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Table of Content

1. States of Matter	1
2. Matter and Materials	2
3. Properties of Matter	4
4. Force	7
5. Work	12
6. Energy	14
7. Plants	18
8. Plants Habitat	20
9. Reproduction in Plants	23
10. Nutrients	27
11. Food and Hygiene	33
12. Food Preservatives	38
13. Water	42
14. Water Cycle	50
15. Water Management	54
16. Science in Kitchen	57
17. Gadgets	61
18. Everyday Science	63
19. Air	64
20. Air we Breathe	66
21. Atmosphere	68
22. Human Body	72
23. Human Body - 2	76
24. Human Body - 3	82
25. Solar System	86
26. Domestic Animals	91
27. Life of Animals	95
28. Adaptation in Animals	98
29. Food Chain	104
30. Environment	108
31. Introduction to Computers	110
32. Computer: Input Devices	112
33. Computer System	114
34. Light	116
35. Sound	118

States of Matter

States of Matter

We can see a number of things around us. Everything we can see and touch is made up of matter. Anything that occupies space and has mass is called matter.

What is Mass?

Mass is a measure of how much matter is present in an object. The air we breathe, the food we take, and the water we drink, all have matter in them.

What is Volume?

The space occupied by an object is called its volume.

Three states of Matter

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

Solid has fixed shape and fixed volume. eg: pencil, bat, bag, apple, stone, book.

Liquid does not have fixed shape. It takes the shape of its container. eg: milk, honey, water, juice, oil, petrol.

Gas does not have fixed shape and volume. eg: cloud, smoke, gas cylinder (LPG), spray, water vapour, wind.

Multiple Choice Questions

- Volume is the _____ occupied by an object.
 - matter
 - weight
 - mass
 - space
- How many states of matter are there?
 - five
 - four
 - two
 - three
- Which of the following has volume but does not have shape?
 - gas
 - solid
 - liquid

4. Which of the following does not have volume and shape?

- solid
- liquid
- gas

5. The amount of matter present in an object is measured by _____.

- volume
- state of matter
- space
- mass

Classify the below as liquid and gas.

smoke, wind, cloud, honey, oil, water, water vapour, juice, spray, LPG

Liquid

Gas

True or False

- Gas has no mass.
- Everything we can see is made up of matter.
- Gas has no fixed volume.
- The space occupied by an object is called mass.
- Cloud is a form of gas.

Match the related ones.

space occupied	gas
total matter	solid
no volume	volume
drink	mass
fixed shape	liquid

Fill in the blanks using the words given at the bottom.

- _____ is a measure of how much matter is in an object.
- _____ is the space occupied by an object.
- _____ has no fixed shape but has fixed volume.

4. _____ is a gas.
 5. _____ has no fixed shape and no fixed volume.

Volume Smoke Mass Gas Liquid

Change in States of Matter

Matters change their state as the temperature changes. Solid changes to liquid and liquid changes into gas on heating. Gas becomes liquid and liquid becomes solid on cooling.

Melting

Change of solid into liquid on heating is called melting. For example, if ice (solid) is heated, it will change into water (liquid).

Evaporation

Change of liquid into vapour on heating is called Evaporation. For example, if water is heated, it will change into steam.

Freezing

Change of liquid into solid on cooling is known as freezing. For example, water (liquid) poured in ice-tray and placed in the freezer (fridge), gets cooled and becomes ice (solid).

Condensation

Change of gas into liquid on cooling is called condensation. For example; clouds (gas) on cooling condense and fall as rain (liquid)

Experiment

Take a balance. Keep an air filled football in one plate and an empty football in another plate. What happens?
 Air filled ball goes down. It is because air has mass.

Fill in the blanks using the words given at the bottom.

- _____ from ocean and rivers _____ and form clouds.
- Clouds are in _____ state. They get cooled by breeze and fall as _____ .
- If we put water in _____ , it becomes _____ .

ice freezer gas Water evaporate
 rain

Multiple Choice Questions

- Solid becomes _____ on heating.
 - gas
 - liquid
 - water vapour
 - water
- Change of solid into liquid on heating is called _____.
 - freezing
 - evaporation
 - melting
- Change of gas into liquid on cooling is called _____.
 - freezing
 - condensation
 - evaporation
- Water becomes _____ on heating.
 - atmosphere
 - cloud
 - water vapour
- Change of liquid into solid on cooling is called _____.
 - freezing
 - evaporation
 - melting

True or False

- When ice is heated, it becomes water.
- Change of gas into liquid on cooling is called condensation.
- Water is commonly available in gas form.
- Metals like gold, iron cannot be melted.
- Change of liquid to gas is called evaporation.

Fuel

Paper, firewood, dried leaves and charcoal can be burnt. Liquids like kerosene, petrol and diesel also burn on heating. Domestic gas burns and helps in cooking.

Substances when burnt give out heat. But in some substances, the heat released is very low. Thus, these are not used for heating purpose.

Substances that give out more heat while burning are used for heating purpose.

These substances are called fuels.

Electrical energy is also used as fuel for cooking and transporting.

Multiple Choice Questions

- Gas has _____.
 - volume
 - shape
 - mass
- _____ is used for heating and preparing food.
 - Gas
 - Paper
 - Fuel
- _____ energy is also used as fuel.
 - Glucose
 - Electrical
 - Magnetic
- _____ is the common fuel used in cars.
 - Petrol
 - Charcoal
 - Firewood
 - LPG
- _____ is the common fuel used in cooking.
 - Paper
 - LPG
 - Petrol
- LPG stands for _____.
 - Light Petrol Gas
 - Liquid Petroleum Gas
 - Liquid Petrol Gas

True or False

- Fuels are mainly used for cooking and transportation.
- Electrical energy cannot be used as fuel.
- Water does not catch fire.
- All solid matter can be used as a fuel.

- Domestic gas (LPG) helps in cooking.

Fill in the blanks using the words given at the bottom.

- Cars run on _____.
- _____ is used for cooking.
- Oven uses _____ energy.
- Substances that give lot of heat on burning is called _____.
- _____ is the liquid fuel commonly used for cooking.

