

ICSE Science 4

1

Food We Eat

ANSWERS

CHECK POINT 1

1. (F) 2. (F) 3. (F) 4. (T) 5. (T) 6. (T)

CHECK POINT 2

1. (X) 3. (X) 4. (X)

PRACTICE TIME

A. 1. (T) 2. (F) 3. (T) 4. (F) 5. (F)

B. 1. (c) 2. (c) 3. (d) 4. (a)

C. 1. diseases 2. Glucose 3. protein 4. Diet 5. waste

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

E. 1. Digestive system helps in the digestion of food.

2. The components of food are called nutrients. They are carbohydrates, proteins, fats, vitamins and minerals.

3. Proteins are required for the growth of the body and to repair the damaged cells and tissues. Therefore, food containing proteins is called body-building food.

4. We should eat a balanced diet because it keeps us healthy.

5. Food from grain group, vegetable group and fruit group of food pyramid should be eaten in more amount.

6. Four ways to avoid food wastage are as follows:

(a) We should eat food in small proportions.

(b) The leftover food should be kept in refrigerator or distributed to the needy people.

(c) We should not buy or cook food more than required.

(d) We should use sealed food before their expiry date.

F.

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

Carbohydrate–Wheat

Fat–Oil

Protein–Fish

Vitamins–Apple

Roughage–Spinach

THINK ZONE

1. Glucose gives instant energy. Therefore, some patients are given glucose drip.
2. Fruits contain vitamins and minerals which help the body to fight against diseases.

The body of old and sick people becomes weak. It cannot fight against diseases. Therefore, to protect them from diseases, they are advised to eat more fruits.

2

The Teeth

ANSWERS

CHECK POINT 1

1. Milk teeth 2. Molars 3. Canines 4. 32 5. Premolars

CHECK POINT 2

1. (F) 2. (F) 3. (T) 4. (F)

PRACTICE TIME

A. 1. (T) 2. (F) 3. (T) 4. (T) 5. (F) 6. (F)

B. 1. (b) 2. (c) 3. (b) 4. (d)

C. 1. calcium 2. twice 3. dentist 4. milk 5. Premolars 6. Molars

D. 1. (c)–(4) 2. (d)–(2) 3. (a)–(4) 4. (b)–(6)

E. 1. The four types of teeth and their functions are as follows:

- (a) **Incisors or cutting teeth:** They bite and cut the food and shovel it inwards.
- (b) **Canines or tearing teeth:** They are used for tearing the food.
- (c) **Premolars or cracking teeth:** They are used for crushing the food.
- (d) **Molars or grinding teeth:** They grind the food.

2. The teeth which grow by the age of two and half years are called temporary teeth. They are 20 in numbers.

3. The part of a tooth below the gumline is called root. It fixes the tooth in the jaw.

4. Enamel is the hardest substance in our body.

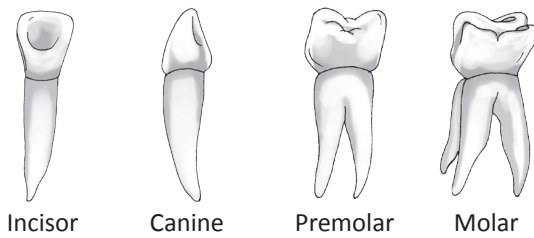
5. For healthy teeth, we should eat curd, cheese, milk, green leafy vegetables, gooseberries, carrot, sugarcane, etc.

