

# Sense & Science



**4**  
GRADE

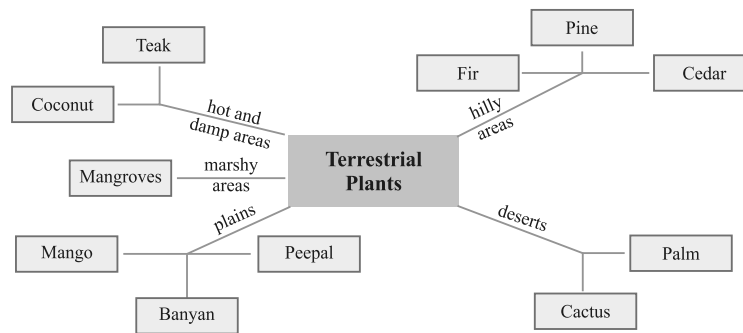


# 1. The Life of Plants

## Exercise

- A. 1. (c)      2. (c)      3. (a)      4. (c)      5. (a)  
 B. 1. desert    2. marshy    3. floating  
 C. 1. (b)      2. (f)      3. (e)      4. (c)      5. (d)  
 6. (a)

D.



- E. 1. Duckweed      2. Lotus      3. Pondweed  
     Water lettuce      Water Lily      Tape grass
- F. 1. Wheat, rice, jowar, bajra and sugarcane are the plants of the grass family that provide food to us.  
 2. Chairs, brooms, baskets, curtains and mats.  
 3. Venus flytrap, Pitcher plant and Sundew.  
 4. Cactus plants have spines instead of leaves.  
 5. Grass family plants provide us cereals.
- G. 1. Plants in marshy areas fail to absorb oxygen from the soil and hence have breathing roots that grow out of the soil and water to help them breathe.  
 2. Lotus plant grow in water and adapt itself to live in water by its hollow and light stem and has broad and floating leave.  
 3. Uses of the plants of the grass family :  
     ♦ Grass family plants provide food for humans and animals.  
     ♦ Some plants of the grass family are used to prepare medicines.  
     ♦ Various kind of grasses are now used to make different types of paper.  
 4. In Venus flytrap, the leaf is folded into two halves. When an insect sits on the leaf, the two halves close and the insect is trapped.
- H. Do it yourself.      I. Do it yourself.

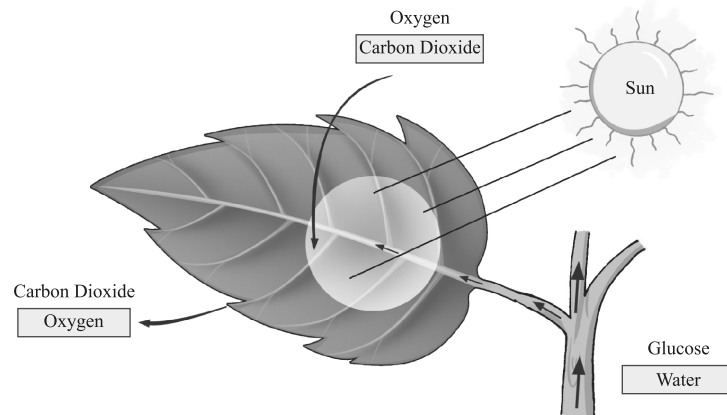


2. During photosynthesis, the leaf takes in carbon dioxide and gives out oxygen and water vapour through the stomata only.
3. The plants use their food in a number of ways such as :
  - ◆ It is used to get energy.
  - ◆ Some of it is used for growth.
  - ◆ Extra food is stored in the form of starch in leaves, stems and roots.
4. The sun's energy during photosynthesis is used to prepare food. This energy passes on to humans and animals when they eat the plant parts. This is how energy flows from the sun to plants and then to animals and human beings.
5. Plants that do not have chlorophyll cannot make their own food, they get their food from dead and decaying plants and animals.
6. A balance between plant and animal life needs to be maintained for life on earth to go on.

F. Do it yourself.

G. Do it yourself.

H.