Kerosene fuel electrical LPG petrol

Fill in the blanks using the words given at the bottom.

- Fuel gives _____ energy on burning.
- An example for solid is _____.
- An example for liquid is _____.
- Moving air in the atmosphere is called _____.
- The measure of matter in an object is called _____.

heat stone water wind mass

Match the related ones.

solid to liquid	freezing
water to vapour	melting
vapour to liquid	evaporation
liquid to solid	condensation

Matter and Materials

Materials

We can see lot of things around us. The matter from which a thing is made of is called material. For example: Chair is made of wood, Eraser is made of rubber, Candle is made of wax.

Properties of Materials

We can measure, see or feel the materials. Different types of material have different properties that make them useful for various purposes. Most materials have more than one property. They can be hard or soft, shiny or dull, smooth or rough and flexible or rigid.

Hard and Soft

Materials which cannot be easily compressed, cut, bent or scratched are called hard materials. eg: brick,

bone and steel.

Materials which can be easily compressed, cut, bent or scratched are called soft materials. eg: foam, clay and skin.

Shiny and Dull

Materials which reflect the light well are called shiny materials. eg: stainless steel, gold and diamond.

Materials which do not reflect the light well are called dull materials. eg: candle, paper and jute bag.

Rough and Smooth

Materials which have ups and downs on their surface are called rough materials. eg: brick, rock and tyre.

Materials which do not have ups and downs on their surface are called smooth materials. eg: mirror, silk cloth and tiles.

Flexible and Rigid

Materials which can be bent or stretched easily are known as flexible materials. eg: rubber band, electric wire and cycle tube.

Materials which cannot be bent or stretched easily are known as rigid materials. eg: stick, wooden scale and stone.

Waterproof Materials

Materials that do not allow water to pass through them are called Waterproof Materials. eg: raincoat and aluminium foil of tablet strip.

Classify the below as hard and soft materials.

cotton, wood, brick, bone, steel, clay, eraser, skin, foam

Hard

Soft

Classify the below as shiny and dull materials.

mirror, candle, paper, stainless steel, jute bag, gold, wood, diamond

Shiny

Dull

Classify the below as rough and smooth materials.

plate, silk cloth, tiles, rock, brick, tyre, mirror

Rough

Smooth

Classify the below as flexible and rigid materials.

rubber band, electric wire, cycle tube, stone, wooden scale, steel pipe

Flexible

Rigid

Match the related ones.

rough
smooth
shiny
soft
hard

gold
cotton
steel
tiles
rock

Match the related ones.

wood	bricks
paper	spoon
stainless steel	book
mud	jar
glass	chair

Match the related ones.

leather	table
wood	dress
rubber	candle
wax	tyre
cotton	shoe

Multiple Choice Questions

- Materials that can be bent are called _____.
a. rigid
b. hard
c. soft
d. flexible
- Which of the following is not a soft material?
a. cotton
b. skin
c. clay
d. mirror
- The materials that does not allow water to pass through are called _____ materials.
a. dry
b. waterproof
c. wet
d. hard
- Which of the following is called the natural source of light?
a. The Sun
b. Torch light
c. Electric light
d. The Moon

- Which of the following is not made of rubber?

- candle
- tyre
- eraser

True or False

- Aluminium foil of tablet strips are waterproof.
- Gold and diamond are examples of shiny material.
- Cycle tube is not flexible.
- Plastic scale is flexible but wooden scale is not flexible.
- Car tyres are smooth.

Pick the odd one out.

- brick, pine apple, silk cloth, coir
- stone, rubber band, cycle tube, electric wire
- pen, sun, candle, torch
- rain coat, jerkin, umbrella, sponge
- glass bottle, paper plate, wooden board

Light

We see the world around us with the help of light. Where do we get light from? Light may come either from the Sun or from other sources like an electric lamp or a bulb. The objects that give off light are called light sources.

Transparent, Translucent and Opaque objects

Transparent objects allow the light to pass through them. So, we can see things on the other side of the object. eg: air, glass and pure water.

Translucent objects allow some light to pass through them. So, we cannot see objects clearly, but we see them as blurred images through them. eg: paper soaked in oil, snow and vegetable oil.

Opaque objects do not allow light to pass through them. So, we cannot see through these objects. eg: wood, stone and metals.

Experiment

Material Required: torch light, mirror, dark room

Direct the torch light on the mirror. You can observe the light getting reflected and falling on some other part of the room. If we tilt the mirror, the position of the reflected light changes.

Classify the below sentences as true and false

1. All solids are opaque.
2. If we tilt the mirror, the direction of reflection does not change.
3. Transparent objects are invisible to human eyes.
4. Paper soaked in oil is translucent.
5. We see the world around us with the help of light.

Multiple Choice Questions

1. Which is not a source of light?
 - a. mirror
 - b. bulb
 - c. sun
2. The material that does not allow light to pass through are called _____.
 - a. translucent
 - b. transparent
 - c. opaque
3. Which of the following is not a transparent object?
 - a. air
 - b. pure water
 - c. glass
 - d. paper
4. Which of the following is not an opaque object?
 - a. stone
 - b. wood
 - c. metal
 - d. oil
5. Which of the following reflect light?
 - a. wood
 - b. air
 - c. glass
 - d. mirror

Match the related ones.

light source	metal
waterproof	glass
transparent	rain coat
translucent	Sun
opaque	vegetable oil

Fill in the blanks using the words given at the bottom.

1. We see the world around us with the help of _____ .
2. The objects that give off light are called light _____ .
3. Light usually get _____ from mirror.
4. Wood is _____ , but glass is _____ .

light sources reflected opaque
transparent

Matter and Materials

Matter and Materials

Our needs have increased in the modern days and we use number of things in our daily life. We get some of them from the nature and some other things are manufactured artificially. The things you use like pen, pencil, ink, eraser, note book, ball and the food you eat, all have different nature and characteristics. They are obtained by transforming the natural and artificial substances.

We know, matter can exist in three physical states: solid, liquid and gas. It is made up of molecules and the molecules are made up of atoms.