6. We can keep our teeth healthy by following ways:

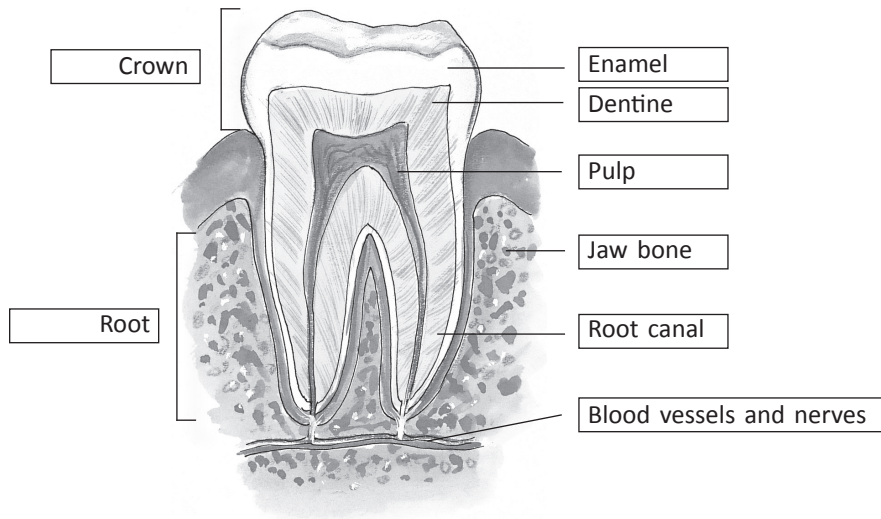
- (a) Brushing the teeth twice a day.
- (b) Rinsing mouth with clean water after every meal.
- (c) Avoiding sweets and sticky food and aerated drinks.
- (d) Eating food rich in vitamin C, calcium, phosphorus and fluorine.
- (e) Visiting a dentist once in six months for regular check up.

7. We should go to dentist once in six months to get our teeth checked-up. It helps to prevent cavities and mouth diseases by getting timely treatment.

8.



F.



THINK ZONE

1. Temporary teeth are also called milk teeth because when they start to grow, a child takes milk as its only diet.
2. Permanent teeth are never replaced by any other set of teeth after they grow. Therefore, they are called permanent teeth.

3

The Digestive and Excretory Systems

ANSWERS

CHECK POINT 1

1. Stomach
2. Saliva
3. digestive
4. large
5. Foodpipe
6. small

CHECK POINT 2

1. (X)
2. (✓)
3. (X)
4. (✓)

CHECK POINT 3

1. Balanced diet
2. Milk, fruit juice
3. Spinach, pumpkin
4. Junk food

PRACTICE TIME

A. 1. (T) 2. (F) 3. (T) 4. (F) 5. (T)

B. 1. (a) 2. (a) 3. (b) 4. (d)

C. 1. sweat

2. digestion

3. Stomach

4. Urinary

5. Water

D. 1. The process of changing food into simpler form to get energy is called digestion.

The digestive system of the body helps in digestion.

2. Salivary glands, liver and pancreas are the digestive glands.

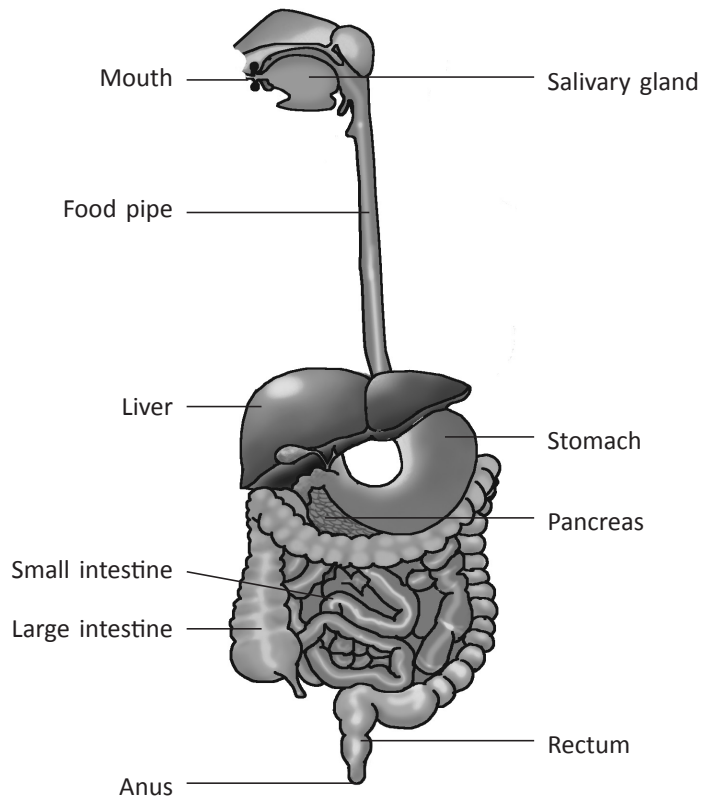
3. We should chew the food well because chewing helps in the digestion of food.