I. Do it yourself.

J. Do it yourself.

K. Do it yourself.

L. Do it yourself.

M. Do it yourself.

N. Do it yourself.



## 3. Animal's Life

### Exercise

- A. 1. (c)      2. (b)      3. (a)      4. (b)      5. (c)  
 B. 1. Mammals      2. embryo      3. yolk



## 4. Survival of Animals

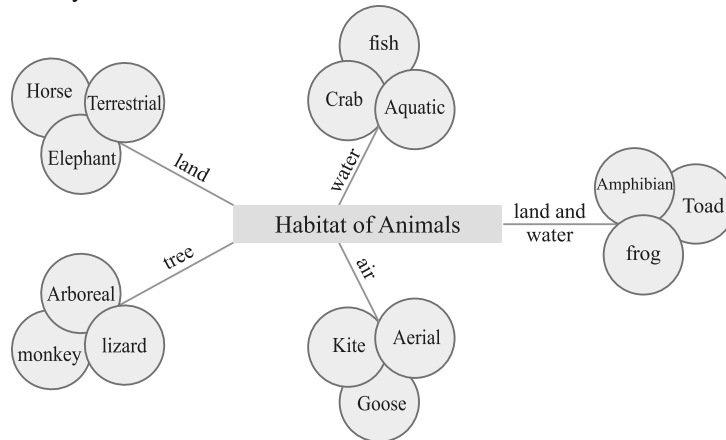
### Exercise

- A. 1. (c)      2. (a)      3. (b)      4. (d)      5. (d)  
      6. (a)
- B. 1. Polar bears      2. Gills      3. Aerial
- C. 1. F.      2. T      3. F      4. F      5. T

D.	Terrestrial	Aquatic	Amphibian	Aerial	Arboreal
Movement	legs to move on land	fins or limbs	limbs	wings to fly	legs
Breathing Organs	lungs	gills	moist skin (to breathe in water) lungs (to breathe on land)	lungs	lungs
Examples	horses and elephants	fishes and crabs	frogs and toads	kite and goose	squirrels and monkeys

- E. 1. In the natural world, a plant or an animal adapts or changes itself to suit its surroundings. It happens over hundreds and thousands of years. This process of changing to suit the surroundings is called adaptation.  
 2. Animals that live in cold regions, have fur on their bodies to keep them warm.  
 3. Animals that spend most of their time on trees are called arboreal animals.  
 4. Herbivores animals have long and strong legs to travel long distances in search of food.
- F. 1. Frogs have adapted themselves to live both on land and in water by their moist skin and lungs. Their moist skin helps them to breathe in water and their lungs to breathe on land.  
 2. Aerial animals have a light body because of light bones and feathers.  
 3. Merging with the surroundings, large size and fast movement are three common ways by which animals protect themselves from their enemies.  
 4. Fish protect themselves by moving fast enough to escape from their enemies.  
 Elephants protect themselves with the help of their very big size.  
 Leaf insect protect themselves by camouflage.

- G. 1. Do it yourself.  
2.



- H. 1. elephant    2. grasshopper    3. rabbit    4. bat  
I. Do it yourself.                      J. Do it yourself.  
K. Do it yourself.                      L. Do it yourself.  
M. Do it yourself.



## 5. Food and Its Digestion

### Exercise

- A. 1. (c)    2. (a)    3. (a)    4. (b)    5. (b)  
B. 1. energy-giving    2. fibre    3. small intestine

C. Name of the Nutrients	Sources	Function/Functions
proteins	pulses, meat, cheese, peas, eggs fish	help us to grow
vitamins	fresh vegetables and fruits	help the body to fight diseases

- D. 1. (d)    2. (c)    3. (e)    4. (a)    5. (f)  
6. (b)  
E. 1. All living things need food to stay alive and to grow.  
2. Rice, wheat and potato.  
3. Fresh vegetables, fruits, meat.  
4. A balanced diet has the correct amounts of all the nutrients, i.e., carbohydrates, fats, proteins, vitamins and minerals.