In solids, molecules are very closely arranged. Solids are incompressible. They have definite shape, size and volume.

In liquids, molecules are loosely packed. Hence, liquids are semi compressible. They have definite volume, but no definite shape and size.

In gases, molecules are very loosely packed. Hence, gases are highly compressible.

A material is a mixture of substances that constitute an object. They can be pure or impure, natural or man made. Materials are needed to get the things needed for our daily life. We need food, dress and many other goods for our daily living. Natural and man made

materials are transformed to produce these things.

Household Goods

These are the products that we use in our house permanently. The goods that are found in a house permanently are called household goods. Some household goods are: furniture, kitchenware, cloths, towels, beddings, boots and electronic goods.

Sinking and Floating

You could have seen that some objects float in water while others sink. Whether an object floats or sinks is determined by its density. When an object is immersed into a liquid, the liquid exerts an upward force on the object. It is known as upthrust. What happens if you put a coin and an empty water bottle in water? The weight of the coin is greater than the upthrust and so the coin sinks. But weight of the empty water bottle is less and so it floats.

Solubility in Water

Some substances completely dissolve in water. We say that these substances are soluble in water. Other substances do not dissolve in water even after we stir for long time. These substances are insoluble in water.

Experiment

Take a small cup of water and add a small amount of salt. Stir it with a spoon. Check whether salt is soluble in water. Repeat the same experiment with sugar, saw dust and sand.

Mixing of liquids

Certain liquids are heavier (dense) than other liquids. When you attempt to mix liquids which have different densities they separate when you stop mixing them.

The heavier liquid deposits at the bottom and the lighter liquid floats on the top. For example, oil and water do not mix together.

Multiple Choice Questions

- The things like pen, pencil, ink, eraser are _____.
 - both manmade and natural
 - natural
 - manmade
- Matters are made up of _____.
 - molecules
 - mass
 - volume
 - space
- Which of the following is not soluble in water?
 - sugar
 - sand
 - salt
- Gas is _____.
 - not compressible.
 - highly compressible
 - slightly compressible
- Molecules are made up of _____.
 - solid
 - liquid
 - other molecules
 - atoms
- The things that are permanently present in our house are called _____.
 - permanent goods
 - essential goods
 - household goods
- Which of the following is not an essential goods?
 - house
 - dress
 - food
 - television

True or False

- In gases, molecules are loosely packed.
- Liquids are highly compressible.
- Manmade goods are also known as artificial goods.
- All solids sink in water.
- Every things we use are manmade.

Classify the below.

coin, iron balls, cotton, water bottle, paper

Sinking

Floating

Fill in the blanks using the words given at the bottom.

1. Furniture is a _____ goods.
2. All matter are made up of _____ .
3. Molecules are made up of _____ .
4. Salt is _____ in water, but sand is _____ in water.

insoluble molecules household atoms
soluble

Match the related ones.

sugar	compressible
saw dust	manmade
gas	insoluble
kitchenware	soluble
pen	household goods

Fibres

Fibre is a thin thread of natural or artificial substances. It is used to make cloths with the help of powerlooms or weaving machines.

The fibres we get from plants and animals are called natural fibres. Cotton, jute, coir, flax, hemp are examples for plant fibres. Wool and silk are examples for animal fibres.

Fibres made by humans by chemical synthesis are called synthetic fibres or artificial fibre. Rayon, nylon, acrylic and dacron are examples for artificial fibres. These fibres are obtained from petroleum by complex chemical processes.

Cotton

A cotton plant is a bushy plant of 5 to 6 feet high.

Cotton grows well in black soil and alluvial soil. The cotton plant bears a large number of small green pods called cotton balls. These balls contain seeds covered with white fibres. When the cotton balls mature, they burst exposing the white fibre of cotton. Cotton is usually hand picked from the plants.

Ginning

The raw fibres are separated from the seeds by a process known as Ginning. The fibrous material left after separating cotton seeds is called lint. The lint is then tied and pressed into balls. Short fibres and other impurities are removed by the process of combing.

Spinning

The process of making yarn from lint (fibre) is called spinning. Spinning is done on a large scale with the help of spinning machines.

Yarn to fabrics

Weaving and knitting are the two most important processes used for making fabric from the yarn. The process of making two sets of yarns together to make fabric is called weaving. It is done by weavers on a machine called loom. The looms are either hand-operated (hand looms) or power-operated. During knitting a single yarn is used to make a piece of fabric. It is done by hand and also on machine.

Uses of cotton

1. It is used for making dhotis, sarees, bedsheets, table cloth and other textiles and garments.
2. It is used as fillers in pillows and mattresses.
3. It used for making surgical bandages.

Jute

Jute fibre is obtained from the stem of the jute plant. Jute plant has long, soft and shiny fibres. It is also referred to as the golden fibre due to its colour and cost effectiveness. Jute fibres are separated from the process of retting jute by hand and then they are dried. These are converted into yarns in the same manner as cotton.

Uses of Jute

1. It is used for making bags, carpets, curtains and ropes.
2. It is used for making sacks for storing grains.
3. It is used for making wall hangings for decoration.

Coir

Coir fibre is obtained from the outer covering of coconut. It is used to make floor mats, door mats, brushes and mattresses.

Synthetic Fibres

These fibres are made by human beings with the help of chemical process. They are also called as manmade fibre. These fibres are obtained from coal, petroleum and natural gas.

Uses of synthetic fibres

1. Rayon is used to make rope, cloth, cap, tyre cords and carpets.
2. Nylon is used to make fishing nets, ropes, parachutes, fabrics and bristles for brushes.
3. Polyester is used to make fabric for suits and shirts, hoses, conveyer belts, films, PET bottles and wires.
4. Acrylic is used to make sweaters, shawls and blankets.