4. The large intestine absorbs water from the undigested part of food and changes it into faeces.

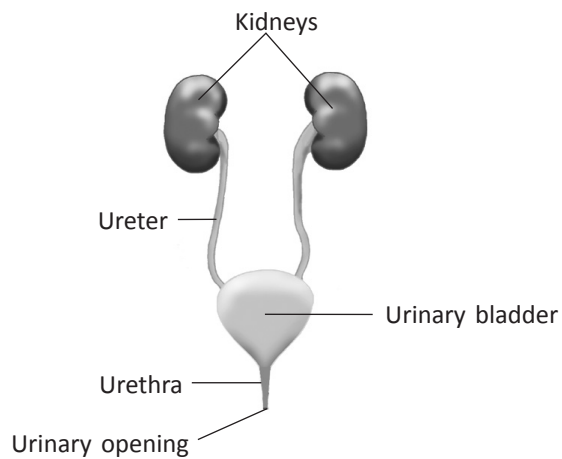
5. We should pass the stool out from the body daily because faeces kept in the body for long causes constipation.

6. Kidneys, ureters, urinary bladder and urethra are the excretory organs.

7.



8.



9. Following are the eating habits good for digestion and excretion:

- (a) Eating a balanced diet.
- (b) Eating fresh fruits and vegetables.
- (c) Chewing the food well before swallowing.
- (d) Eating more roughage.
- (e) Drinking 6–8 glasses of water daily.

E. 1. Stomach 2. Large intestine 3. Urinary bladder 4. Kidneys

F. 1. Mouth → Foodpipe → Stomach → Small intestine → Large intestine

2. Kidneys → Ureters → Urinary bladder → Urethra

THINK ZONE

1. Digestion of food starts from mouth because saliva contains digestive juice which starts digestion of carbohydrates present in food.
2. Excretion is necessary because waste materials formed in the body are toxic and if remain for long time in the body, may harm us.

4

Adaptations in Animals

ANSWERS

CHECK POINT 1

1. Tree 2. Snow 3. Water 4. Air 5. Desert 6. Air 7. Water 8. Land and water

CHECK POINT 2

1. (F) 2. (T) 3. (T) 4. (F) 5. (T) 6. (T)

PRACTICE TIME

A. 1. (F) 2. (F) 3. (T) 4. (F)

B. 1. (a) 2. (b) 3. (b) 4. (d)

C. 1. scales 2. fur 3. tail 4. webbed

D. 1. The special features in living beings which help them survive in their habitats are called adaptations.

2. Adaptations help animals to adjust and live in their environment successfully.

3. Hibernation is a state of some animals in which they hide themselves in warm places during winter and show very little body activities.

Frog and lizard are hibernating animals.

4. The plant-eating animals are called herbivores. Cow, deer, horse, donkey, etc. are herbivores.

5. Broad and padded feet of camels help them in walking and running on loose sand without sinking in it.

6. We can take good care of animals by feeding them with food and water and giving medical aid. We should take good care of their cleanliness and health.

E. 1. Duck 2. Squirrel 3. Camel 4. Snake

THINK ZONE

1. Tigers have strong legs to run fast for catching their prey during hunting.

2. Herbivores eat plant food. Their broad teeth help them in crushing and grinding plant parts such as leaves, twigs, etc.