5. From the stomach, the food passes into the small intestine, a long coiled tube.
- F.**
1. When we eat, our teeth tear, cut and grind food in preparation for swallowing.
  2. The function of the small intestine is to break down food, absorb nutrients needed for the body, and get rid of the unnecessary components.
  3. Food is churned in the stomach. The digestive juices present here break down the proteins into simple forms.
  4. The process of treating food to preserve its value for a long time is called preservation.
  5. Cooked and uncooked food can be preserved in different ways as follows : Boiling, canning, refrigeration, pickling, jelling, drying.
- G.** Do it yourself.
- H.**



- J.** Do it yourself.                      **K.** Do it yourself.
- L.** Do it yourself.                      **M.** Do it yourself.
- N.** Do it yourself.                      **O.** Do it yourself.
- P.** Do it yourself.



## 6. Teeth and Microbes

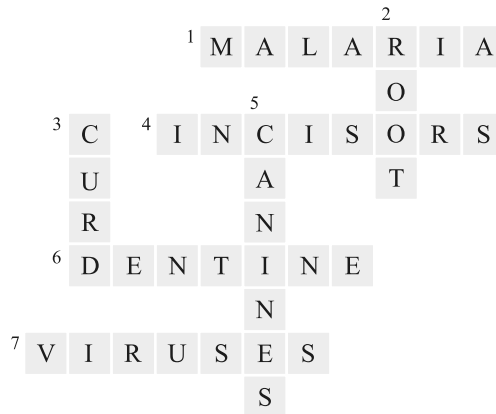
### Exercise

- A.** 1. (d)      2. (c)      3. (a)      4. (d)      5. (d)
- B.** 1. no teeth   2. six      3. enamel    4. Enamel
- C.** 1. chocolates      2. germs      3. bacteria
4. athlete's foot      5. Yeast



- D.** 1. Name the different kinds of teeth are as follows :
- (i) Incisors or Cutting Teeth
  - (ii) Canines or Tearing Teeth
  - (iii) Premolars or Cracking Teeth
  - (iv) Molars or Grinding Teeth.
2. Enamel, dentine, pulp.
  3. Microbes grow rapidly wherever they get food, warmth, moisture and air.
  4. Bacteria, viruses, protozoa and fungi.
  5. Following diseases are caused by microbes :
    - (i) Tuberculosis
    - (ii) Typhoid
    - (iii) Pneumonia
    - (iv) Polio
    - (v) Chickenpox
    - (vi) Flu
    - (vii) Dengue
    - (viii) Common Cold
    - (ix) Malaria
    - (x) Ringworm
    - (xi) Athlete's foot.
- E.** 1. Teeth make us look good, help us to speak clearly and help us to chew.
2. Premolars are used for crushing food and molars are used to grind food.
  3. Calcium and vitamin C are important for healthy teeth and gums. Foods like milk, cheese and cottage cheese are rich sources of calcium. So, these types of foods are good for our teeth.
  4. **Ways for Healthy Teeth**
    - (i) Brush the teeth every morning and every night before going to bed. Make sure that you move your brush upwards and downwards.
    - (ii) Use a dental floss to clean between two teeth.
    - (iii) Wash your mouth before and after each meal.
    - (iv) Do not have too many sweets or colas.
    - (v) Visit the dentist for regular checkups.
  5. Microbes are very tiny living things. They cannot be seen with naked eyes but seen only through a microscope. Malaria and dysentery are caused by protozoa.
  6. Some microbes are useful to us because :
    - (i) They produce vitamins in our body.
    - (ii) They change milk into curd.
    - (iii) They help in digestion of roughage in animals.
    - (iv) They help in the decaying of dead plants and animals.
- F.** Do it yourself.

G.



H. Do it yourself.

I. Do it yourself.

J. Do it yourself.

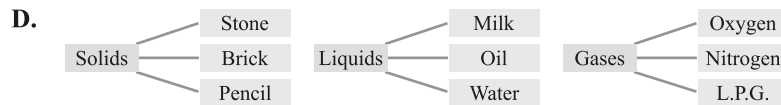
K. Do it yourself.