Multiple Choice Questions

1. Ginning is the process of _____.
 - a. separating seeds from cotton
 - b. making yarn
 - c. removing impurities
2. Floor mats are usually made up of _____.
 - a. cotton
 - b. coir
 - c. jute
3. Jute is extracted from the ____ of the plant.
 - a. stem
 - b. fruit
 - c. root
 - d. flower

4. Coir is extracted from ____.

- a. banana tree
- b. cashewnut
- c. banyan tree
- d. coconut

5. Fishing nets are usually made up of ____.

- a. polyester
- b. cotton
- c. nylon
- d. coir

6. Pick the correct order in the manufacturing process of cotton fabric.

- a. Combing, Spinning, Weaving, Ginning
- b. Ginning, Combing, Spinning, Weaving
- c. Spinning, Combing, Ginning, Weaving

Fill in the blanks using the words given at the bottom.

1. Cotton grows well in _____ soil. The process of separating seeds is called _____. Short fibres and other impurities are removed by the process of _____. The process of making yarn is called _____. Two sets of yarns are linked together through the process of _____.

combing weaving black spinning
ginning

Classify the below.

nylon, silk, cotton, coir, rayon, jute, acrylic, wool, polyester

Natural

Artificial

True or False

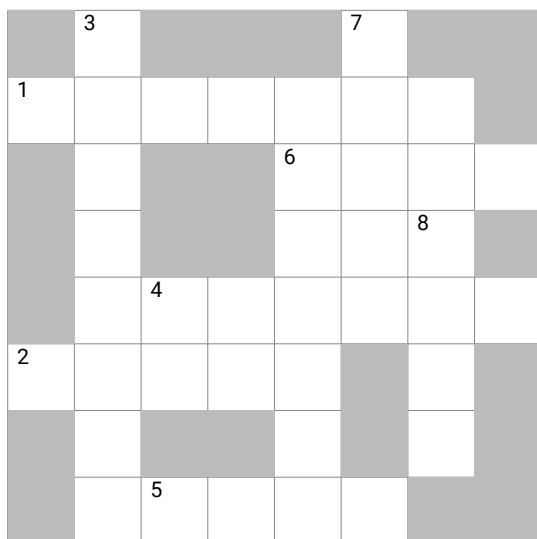
1. Wool and silk are examples of animal fibres.
2. Nylon is used in making shirts.
3. Sacks used to store grains are made from jute.
4. Coir is used in preparing surgical bandages.

5. Water bottles are made from polyester.

Match the related ones.

Coir	Bags
Jute	Parachutes
Cotton	PET bottles
Polyester	Brushes
Nylon	Sarees

Crossword



Across

- 1 : Salt is _____ in water. (7)
 2 : Sacks used to store grains are made of _____. (4)
 4 : It is considered as a soft fabric. (6)
 5 : The thread we get from fibre. (4)
 6 : It is used to measure the amount to matter (4)

Down

- 3 : Matters are made up of _____. (8)
 6 : Everything is made up of _____. (6)
 7 : cotton comes from a _____. (5)
 8 : The fibre extracted from coconut. (4)

Grains

Grain is a small, hard, dry seed. Each grain is protected by a husk. Two main types of commercial grain crops are cereals and legumes. Wheat, maize, rice, beans, peas, barely and millets are some of the whole grains.

Wheat

This is the most important crop in the world. Wheat is rich in fibre, vitamins and minerals. Some of the

common wheat products are bread, cake and pasta.

Maize

In many tropical and sub tropical countries (Mexico and America) maize is the main food that people eat. It is also rich source of many vitamins and minerals. Corn syrup is used as a sweetener instead of sugar in many products.

Rice

Rice is a type of grass. Ninety percent of the world's rice production is in Asia. White rice contains few essential nutrients. Brown rice is a whole grain that contains the fibrous bran. Brown rice is usually considered much healthier than white rice.

Millets

Millets are a group of small seeded grasses. They are widely grown around the world as cereal crops for fodder and human food. It helps in weight loss. It is rich in fibre. Some of the millet products are sorghum, fox tail millet, finger millet, pearl millet, Barnyard millet.

Multiple Choice Questions

- Bread and cake are usually made from _____.
 a. wheat
 b. maize
 c. rice
 d. millets
- The common grain that grows in Mexico is _____.
 a. maize
 b. rice
 c. barely
 d. wheat
- _____ syrup is used as a sweetener.
 a. Corn
 b. Wheat
 c. Rice
 d. Millet

4. _____ are commonly used as fodder for cattles.

- Corn
- Wheat
- Rice
- Millets

5. Rice is majorly produced in _____.

- Africa
- Australia
- Asia
- Europe

6. Another name for maize is _____.

- brown rice
- fibre
- corn

True or False

- Rice is grown a type of grass.
- Maize is commonly used as fodder for cattles.
- White rice is healthier than brown rice.
- Millets are a group of small seeded grasses.
- Grains are protected by husk.

Find the given words from the table.

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

CROP, CEREAL, LEGUME, MILLET, GRAIN, WHEAT, RICE,
CORN, HUSK, MAIZE, BARELY, FODDER

Fill in the blanks using the words given at the bottom.

1. Grain is a small, hard, dry _____ and they are protected by a _____. Two main types of commercial grain crops are cereals and _____.

2. Some of the common wheat products are bread, _____ and pasta.

3. In many _____ countries, maize is the main food that people eat.

seed cake husk tropical legumes

Force

Force: Push and Pull

In everyday life, we push or pull things to move them. A push or pull is called force. This force helps us to do many things. It can make an object move. It can stop a moving object. It can change the shape of an object, change the speed of the moving object and change the size of the object. There are different types of forces that act on a body.

When you throw a ball up, no matter how high it goes, it is sure to come down. This is because of gravitational force. This force attracts objects to the center of the earth.

When two objects touch each other, a special type of force develops between them. This special force is called friction. Friction slows down movements. When friction is very less, things move easily. When friction is more, it becomes difficult to move things. A wet floor is slippery because there is very little friction. Friction makes it possible for you to write. You cannot hold a pencil in your hand without friction. It would slip out from your hands. The pencil cannot make a mark on the paper without friction.

Fill in the blanks using the words given at the bottom.

