |               |
| B. 1. cerebrum  | 2. pupil         | 3. cerebellum |
| 4. skin   | 5. reflex action |               |
| C. 1. T   | 2. F             | 3. F          |
|   |                  | 4. F          |
|   |                  | 5. T          |
| D. 1. Cerebrum: The cerebrum controls the five sense organs and memory.     |                  |               |
| 2. Cerebellum: The cerebellums control the voluntary movements of the body. |                  |               |
| 3. Medulla oblongata: It controls all involuntary movements of the body.    |                  |               |

- E. 1. The nervous system is the communication system of our body.
2. The brain is the control center of the human body.
3. i. Sensory nerves
  - ii. Motor nerves
  - iii. Mixed nerves
4. The five sense organs are eyes, ears, nose, tongue and skin.
- F. 1. Nerves are long thread-like structures that carry messages from the brain to the other parts of the body and vice versa.
2. Our brain is the main control center of our body. The brain controls the body by receiving and giving messages coming from different body parts.
3. Eyelids and eyelashes also protect our eyes. They keep out dust and dirt.
4. We hear sounds through our ears. When sounds are made they set up movements in the air called as sound waves. The outer ear, also called the pinna, acts like a funnel. It collect the sound waves and sends them to the eardrum in the middle ear. From there, a system of bones sends the sound waves to the inner ear. These waves are get converted into electrical signals by the nerves and sent to the brain which interprets the received messages.

### Cross Word Puzzle

Across

2. SKIN

3. MOTOR

6. EARS

7. IRIS

Down

1. PUPIL

3. SENSORY

4. BRAIN

5. OPTIC

6. EARS

### Hots (Think and Answer)

These actions are reflexive because they are automatic, involuntary, fast, and usually serve as protective responses to external stimuli.

### Explore More

1. & 2. Do it Yourself

### Let's Talk

The helmet protects our head in case of an accident or fall. Head injuries are a leading cause of death in scooter accidents. Wearing a helmet significantly lowers the risk of fatal injuries.

### Have Fun!

Papaya, carrot, raw salad

## Chapter – 11 Force and Energy

### Tell Me Now (Page 113)

E, P, Pu, E

### Tell Me Now (Page 118)

1. (b) The blade of an ace

3. (c) Ramp

2. (a) swimming pool

4. (d) Rubber band

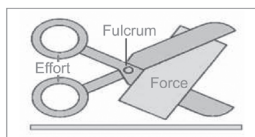
## Tell Me Now (Page 122)

1. Windmill
3. Sun

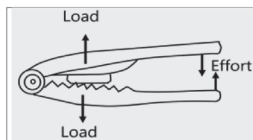
2. Hydroelectricity
4. Magnet

## Learn and Revise

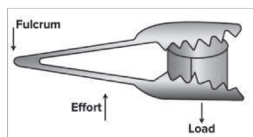
- A. 1. (a) See-saw  
3. (b) wheel and axle
- B. 1. easier  
3. first class lever
- C. 1. Inclined plane  
3. Inclined plane  
5. Lever
- D. 2. (a) Inclined plane  
4. (b) Sun  
2. fossil fuel  
4. lever of third class  
4. Wheel and axle



First class lever



Second class lever



Third class lever

- E. 1. Force is the push or pull applied to a body.  
2. Astronauts floating in the Space.  
3. A screw jack is used to lift a car for lorry or changing its tyres. It acts like an inclined plane.  
4. Wedge is used for separating two objects that are held together by a great force.
- F. 1. An inclined plane is a simple machine used to move objects to a higher place.  
2. A screw is a simple machine used to hold things almost tightly together. It acts like an inclined plane. You will notice that the screws are used in revolving stools, chairs and ear studs.  
3. Wheel and axle is a simple machine with a wheel that turns on the axle. The distance around the wheel is greater than the distance around the axle, when work is easier to do. Sewing machine, bicycle, grinding machines have wheel and axle.  
4. Heat energy is useful to us in many ways. The sun is the most important source of this energy. The heat energy is obtained by burning of fuel, such as wood, gas, coal and oil. Electricity also produces heat. Heat energy helps to move aeroplanes and rockets.  
5. With the help of wind mills wind energy can be used to generate electricity, to operate flour mills to draw underground water. Therefore, it is considered that wind are more environment friendly than heat energy.

## Hots (Think and Answer)

Electricity is produced by a dam using a process called hydroelectric power generation.