5

Adaptations in Plants

ANSWERS

CHECK POINT 1

1. Terrestrial plants 2. Cones 3. Drip tip 4. Mangroves 5. Spines

CHECK POINT 2

1. Lotus 2. Water lily 3. Water hyacinth 4. Peepal

PRACTICE TIME

A. 1. (F) 2. (F) 3. (T) 4. (T) 5. (F)

B. 1. (c) 2. (a) 3. (a)

C. 1. mangrove 2. conifers 3. spines 4. submerged 5. aquatic

D. 1. Following adaptations are found in hill plants:

- (a) The plants growing on hills have shorter stems to avoid harsh wind.
- (b) They have needle-like leaves to save water.
- (c) They have conical shape.
- (d) They bear cones instead of flowers.

2. Plants growing in plains have following special features:

- (a) Plants growing in plains have a large number of leaves with stomata. This keeps them cool during summer by losing excess of water.
- (b) Their leaves have drip tips which help in draining off rainwater.
- (c) These plants shed their leaves in winter and grow new ones in spring.
- (d) These plants bear flowers.

3. Desert plants have following adaptations:

- (a) Desert plants store water in their fleshy stems.
- (b) In some desert plants, leaves change into spines and stem becomes green to carry out function of leaves.
- (c) They have long root system to get water from deep inside the ground.
- (d) They have a waxy coating on their leaves and stems to reduce water loss.

4. Mangrove plants grow in waterlogged soil which is deficient in air. Therefore, to get air, the roots of these plants come out of soil. These roots are called breathing roots.
 5. Aquatic plants are divided into following three groups:
 - (a) Free-floating aquatic plants: Water lettuce, duckweed, etc.
 - (b) Fixed-floating aquatic plants: Lotus, water lily, etc.
 - (c) Submerged aquatic plants: Tape grass, *Hydrilla*, etc.
 6. We can take care of plants by timely watering them, manuring them time-to-time and protecting them from insects, grazing animals, intense heat of the sun and from frost during winter.
- E. 1. SPONGY 2. CONE 3. MANGROVE 4. ADAPTATION 5. STOMATA
6. THORNS 7. CONIFERS**

THINK ZONE

1. In deserts, water is found deep under the ground. Therefore, to get water at such depth, desert plants have deep roots.
2. Pine grows on mountains in dry and cold climate. Therefore, to save water, it has needle-like leaves.
3. The waxy coating found on the leaves of aquatic plants saves them from rotting in water. Therefore, aquatic plants have a waxy coating on them.

6

Plants in Surroundings and Environment

ANSWERS

CHECK POINT 1

1. (T) 2. (F) 3. (F) 4. (T)

CHECK POINT 2

1. seeds 2. animals 3. carbon dioxide 4. soil

PRACTICE TIME

A. 1. (F) 2. (F) 3. (T) 4. (T) 5. (F)

B. 1. (a) 2. (b) 3. (c) 4. (b) 5. (c)

C. 1. tap, fibrous 2. leaf 3. fruit 4. seed 5. transpiration

D. 1. Root and shoot are the main parts of a plant. A shoot is formed of stem, leaves, flowers and fruits that contain seeds inside them.

2. A bunch of thread-like roots that grow from the base of the stem are called fibrous roots.

Grass and onion have fibrous roots.

3. A stem has following functions:

(a) Stem keeps the plant straight above the ground.

(b) It carries water from roots to all parts of the plant.

(c) It carries food made by leaves to all parts of the plant.

(d) In some plants, it stores food.

4. Stomata help in photosynthesis and respiration. The air enters and comes out of the leaf through stomata during these processes. They also help in transpiration by losing extra water through them.

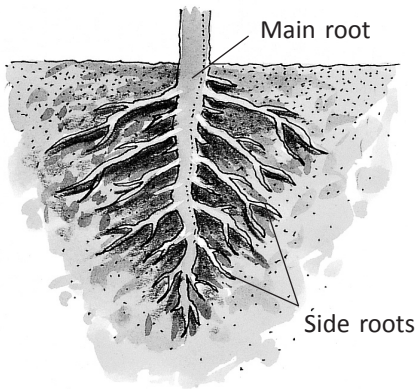
5. Seeds are found inside the fruits.