1. We push or _____ things to _____ them. A push or pull is called _____.

2. Force can change the _____ of an object.

3. Friction slows down _____. A wet floor is slippery because there is very little _____.

pull move movements force shape
friction

Multiple Choice Questions

1. _____ helps to pull big and heavy things?
 - a. engine
 - b. computer
 - c. television

2. Kicking a ball is an example of a _____.
 - a. speed
 - b. pull
 - c. push

3. A ball is pushed to the top of a hill. When it rolls down, it will _____.
 - a. go faster
 - b. stop
 - c. go slower

4. Picking up a ball is an example of _____.
 - a. pull
 - b. push
 - c. stretch

5. When I _____, I move it away from me.
 - a. kick a ball
 - b. pull a chair

6. A push or pull cannot change an object's _____.
 - a. direction
 - b. weight
 - c. shape

Drag and drop: Classify push and pull.

lifting weights, pedaling cycle, switching on light, putting on gloves, kicking a ball

Push

Pull

Types of Force

At a broad level, force can be classified into contact and non-contact forces.

Contact Force

When a force is applied by touching the object, it is called contact force.

eg: lighting a match stick, throwing a ball.

Non-Contact Force

When a force is applied without touching the object, it is called non-contact force.

Eg: Vacuum cleaner, magnet, gravitation

Muscular Force

The force applied by using parts of our body is called muscular force.

We use our legs to pedal our bicycle. We use our hands to make some model from clay.

Mechanical Force

The force applied by a machine is called mechanical force.

Eg: Using bulldozer to dig ground. Grinding using a mixer grinder.

Gravitational Force

The Earth pulls all the objects towards itself. The force applied by the Earth to pull objects towards itself is called gravitational force.

Magnetic Force

A magnet is a material that attracts things made of iron. The force that attracts things is called magnetic force.

Frictional Force

When we roll down a ball on grass ground, it slows down and finally stops. We know that an object cannot stop without force. The force that stopped the ball is frictional force. Force exerted by the surface when an object moves over it is called Frictional force.

When we use eraser on a paper, the shape of the eraser changes. It is because of the friction between the eraser and the paper.

Friction is a force between two surfaces in contact or when they slide over one another.

Early man accidentally discovered fire by rubbing two flint stones together. The frictional force between two stones created a spark.

If you put your palm together and rub them against each other. You can feel the heat on your palm.

Multiple Choice Questions

- Lighting a match is an example of
 - frictional force
 - magnetic force
 - gravitational force
- Dried leaves from the tree fall to the ground because of
 - frictional force
 - gravitational force
 - mechanical force
- The electric fan rotates because of
 - mechanical force
 - muscular force
 - gravitational force
- We travel on a bicycle using
 - muscular force
 - mechanical force
 - a force
- The shape of the eraser changes because of
 - mechanical force
 - gravitational force
 - frictional force

True or False

- We don't need force to stop a moving body.
- Gravitation is a pull force.
- Gravitation is a contact force.
- Magnet attracts things that are made up of iron and plastic.
- Magnetic force is a non-contact force.
- To ride a bicycle, we use muscular force.
- Magnetic force is always a push force.

Drag and drop in the right boxes.

mechanical, vaccum cleaner, muscular, frictional, kicking a ball, gravitation, magnet

Contact Force

Non-Contact Force

Select the word with the correct spelling.

- accidant, accident, acidant
- sarface, surface, sarfase, surfase
- different, differant, diferant, diferent
- movment, movement
- slipary, slipery, slippery, slippy
- classified, clasified, classifeid
- gravitation, gravetation, gravitetion
- muscular, mascular, musculer, masculer
- mechanicel, machanicel, machanical, mechanical
- eraser, erasor, erasar

Fill in the blanks using the words given at the bottom.

- A _____ is needed to make a stationary object move.
- The force applied with the help of muscle is called _____ force.
- The reason for the fruits to fall from the tree is _____.
- Force changes the speed and _____.
- Magnets attracts things made of _____.
- Early humans discovered fire by rubbing _____ stones.

force muscular flint gravitation
direction iron

Work

Work

An action in which one exerts a force to move an object is known as work. Force is applied to do some work.

When can we say that work is done or not? Two main

conditions are needed for work to be done.

1. A force should act on an object.
2. Object should move from one place to another.

When the force acting on the object makes it move it is said to be done a work.

Mention whether work is done or not in the following activity.

1. Throwing a ball up
2. Sleeping on bed
3. Holding a doll
4. Pushing the door
5. Sitting in a bus
6. Moving a trolley in a supermarket
7. Pushing a wall
8. Riding a bicycle
9. Digging soil
10. Walking to school

Energy

A man pulls a luggage. To do so he needs some energy. But from where he gets the energy. Food gives energy to humans. A car moves by the energy obtained from the burning of fuel. The fuel used in car is usually petrol. The escalator moves by using electricity as energy.

Energy is defined as capacity for doing work. Energy must be transferred to an object in order to do work.

Renewable Energy

Renewable sources of energy are replaced naturally over a period of time. We can keep using these sources for a long period of time. Since the beginning of human life, we have been using these resources. We use these resources for light, transport, cooking, heating. eg: sun, wind and water.

The resources which are not easily replaced once used are called the non-renewable resources. eg: petrol, coal and natural gas

Law of conservation

The law of conservation of energy states that energy can neither be created nor be destroyed. It can be converted from one form to another. The SI unit of energy is joule. It is named after James Joule who

explained about energy.

Multiple Choice Questions

1. Which of the following is not a source of renewable energy?

- a. solar
- b. wind
- c. water
- d. natural gas

2. If the object does not move on apply of force, then the work done is _____.

- a. zero
- b. very small
- c. cannot be measured

3. What is required to move an object?

- a. Force
- b. Work
- c. Machine
- d. Energy

4. What does law of conservation of energy say?

- a. Energy can neither be created nor be destroyed.
- b. We get tired after doing lot of work.
- c. We need to apply force to do work.

5. What is the SI unit of energy?

- a. Joule
- b. Newton
- c. Force
- d. Push

Classify the below.

natural gas, petrol, solar, coal, wind, water

Renewable Source

Non Renewable Source

Fill in the blanks using the words given at the bottom.