L. Do it yourself.

## 7. States of Matter

### Exercise

- A. 1. (b)    2. (a)    3. (c)    4. (b)  
 B. 1. Solids    2. Liquids    3. no shape    4. heating    5. Steam  
 C. 1. F    2. F    3. F    4. T    5. F



E. Do it yourself.

- F. 1. All the matter in the world is made up of molecules.  
 2. Molecules are the smallest substances in matter that can exist independently.  
 3. Ice.  
 4. Water is necessary for human survival.  
 5. Oxygen is used for breathing.
- G. 1. When air is filled into a balloon, it takes up all the space inside the balloon. We can pump more and more air into a football. It means more air can be filled into the same space. The smell of a perfume spreads quickly and fills the whole room.  
 This is so because the molecules in gases are very loosely packed and so, gases can flow easily.

Thus, gases

- (i) have no fixed shape;
  - (ii) have no fixed volume;
  - (iii) fill the space of the container; and
  - (iv) flow more easily than liquids.
2. Sugar is soluble in water but sand is not soluble in water.
  3. When sugar dissolves in water, the sugar molecules take up space between the water molecules. Thus, they do not occupy any extra space. Hence volume of solution does not change.

- |                           |                           |
|---------------------------|---------------------------|
| <b>H.</b> Do it yourself. | <b>I.</b> Do it yourself. |
| <b>J.</b> Do it yourself. | <b>K.</b> Do it yourself. |
| <b>L.</b> Do it yourself. | <b>M.</b> Do it yourself. |

## 8. Force, Work and Energy

### Exercise

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- A.** 1. (d)    2. (c)    3. (b)    4. (a)    5. (a)
- B.** 1. Elastic    2. Pulley    3. pedal    4. A screw
- C.** 1. Solar Energy, Atomic Energy, Geothermal Energy, Wind Energy, Hydro Energy.
2. Muscular Force is exerted by the muscles of our body.
  3. The force by which the earth pulls an object towards it is called gravitational force.
  4. In our daily life, we use some tools to do various works. Such tools are called simple machines.
  5. Lever, Pulley, Wheel and Axle, Screw, Wedge.
- D.** 1. Solar energy can be changed into heat energy, light energy and electrical energy.
2. An atom is the smallest particle of matter. Atomic energy comes from the splitting of an atom. Atomic energy is used for producing electricity but weapons like atom bombs, which can kill lakhs of people, have also been made and used. Atomic energy should be used for the welfare of mankind only.
  3. The earth's hot interior is another important source of energy. It is called geothermal energy.
  4. Simple machines helps us to :
    - (i) do our work faster and with less effort,
    - (ii) do work with less force, and
    - (iii) change the direction of force used.

5. (i) **Mixed grinder** : Electrical energy is changed to mechanical energy.

(ii) **Induction stove** : Electrical energy is changed to heat energy.

E. Do it yourself.

F. Do it yourself.

G.

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

H. Do it yourself.

I. Do it yourself.

J. Do it yourself.



## 9. Heavenly Bodies

### Exercise

A. 1. (d)      2. (b)      3. (d)      4. (d)      5. (b)

6. (c)

B. 1. star      2. planets      3. crust      4. revolution

C. 1. (b)      2. (f)      3. (d)      4. (e)      5. (c)

6. (a)

D. 1. Baisakhi, Pongal, Onam, Lohri and Bihu are linked to the seasons.

2. Equator.

3. The movement of the earth on its axis is called rotation.

E. 1. **Difference between Stars and Planet**

	Stars	Planets
1.	Stars have their own heat and light.	Planets do not have their own heat and light.
2.	Stars are huge in size compared to planet.	Planets are smaller in size compared to stars.

2. The sun and its family of eight planets, along with their satellites, revolving around it make up the solar system.
3. Satellites are small heavenly bodies that revolve around planets. The moon is a natural satellite of the earth.
4. Seasons are caused due to the earth's tilted axis and its revolution around the sun.

H.