6. We eat roots, stems, leaves, flowers, fruits and seeds of plants as food.

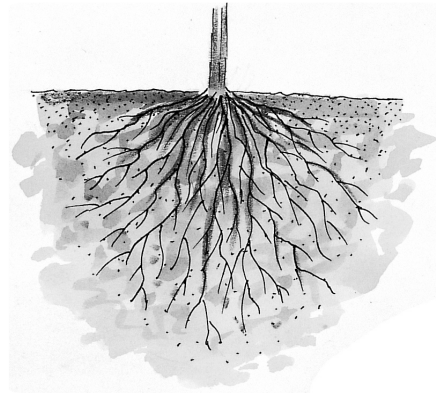
7. We get rubber from the latex of rubber tree.

8. Plants take carbon dioxide breathed out by animals for the process of photosynthesis. The dead animals become a part of the soil and make it rich in minerals. Plants use these minerals for their growth and life activities.

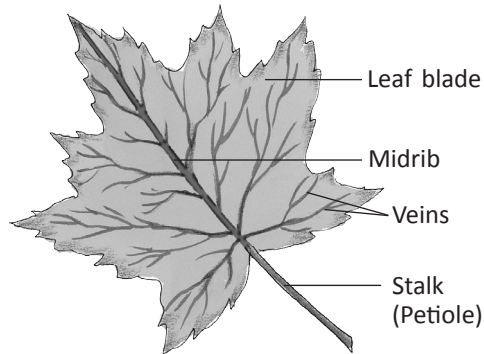
9. (a) Tap root



(b) Fibrous roots



(c) Leaf showing its different parts



E. 1. Leaf blade 2. Root 3. Fruit 4. Seed

F. 1. RICE 2. ROSE 3. EUCALYPTUS 4. POTATO 5. SUGARCANE 6. BAMBOO

THINK ZONE

1. A leaf is called the kitchen of plant because it prepares food for the plant by the process of photosynthesis.
2. Plants should not be kept in closed rooms because in closed rooms they will not get sunlight. In the absence of sunlight, they would not be able to make their food and will die ultimately.
3. Trees take carbon dioxide from air and give oxygen during the process of photosynthesis. Thus, they keep the air fresh and clean. They also cool the air by losing extra water through their stomata. Thus, we can say that trees are our natural air conditioners.

7

Air

ANSWERS

CHECK POINT 1

1. Matter 2. Molecules 3. Atmosphere 4. Solid 5. Heat

CHECK POINT 2

1. breathe 2. sunlight 3. taking in, giving out 4. inhalation 5. given out.

CHECK POINT 3

1. Tree 2. Water 3. Water vapour

PRACTICE TIME

A. 1. (F) 2. (F) 3. (F) 4. (T) 5. (T)

B. 1. (b) 2. (d) 3. (c) 4. (a)

C. 1. oxygen 2. evaporation 3. atoms 4. Gases 5. expands

D. 1. (e) 2. (a) 3. (b) 4. (f) 5. (d) 6. (c)

E. 1. Solid, liquid and gas are the three states of matter.

2. Air contains 78 per cent nitrogen, 21 per cent oxygen, 0.03 per cent carbon dioxide, some water vapour and other gases.

3. Air has following properties:

(a) Air has weight and occupies space.

(b) Air expands on heating.

(c) It has water vapour.

(d) It has no colour.

4. Five uses of air are as follows:

(a) All living things breathe in air.

(b) Moving air helps in drying clothes and wet surfaces.

(c) Air helps birds, helicopters, aeroplanes, kites, etc. in flying.

(d) Air helps in rotating the blades of windmills.

(e) Clouds reach different places by floating in air.