1. Energy is defined as _____ for doing work.

Energy must be _____ to an object in order to do work.

2. Renewable sources of energy are _____ naturally over a period of time.

3. The escalator moves by using _____ as energy.

capacity transferred electricity replaced

Simple Machine

In our daily life our effort is saved with the help of some simple machines.

We draw water from the well with the help of a wheel and a rope.

Simple machines are tools which are used to make our work easier. Some examples for simple machines are pulley, wedge, inclined plane, screw, lever, wheel and axle.

A pulley is a machine made up of a wheel with a cut around it. A rope or chain passes around the pulley. It rotates in the direction with more force. eg: crane, well.

An inclined plane is a flat sloping surface with one end higher than another. eg: ramp, slide and slope for wheel chair.

A wedge is a tool with a sharp edge which can be used to split materials. It is used to break wooden logs into two pieces. eg: knife, scissors and axe.

The screw is used to raise weights and to hold objects together. eg: pencil sharpener, screw-jack, bottle cap and windmill.

The screw in the bottle cap holds the cap and the bottle together. The blade and sharpner are held together by screw.

Wheel and axle consist of a wheel attached to a small rod so that these two parts rotate together. eg: bicycle wheel, door knob, grinder, axle wheel.

Simple machines usually exchange a smaller force to move a heavy object. The work required is the same, but the force required is less.

Lever

A lever is used to multiply the force we give on an object. eg: see saw, nut cracker and plier.

To understand the lever, we must know the following terms.

1. Load is the object on which the force is applied.

2. Effort is the force we apply on the lever.

3. Fulcrum is the point on which the lever rotates.

Lever is classified into three types according to where the load and effort are located with respect to fulcrum.

Class I lever

When the fulcrum is between the effort and the load, it is known as Class I lever. eg: scissors, pliers, seesaw.

Class II lever

When the load is between the effort and the fulcrum, it is known as Class II lever. eg: wheel barrow, lemon squeezer, nut cracker

Class III lever

In this lever, the effort is between the load and the fulcrum. eg: stapler, tongs, broom stick, hockey stick.

Multiple Choice Questions

1. We draw water from the well with the help of ____.

- a. inclined plane
- b. wedge
- c. pulley

2. Which of the following can be considered as an example for wedge?

- a. Wheel
- b. Screw
- c. Axe

3. Which of the following is not an inclined plane?

- a. Slope
- b. Ramp
- c. Wheel
- d. Slide

4. A lever is used to _____ the force we give on an object.

- a. multiply
- b. add
- c. subtract
- d. divide

5. Which of the following is not a function of a screw?

- To hold objects together
- To raise weight
- To move up the slope

6. How many types of lever are there?

- Five
- Three
- Two
- Four

7. Which is not a part of lever?

- Axle
- Effort
- Load
- Fulcrum

Classify the below as Class I or II lever.

scissors, pliers, bottle opener, seesaw, leman squeezer, nut cracker

Class I Lever

Class II Lever

Match the related ones.

- | | |
|----------------|-------------|
| Class 1 | Axe |
| Class 2 | Stapler |
| Class 3 | Nut cracker |
| Inclined plane | Seesaw |
| Wedge | Ramp |

Match the related ones.

- | | |
|----------------|----------------|
| Class 1 | Hockey stick |
| Class 2 | Slide |
| Class 3 | Knife |
| Inclined plane | Lemon squeezer |
| Wedge | Scissors |

Fill in the blanks using the words given at the bottom.

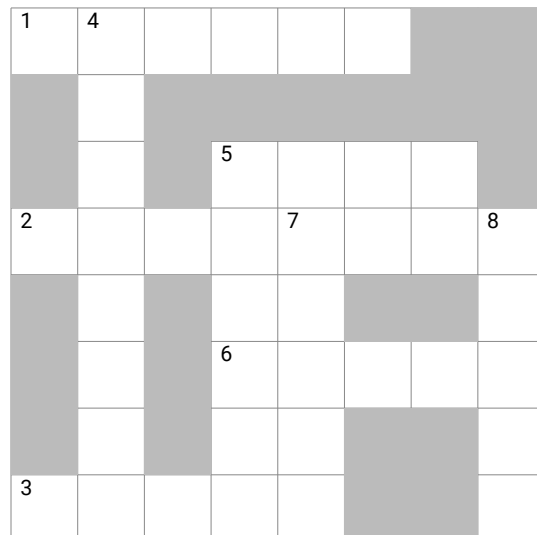
- _____ is cassified into three types.
- _____ is the object on which the force is applied.
- _____ is the force we apply on the lever.
- _____ is the point on which the lever rotates.
- _____ machines usually exchange a smaller force to move a heavy object.

Lever Fulcrum Load Simple Effort

True or False

- Seesaw is an example of Class III lever.
- Nut Cracker is an example of Class II lever.
- Scissors is an example of Class I lever.
- Stapler is an example of Class III lever.
- Broom stick is an example of Class II lever.

Crossword



Across

- The force we apply on the lever (6)
- You can find it in a sharpener and it holds the blade. (5)
- A vehicle primarily used to raise weight using pulley (5)
- In a lever, _____ is the object on which the force is applied. (4)
- A wedge has a sharp _____. (4)
- It happens when we apply force to move objects (4)

Down

- The point around which the lever rotates (7)
- A simple machine that multiplies the force we apply. (5)
- A type of simple machine. Axe belongs to this

category. (5)

8 : A type of wedge commonly used in kitchen (5)

Energy

Energy – Introduction

We do many activities in our daily life. We do physical work to do many of these activities. For example, you do physical work to brush your teeth, take a bath, or walk to school carrying your school bag. You are able to do these activities because you have energy. You get energy from the food you eat. Sometimes we use machines or devices to do our work. Instead of washing clothes by hand, we may use a washing machine. But how do these machines get energy to do their work? We have never seen them eating! They use different forms of energy to do their work. Some of them are:

1. Mechanical energy
2. Wind energy
3. Heat energy
4. Light energy
5. Electrical energy
6. Chemical energy

Mechanical energy

This is the energy of an object due to its motion and position. Mechanical energy is of two types. When an object moves, it has kinetic energy. For example, the tennis ball hit by a player has kinetic energy when it is moving. An object can also have mechanical energy when it is at rest! This form of energy is called potential energy. A stone in a stretched catapult has potential energy.