## Let's Talk

1. Screw is more useful than a nail cutter in tasks like building, fixing things, or joining materials together.
2. i. SCREW      ii. WEDGE      iii. LEVER

## Explore More

A & B. Do it Yourself

## Chapter – 12 Air and Water Useful for Us

### Tell Me Now (Page 125)

Balloon, Aeroplane, Sea boat

### Tell Me Now (Page 128)

1. No

2. Yes

3. Yes

4. Yes

### Learn and Revise

- A. 1. (c) Both (a) and (b) 2. (c) humidity  
3. (a) Ozone 4. (b) Distilled water
- B. 1. (b) Mixture of gases 2. (a) Filtration  
3. (e) Needed for burning 4. (c) Chlorination  
5. (d) Common method to purify water
- C. 1. atmosphere 2. carbon dioxide 3. photosynthesis  
4. soluble 5. Distilled
- D. i. Exosphere: This is outer layer of the atmosphere.  
ii. Thermosphere: This is the fourth layer of the atmosphere.  
iii. Mesosphere: This is the third layer of the atmosphere.  
iv. Stratosphere: The stratosphere is the second most layer of the atmosphere.  
v. Troposphere: This is the first layer of the atmosphere closest to the earth's surface.
- E. 1. Air is a mixture of many gases.  
2. Air consists of about 78 percent nitrogen, 21 percent oxygen, and less than 1 per cent of argon, carbon dioxide and other gases.  
3. The upper part of the stratosphere is the ozone layer. This ozone layer is like huge shield that blocks most of the harmful ultraviolet rays of the sun.  
4. Atmosphere is a mixture of gases in several layers.
- F. 1. Take a thin, and long string. Tie a string at its centre. Then take two balloons of equal size. Blow up stick both the balloons at the end of the string of equal size. Prick one balloon with a pin the stick in your hands at its center.  
What do you observe?  
You will observe that the balloons with air has weight and bows and down.  
2. Soluble impurities present in water may be removed by sedimentation.  
3. In filtration, the mixture of water and impurities is passed into another container through a filter paper or the cloth. Insoluble substances will settle on the filter paper or the cloth and clear water can be collected in another container. This process is called filtration. 4. Boiling, distillation, chlorination

### Hots (Think and Answer)

Distilled water is used in medicines and injections because it is pure, safe, and free from harmful substances.

### Let's Talk

1. Difficulty in breathing during Diwali is due to the pollution created by firecrackers, which releases harmful gases.
2. Name of Diseases: Asthma, Bronchitis, Lung Cancer (due to polluted air)  
Name of Diseases: Cholera, Jaundice, Dysentery (due to impure water)

### Explore More

- A. The difference in weight occurs because air, though light, has mass, and when you fill the balloon with air, you increase the total mass of the balloon, making it heavier.
- B. Do it Yourself

## Chapter – 13 The Moon and Eclipses

### Tell Me Now (Page 136)

- |            |                 |            |             |
|------------|-----------------|------------|-------------|
| 1. a. Moon | 2. c. spherical | 3. a. Moon | 4. a. $1/4$ |
|------------|-----------------|------------|-------------|

### Tell Me Now (Page 138)

- |               |            |        |             |
|---------------|------------|--------|-------------|
| 1. 384,400 km | 2. surface | 3. air | 4. American |
|---------------|------------|--------|-------------|

### Tell Me Now (Page 142)

1. (c) Craters
2. Lunar eclipse
3. (a) Rohini
4. (b) Gather information of military movement
5. (d) Solar eclipse

### Learn and Revise

- |   |                            |                   |
|---|----------------------------|-------------------|
| A. 1. (c) Sputnik   | 2. (c) The moon            | 3. (c) Opaque     |
| 4. (c) Aryabhata  | 5. (b) astronaut           |                   |
| B. 1. Earth   | 2. Aryabhata               | 3. Neil Armstrong |
| 4. Gravity  | 5. Communication satellite |                   |
| C. 1. Sputnik   | 2. Aryabhata               | 3. Rakesh Sharma  |
| 4. Yuri Gagarin   | 5. Laika (dog)             |                   |
| D. i. Rakesh Sharma   |                            |                   |
| ii. Kalpana Chawla  |                            |                   |
| iii. Neil Armstrong   |                            |                   |
| iv. Artificial satellite  |                            |                   |
| E. 1. The moon shines because it reflects the light of the sun.   |                            |                   |
| 2. There is no life on the moon because it does not have air (oxygen) and water.  |                            |                   |
| 3. Tides are caused by the gravitational attraction of the moon on the sea water.   |                            |                   |
| 4. An object that people have made and launched into orbit using rockets are called artificial satellites.  |                            |                   |
| F. 1. The moon shines because it reflects the light of the sun.   |                            |                   |
| 2. A partial eclipse occurs when only a part of one celestial body. A total eclipse happens when one celestial body completely blocks another. A total eclipse happens when one celestial body completely blocks another. |                            |                   |
| 3. Communication, Weather Forecasting, Navigation   |                            |                   |
| 4. A lunar eclipse occurs when the Earth comes between the sun and the moon, casting a shadow on the moon.  |                            |                   |

### Word Search

SPUTNIK, BHASKARA, APPLE, BHASKARA, ROHINI, INSAT

### Hots (Think and Answer)

Astronauts float in space because there is very little gravity pulling them down.