5. The mixing of harmful substances in the air is called air pollution.

Following are the main causes of air pollution:

- (a) Smoke coming out from factories, vehicles, aeroplane and by burning of coal, dung cakes, etc.
- (b) Dust in air by fast blowing wind over uncovered dry land and by mining and stone crushing activities.
- (c) Germs in air by coughing or sneezing of sick person and decaying of garbage in open places.

6. Deep breathing is good for health because it provides more oxygen and energy to the body.

F. 1. MASS 2. GAS 3. AIR 4. WIND 5. TREE

THINK ZONE

- 1. Plants take carbon dioxide from air and give out oxygen. This makes the air fresh. They also lose extra water in the form of water vapour through the stomata present on their leaves. This makes the air cool. Therefore, the air of forests is cool and fresh.
- 2. Factories release smoke containing harmful gases into the air. Breathing in such polluted air may cause many diseases of lungs and respiratory system. Therefore, factories are made away from cities and towns.

8

Materials and Solutions

ANSWERS

CHECK POINT 1

1. two-thirds
2. liquid
3. freezing
4. floats

CHECK POINT 2

1. Solvent
2. Soluble substance
3. Aqueous solution
4. Alcohol

PRACTICE TIME

A. 1. (T) 2. (T) 3. (F) 4. (T) 5. (F)

B. 1. (a) 2. (d) 3. (d) 4. (b)

C. 1. filtration 2. iodine 3. sedimentation, decantation 4. sink 5. Alcohol

D. 1. (a) Water is found in solid, liquid and gaseous states.

(b) Water changes its states easily by going from one state to another.

2. Substances which are heavier than water, sink in water. They are stone, sand, nail, coin, etc.
3. Oil, chalk, sand, dyes, pigments, paints, vitamins A, D, E and K, etc. are insoluble in water.
4. The process of changing water into water vapour is called evaporation. This process is used to obtain common salt from sea water.
5. The process of separating out insoluble impurities from a liquid by using a filter is called filtration. It is used to purify water for drinking purpose.
6. A solution made in water is called aqueous solution. Solution of salt or sugar in water, lemon water, etc. are examples of aqueous solutions.

E.

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

Substances soluble in water – Sugar, Salt, Milk, Air, Curd

Substances insoluble in water – Ghee, Sand, Wood, Mud, Oil

THINK ZONE

1. In dry cleaning, nonaqueous solvents are used for cleaning instead of water. Therefore, it is called dry cleaning.
2. Paints are insoluble in water but are soluble in nonaqueous solvents such as turpentine oil, kerosine, etc. Therefore, their stains are not removed by washing with water but by applying turpentine oil or kerosine on them.

9

Light

ANSWERS

CHECK POINT 1

1. Yes 2. Yes 3. Yes 4. No

CHECK POINT 2

1. straight 2. bends 3. opaque 4. shadow

PRACTICE TIME

A. 1. (F) 2. (T) 3. (T) 4. (F)

B. 1. (c) 2. (a) 3. (a) 4. (a)

C. 1. rainbow

2. straight

3. opaque

4. translucent

5. opposite

D. 1. Light is a form of energy which makes things visible to us.

2. The sun and the stars are the natural sources of light.

3. The objects which do not give light are called nonluminous objects. They are pen, pencil, table, chair, etc.

4. A shadow is a black figure of an opaque object formed when the object blocks the path of light.

5. When an opaque object blocks the path of light, the shadow of the object is formed.

6. The four properties of light are as follows:

(a) Light moves in a straight path.

(b) When light falls on a shiny or a smooth surface, it bounces back. It is called reflection of light.

(c) Light bends when it falls into water and glass.

(d) Light has seven colours.

7.