Wind energy

Have you played with a fan made of paper or palm leaves? The blades of the fan rotate due to the energy given by the wind. This wind energy can also rotate the blades of large fans called wind mills to produce electricity.

Heat energy

This is the energy of an object when its atoms and molecules begin to vibrate very fast and collide with each other. Sun is the primary source of heat energy. We

can also give heat energy to an object by friction or chemical reactions. For example, when you rub your hands together for some time, you feel the energy produced as heat due to friction between the hands. The chemical reaction of petrol or diesel produces heat energy which can be used to run vehicles.

Light energy

Did you know that light is a form of energy? Light consists of tiny particles called photons. Each photon is a very small packet of energy! Light can travel really fast at 3,00,000 kilometres in a second. We see things around us when light energy from those things reach our eyes. Plants need light energy to make their food. We can also use light energy from the sun to produce electricity by using solar panels.

Electrical energy

We know that all things are made up of atoms. Each atom has even smaller particles called protons, neutrons and electrons. When electrons in an object move in a certain direction, they produce electrical energy. This form of energy can be produced by different sources such as the sun, wind, water, and fossil fuels. We use electrical energy for the working of fan, lamps, television, washing machine, computer and refrigerator. Modern cars and trains also run on electrical energy.

Chemical energy

When two or more chemical substances react with each other, they release chemical energy. An example is the battery in your phone or laptop. The battery contains a number of chemical substances that react with each other to produce chemical energy. This energy is stored as electrical energy in the battery.

Match the machines with the type of energy it has on the right side.

Windmill	Chemical
Solar panel	Heat
Water in dam	Wind
Battery	Light
Rocket	Potential
Diesel engine	Kinetic

Classify the below example as kinetic or potential energy.

1. A yoyo ready to be released
2. Stretched rubber band
3. A moving vehicle on the road
4. Stone in a stretched catapult
5. Running a 100 meter race
6. Child at the top of a slide
7. Water stored in a dam
8. A rocket moving upward
9. Driving a nail on the wall
10. The rotating blades of a windmill

Fill in the blanks.

1. To do work, we need _____ (energy, machine, battery).
2. Heat energy can be produced by _____ (friction, wind, photons).
3. Potential energy of an object is due to its _____ (position, movement, chemical reaction).
4. A solar panel uses _____ (light, heat, electrical) energy to produce electricity.
5. A battery gives energy in the form of _____ (electrical, light, heat) energy.

Classify the below items as a type of energy or not.

time, heat, weight, chemical, potential, bridge, tree, light, wind, pollution

Energy

Not an Energy

Multiple Choice Questions

1. We need energy to do our work. We get energy from
 - a. the music we hear
 - b. the food we eat
 - c. the games we play
2. Moving object has _____.
 - a. kinetic energy
 - b. electrical energy
 - c. potential energy
3. Which of the following is not a mechanical energy?
 - a. kinetic energy
 - b. chemical energy
 - c. potential energy
4. Windmills are usually build in the places where there is _____.
 - a. lot of wind blowing,
 - b. lot of rain,
 - c. no wind, as windmill may fall down due to the wind.
5. A stone in a stretched catapult has _____.
 - a. kinetic energy
 - b. wind energy
 - c. potential energy
6. Which of the following are true statements?
 - a. Energy can neither be created not be destroyed.
 - b. We can convert one form of energy into another.
 - c. Petrol has chemical energy which is used to run vehicles.

True or False

1. Energy can neither be created nor be destroyed.
2. Water stored in dams possesses potential energy.
3. Electric lamp converts electrical energy into heat energy.
4. Ceiling fan converts electrical energy into mechanical energy.
5. We can produce energy without the help of any objects.

Fill in the blanks using the words given at the bottom.

1. Mobiles and laptops run on _____ energy.
2. Wind mills convert _____ energy of winds into electrical energy.
3. Moving body can be brought to rest using _____ energy.
4. Photosynthesis changes solar energy into _____ energy.
5. Iron box converts electrical energy into _____ energy.

electrical kinetic heat mechanical
chemical

Plants

Plants-Notes

Plants are an important part of nature. Plants need good soil, water and sunlight. The main parts of the plant are root, stem, leaf, flower, vegetable and fruit. Plants gives us food, fresh air, medicine, wood etc.

Leaf

It is usually green in colour. Leaves are of different shapes and sizes. Leaves have a life cycle on its own. A new leaf would be soft and small. It grows in size. And finally it will dry and fall to the ground. Leaves are food to animals like goat, cow and deer. We too eat some of the leaves. Though they are not tasty, they are healthy.

Flower

Many kids feel that flowers are the most attractive part of a plant. Flowers are of different shapes and colours. Some flowers smell nicely. We can see butterflies and bees sitting on flowers and drinking honey.

Vegetable & Fruit

In most of the plants, flowers become vegetables and fruits. They provide food to humans like us, and they are very healthy.

Seed

Seeds are very important to plant, because they help in bringing new plants. Farmers sow the seeds to grow plants. Birds eat the fruits and throw the seeds in some

other places. And after few days, a new plant will come from the seeds.

Stem

Stem is the strongest part of a plant. It helps the plant to stand straight. Plants with weak stems are usually creepers. They need support to grow.

Root

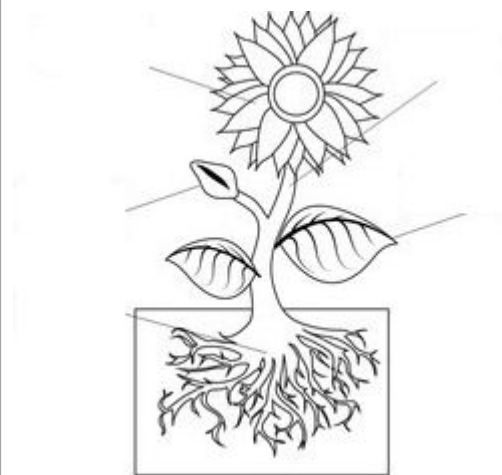
Root is responsible for absorbing water and other minerals from the soil. The strength of the plant depends on the strength of the roots. Plants with weak roots fell during rain and heavy winds.