### Let's Talk

1. Diwali, Holi, Karva Chauth, Eid al-Fitr, Navratri, Buddha Purnima
2. Waning gibbous, Waxing crescent, New Moon, Full Moon

### Explore More

A. & B. Do it Yourself

## Chapter – 14 Natural Disasters

### Tell Me Now (Page 147)

Earthquakes, Floods, Cyclone, Drought, Landslide, Volcanic eruptions

### Tell Me Now (Page 151)

1. a. plates
2. b. volcanoes
3. c. earthquake
4. a. lava

### Learn and Revise

- A.
  1. (b) earthquake
  2. (c) Richter
  3. (a) lava
  4. (b) lava
  5. (b) Tsunami
- B.
  1. F
  2. T
  3. T
  4. T
  5. T
- C.
  1. Sudden and strong shaking and vibration in the earth's crust is called earthquake.
  2. The liquid that comes out of a volcano is called magma.
  3. Tidal waves are commonly known as tsunamis.
  4. Seismograph is an instrument that measure the intensity and duration of an Earthquake.
- D.
  - i. Volcanoes
  - ii. Dormant volcanoes
  - iii. Extinct volcanoes
- E.
  1. Natural disasters are very big accident caused by the natural forces.
  2. Volcanoes occur when lava from deep within the earth rushes out through weak spots in the crust.
  3. Tidal waves are massive, sudden, unexpected and very large ocean waves.
  4. Mount Vesuvius in Italy is an example of an active volcano.
- F.
  1. Earthquakes, floods, drought, storms and volcanic eruptions are all natural calamities.
  2. Earthquakes are caused due to the movement of the plates below the upper surface of the earth's crust.
  3. Volcanoes occur when lava from deep within the earth rushes out through weak spots in the crust. Volcanoes can be active, dormant or extinct.
  4. Drought occurs when there is no rainfall. When there is no rainfall for a very long time that place experiences drought. Due to no rains the crops in the field dry and perish. Rivers, ponds, lakes and other water bodies get dried.

### Word Search

VOLCANO, TIDAL WAVE, SUNAMI, STORMS, CORE, CRUST, MAGMA, DROUGHT

### Hots (Think and Answer)

Due to no rains the crops in the field dry and perish. Rivers, ponds, lakes and other water bodies get dried. There is scarcity of water in a very large area which affects a large population. There is also scarcity of food and fodder. Cattle and even people die of starvation.

### Let's Talk

1. Epidemics are common after natural disasters due to following reasons: Contaminated water and food, Poor hygiene, Crowded living conditions, Disruption of healthcare services
2. Earthquakes cause fires due to Gas Leaks, Electrical Short Circuits, Structural Damage.

### Explore More

A. & B. Do it Yourself

## Chapter – 15 Changes in Our Environment

### Tell Me Now (Page 156)

2nd, 3rd, 5th

### Tell Me Now (Page 158)

- |                  |              |                    |
|------------------|--------------|--------------------|
| 1. a. glasshouse | 2. a. vapour | 3. a. refrigerator |
|------------------|--------------|--------------------|

### Learn and Revise

- A. 1. (c) Both (a) and (b)                      2. (c) carbon dioxide                      3. (b) Oxygen  
4. (a) environment                      5. (d) All of these
- B. 1. (e) the process of earth getting heated  
2. (d) CFC  
3. (c) animals give out this gas.  
4. (a) spilling of oil into the sea.  
5. (b) melting of polar ice caps
- C. 1. manure      2. vapour                      3. climate                      4. air                      5. reused
- D. Water pollution: Dispose of chemicals, plastics, and waste properly and not into water bodies like rivers and lakes.  
Air pollution: Industries should install air pollution control devices like scrubbers and filters to minimise emissions.
- E. 1. A few gases go up in the air, form a covering in the atmosphere and do not allow the heat to escape these are called greenhouse gases.  
2. Smoke can cause respiratory diseases, heart disease, and can worsen conditions like asthma.  
3. Global warming is a gradual increase in the earth's temperature generally due to the greenhouse effect.  
4. Ozone is found in the stratosphere It blocks ultraviolet (UV) light from the earth's surface.
- F. 1. All living and non-living things together form our surroundings. The surroundings in which we live is called the environment. The number of vehicles on the road is increasing day by day. The amount of smoke produced by vehicles and factories dumping of chemicals and factory wastes, garbage and other wastes pollute air, water and land respectively.