Transparent objects	Translucent objects	Opaque objects	Luminous objects	Nonluminous objects
Glass Water	Honey Butter paper	Sand Leaf Candle Brick Pebbles Wood	Candle Bulb	Sand, Leaf, Brick, Honey, Glass, Water, Pebbles, Butter, Butter paper, Wood

THINK ZONE

1. When light passes from water into air, it bends. Therefore, a coin kept in water looks nearer to us.
2. Only opaque objects make shadow because they can block the path of light, i.e., they do not allow light to pass through them. This forms a black spot of the object.

10

Measurement

ANSWERS

CHECK POINT 1

1. No 2. Yes 3. No 4. Yes

CHECK POINT 2

1. kilolitre 2. Weight 3. Thermometer 4. Capacity

PRACTICE TIME

A. 1. (F) 2. (T) 3. (F) 4. (T) 5. (T)

B. 1. (b) 2. (b) 3. (a)

C. 1. weight 2. hours 3. one 4. litre 5. unit

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

E. 1. Scale, inch tape and metre scale are used for measuring length.

2. We measure the time with the help of a clock.

3. The amount of a liquid that a container can hold is called its capacity.

4. The measure of hotness or coldness of a body is called its temperature.

F. 1. 1000 2. 1000 3. 365 4. 24

THINK ZONE

1. Thermometer; It is an instrument used to measure temperature while others are used to measure length.

2. Litre; It is a unit of capacity while others are units of time.

3. Kilometre; It is a unit of distance while others are units of weight.

Push and Pull

ANSWERS

CHECK POINT 1

1. Push 2. Pull 3. Pull 4. Pull 5. Pull

CHECK POINT 2

1. Muscular force 2. Gravity 3. Magnetic force 4. Frictional force

PRACTICE TIME

A. 1. (T) 2. (F) 3. (T) 4. (T)

B. 1. (c) 2. (b) 3. (b) 4. (d)

C. 1. pull 2. pushing 3. Iron 4. gravity 5. moving

- D. 1. A force is a pulling or a pushing action on an object. A force can change shape and direction of motion of an object.
2. We carry things, ride bicycle, play outdoor games such as football, cricket, etc. and move from one place to other by using muscular force.
3. The force with which the earth pulls everything towards it is called gravitational force.
4. The force with which a magnet attracts an object is called magnetic force. Cobalt, nickel and iron are magnetic materials.
5. A rolling ball stops after moving some distance due to frictional force caused by the ground on it.

THINK ZONE

1. Iron is a magnetic material but wood is not. Therefore, a magnet attracts an iron key but not a wooden bar.
2. A horse has more muscular power than a man. Therefore, a horse can carry more load than a man.

Friction as a Force

ANSWERS

CHECK POINT

1. L 2. M 3. L 4. M 5. L

PRACTICE TIME

A. 1. (T) 2. (F) 3. (F) 4. (T)

B. 1. (d) 2. (c) 3. (d) 4. (a)

C. 1. Friction 2. slows 3. less 4. Rough 5. useful

D. 1. Friction is a force which acts on moving objects and slows down their motion or stops them.

2. Following are examples where friction is useful:

(a) We are able to write because of the friction between the paper and the pen or pencil.

(b) We walk, run, jump, etc. without slipping because of friction between our feet and ground.

(c) Vehicles move on the road without skidding because of friction.

(d) We can hold things in our hands because of friction.

3. Rough surfaces have more friction. A sandy surface, concrete floor, pucca road and unpolished wooden surface are rough surfaces.

4. We can reduce noise in a machine by oiling its moving parts. It will reduce friction and help in smooth working of the machine.

5. Two-wheelers often skid on roads during rainy season due to reduced friction between the tyres of two-wheelers and the road.

6. Following are some harms caused due to friction:

(a) Wearing out of soles of shoes and tyres of vehicles.

(b) Noise in moving parts of a machine.

(c) Wear and tear of machine parts.

(d) Consumption of more fuel in vehicles.

THINK ZONE

1. The grooved design of tyres of vehicles increases friction between the road and tyres and helps vehicles to move smoothly.
2. The extra spikes on the soles of shoes of athletes provide tight grip on the ground due to more friction and prevent them from slipping.