I. Do it yourself.

J. Do it yourself.

K. Do it yourself.

L. Do it yourself.



## 10. Changes in Weather

### Exercise

- A. 1. (d)      2. (a)      3. (b)      4. (b)      5. (c)
- B. 1. sea breeze      2. land breeze      3. Fog
- C. 1. summer      2. cool      3. weather
4. snow      5. upwards      6. rotation
7. lighter
- D. 1. Weather is the condition of the atmosphere at a particular time, in terms of temperature, atmospheric pressure, wind and moisture. It can be hot, cold, windy, dry or humid.
2. Condensation is the process when water vapour cools down to change into drops of water.  
Evaporation is the process of changing of water into water vapour due to heating.

3. Insoluble impurities and soluble impurities are the two types of impurities in water.
  4. Chemicals like chlorine are used to kill germs at the waterworks in a city. This process of adding chlorine to water is called chlorination.
  5. The level of underground water in an area is called the water table.
- E.**
1. Land breeze is the breeze that blows from land to sea. At night, the land cools down faster while the sea cools down slower. So the sea is warmer than the land. The hot air above the sea rises and the cooler air from the land blows over to the sea to take its place.
  2. **Hail** : When raindrops pass through a very cold region of the atmosphere, they freeze to form hail.  
**Snow** : When water vapour is suddenly cooled, it freezes into tiny white snowflakes.
  3. The water purification methods are :
    - ◆ **Filtration** : In this process, water is made free from impurities using a filter.
    - ◆ **Boiling** : Boiling kills the germs present in the water and makes it safe for drinking.
    - ◆ **Sedimentation** : To separate insoluble impurities, let the water stand for some time. Impurities heavier than water will settle at the bottom of the water leaving it clear. This is called sedimentation.
- F.** Do it yourself.                      **G.** Do it yourself.  
**H.** Do it yourself.                      **I.** Do it yourself.  
**J.** Do it yourself.                      **K.** Do it yourself.  
**L.** Do it yourself.



## 11. Pollution and Its Prevention

### Exercise

- A.** 1. (c)      2. (c)      3. (b)      4. (c)      5. (c)
- B.** 1. harmful      2. smoke      3. flu
- C.** 1. Air, water, land      2. smoke      3. Plastic  
4. Wet, dry      5. pesticides, insecticides
- D.** 1. Land for building more houses and factories is made available by cutting down a large number of trees.  
2. Agricultural waste includes not only parts of plants but also weedicides and pesticides that are used to destroy weeds and pests.  
3. Typhoid and diarrhoea.  
4. Paper and rigid plastic products.



2. Simple actions on road will keep you safe :
  - (i) always walk on the footpath.
  - (ii) cross the road only at the zebra crossing. Look to your right, then to your left and then to your right again. Cross the road when the traffic stops.
  - (iii) do not rush. Start out in time.
3. If someone gets a minor cut, first wash it with water. Then apply an antiseptic lotion over it. If there is bleeding, try to stop it by tying a bandage. Dirt and flies should do not be allowed to sit on the wound as they may cause infection. Call a doctor immediately.
4. If the burn is minor, wash the burnt area with cold running water and put an ice pack on it. Then apply an antiseptic cream.
5. If someone bitten by an insect, apply a paste of baking soda and cold cream on the affected part to provide relief. Put some ice on the affected part.

F. Do it yourself.

G. Do it yourself.

H. Do it yourself.



## 13.

## Our Clothes

### Exercise

- A. 1. (b)      2. (d)      3. (a)      4. (a)
- B. 1. winter   2. linen    3. overalls   4. kimono
- C. 1. T        2. F        3. T        4. T        5. F
- D. 1. A fibre is a thin thread of a natural or artificial substance, especially one that is used to make cloths.
2. Synthetic fibres like nylon, rayon and polyester are prepared artificially. They are called man-made fabrics.
3. We wear socks and shoes to protect our feet from heat, cold, dust, germs and worms.
4. We can take care of our clothes in the following ways :
  - (i) We should always use a good quality soap and detergent.
  - (ii) We should wash, dry and iron the clothes properly.
  - (iii) Silk and woollen clothes should be washed in gentle soap.
  - (iv) A tear in a dress should be mended in time.
- E. 1. We need clothes because they protect our body from heat, dust, cold, rain and insect bites.
2. Natural fibres are obtained from parts of plants and animals while synthetic fibres are prepared artificially.