2. Monitoring emissions from industries and vehicles ensuring they meet legal limits for pollutants, Promoting the use of clean fuels like CNG and electric vehicles, Planting trees to absorb carbon dioxide and improve air quality.
3. Rubber used tyres can be cut into shapes of swing seats, climbing frames and rubber slippers or chappals. Rubber tubes are also used to make jewellers items like beads, rings and bracelets. Old truck tyres are recycled to make playground surfaces, pencil pouches and diary covers.
4. Metal objects thrown always by people can be reused. People buy pipes, rods and gales from scrap dealers for reusing as they are cheaper. Craftsmen buy and melt pieces of scrap to make frames, decoration pieces and jewellery.

### Hots (Think and Answer)

The destruction of rainforests contributes to global warming by releasing stored carbon, reducing oxygen production, disrupting the water cycle, and increasing the presence of harmful greenhouse gases in the atmosphere.

### Word Search

FACTORY, DETERGENT, SOAP

### Let's Talk

1. LPG
2. Air pollution cause badly effect of greenhouse effect.  
Planting tree is good for greenhouse effect.

### Explore More

A. & B. Do it Yourself

### Model Test Paper – I

- |   |            |                           |            |              |
|---|------------|---------------------------|------------|--------------|
| A. 1. c. pests  | 2. b. BCG  | 3. c. rabies              | 4. b. huts | 5. b. solute |
| B. 1. germination   | 2. outdoor | 3. treatment              | 4. Kashmir | 5. molecule  |
| C. 1. False   | 2. True    | 3. False                  | 4. True    | 5. True      |
| D. 1. Coconut, Lotus  |            | 2. Maple, Dandelion       |            |              |
| 3. Water, Milk  |            | 4. Oxygen, Carbon dioxide |            |              |
| 5. Iron, Wood   |            |                           |            |              |
| E. 1. Wind, water, animals are the natural agents that help in seed dispersal.  |            |                           |            |              |
| 2. Vaccinations are important because they protect against serious diseases and infections.<br>Getting vaccinated on time helps prevent the spread of diseases.                 |            |                           |            |              |
| 3. A splint is a rigid or semi-rigid material used support a broken or injured body part, such as a limb or joint.  |            |                           |            |              |
| 4. People often build temporary houses in coastal areas due to factors like storms, flooding.<br>Temporary houses are easier and cheaper to construct, and they can be rebuilt. |            |                           |            |              |
| F. 1. BCG, Hepatitis B  |            |                           |            |              |
| 2. DPT (Diphtheria, Pertussis, Tetanus), Polio  |            |                           |            |              |
| 3. Measles, Mumps   |            |                           |            |              |
| 4. DPT booster, Hepatitis A   |            |                           |            |              |
| 5. DPT booster, Polio booster   |            |                           |            |              |

## Model Test Paper – II

- A. 1. b. Afforestation                      2. c. Marble                      3. a. mammals  
4. c. spinal cord                      5. a. epidermis
- B. 1. direction                      2. taste buds                      3. tendons  
4. Igneous                      5. wind, water
- C. 1. False                      2. False                      3. True  
4. True                      5. True
- D. 1. Butterfly, Dragonfly  
2. Cooking, Power generation  
3. Swallow, Siberian crane  
4. Tiger, Lion  
5. Cow, Elephant
- E. 1. A screw jack is used to lift heavy loads, such as a car, by converting rotational motion into linear motion.  
2. Nerves are bundles of nerve fibers that carry electrical signals between different parts of the body and the brain. Their functions are transmission of signals from the brain to the body, regulation of body functions, like heart rate and digestion.  
3. Muscles in our body perform Movement, Posture, Heat production and protection.  
4. Snakes and many reptiles move using a crawling motion. They have specialised scales on their belly that grip the ground, and they use muscles to push and pull their body forward in a series of curves.  
5. Ores are naturally occurring minerals from which metals can be extracted economically.  
Two common ores are:  
♦ Hematite (an ore of iron)  
♦ Bauxite (an ore of aluminium)
- F. Coal  
Conglomerate  
Sedimentary rock  
Charcoal  
Igneous rock  
Copper