Find the jumbled words

1. A T N P L :
2. M E T S :
3. R E W O L F :
4. U D B :
5. T O O R :
6. U F T R I :
7. E E T R :
8. A F E L :
9. L I S O :
10. R T A W E :

Parts of Plant

roots, stem, leaves, flower, bud



Fill in the blanks using the words given at the bottom.

1. The _____ absorbs water from the soil and helps to hold the plant in the soil.
2. The _____ uses the sun and air to make food for the plant.

3. The _____ helps the plant to stand straight.
 4. The _____ makes the seeds and fruits.
 5. All plants start as a _____ .
- root leaf stem flower seed

Identify whether the below things grow above or below ground.

grapes, rose, garlic, cabbage, mango, carrot, coconut, potato, onion, beetroot

Above ground

Below ground

Food and Parts of the plant

carrot	flower
cauliflower	root
orange	seed
spinach	fruit
peas	leaf

Match the flowers with its usual colour

Jasmine	Red
Sunflower	Orange
Hibiscus	Pink
Lotus	White
Marigold	Yellow

Multiple Choice Questions

1. Which part of the plant carries seeds?
 - a. Bud
 - b. Fruit
 - c. Leaf
2. Which is the sour fruit?
 - a. Watermelon
 - b. Banana
 - c. Lemon

3. Which vegetable is long?

- a. snake gourd
- b. bitter gourd
- c. carrot

4. Which fruit has one seed?

- a. Papaya
- b. Apple
- c. Mango

5. _____ are plants which have weak stems and cannot stand straight on their own.

- a. shrubs
- b. creepers
- c. herbs

6. Trees are the house to animals like _____

- a. tigers
- b. giraffes
- c. monkeys

7. Bees sit on a flower _____.

- a. to take rest
- b. for water
- c. for honey

8. Plants need _____ for their growth

- a. wind
- b. sun light
- c. moon light

9. Which of the following is a fruit?

- a. brinjal
- b. onion
- c. tomato

10. Which of the following is a stem?

- a. sugarcane
- b. drumstick
- c. snake gourd

True or False

1. All flowers become fruits.
2. Humans can eat some kind of leaves.
3. Plants can move from one place to another.

4. Roots help plants to get water.
5. It is a good habit to pluck flowers from public garden.

Fill in the blanks using the words given at the bottom.

1. _____ is the most attractive part of a plant.
2. _____ helps in growing new plant.
3. _____ helps the plant to stand straight.
4. _____ helps the plant to get water.
5. _____ is the important edible part of a plant.

Root Stem Seed Fruit Flower

Word Search

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

plant, flower, leaf, fruit, soil, water, seed, stem, bud, root

Plants as Food

Humans and other animals often use plants as food. Plants we eat are edible. Edible parts of some plants include leaves, stems and roots. We also eat fruits produced by plants.

Roots as food

Many plants store excess food in their roots. They have thick and swollen roots. Eg: Carrot, Beetroot, Tapioca

Stems as food

In some plants the stem stores the excess food in it. Eg: sugarcane, potato, onion, ginger. Though some of

them grow underground, they are not roots.

Leaves as food

We eat the leaves of plants like cabbage, coriander, moringa.

Flowers as food

Many flowers are used as food. Eg: banana flower, Cauliflower, clove.

Seeds as food.

Grains are seeds. Pulses, cereals, fenugreek are the commonly eaten seeds.

Roots

Root is a part of the plant that usually grows under the soil. Roots can be of different shapes and sizes. They are of two main types: taproot and fibrous root.

Taproot

Taproot has one main, thick root. It grows from the radicle and goes deep into the soil. Many small thin roots grow out from the main root. Plants such as carrot, beetroot, turnip, mango and neem have taproots.

Fibrous Root

A fibrous root consists of many thin roots of different sizes. They grow from the base of the stem and all of them are bunched together. They do not go deep into the soil. Plants such as grass, paddy, wheat and onion have fibrous roots. Coconut and palm tree have fibrous root.

In some plants, roots store food. Eg: Carrot, Beetroot, Radish

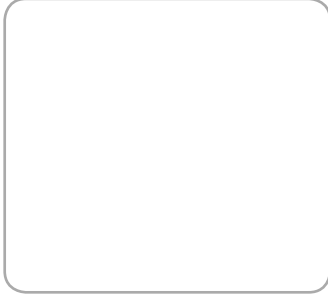
Classify the below sentences as true and false

1. Neem and mango trees have tap root.
2. Palm and coconut trees have fibrous root.
3. Taproot usually grow very deep.
4. Fibrous root has one main root.
5. Grass has fibrous root.
6. All trees have tap root.

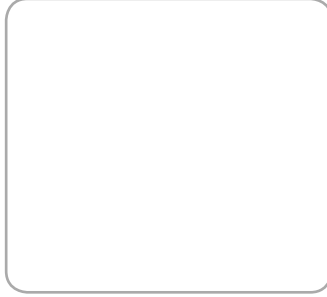
Tap root vs Fibrous root

Beetroot, Neem, Mango, Paddy, Palm, Banyan, Carrot, Grass, Coconut, Wheat

Tap root



Fibrous root



Stem

Stem is the main part of the shoot system. It grows towards the sunlight. It looks green when it is young. Branches, leaves, buds, flowers and fruits grow from the stem.

Herbs such as coriander and mint have a thin and weak stem. Trees such as peepal and banyan have very strong and thick stem called trunk. As trees grow older, their trunks grow wider.

Functions of the Stem

1. It supports the whole plant.
2. It transports food from leaf and water from root to various parts of the plant.
3. Some stems store excess food in them. E.g., Potato, Onion.

Fill in the blanks using the words given at the bottom.

1. Stem is the main part of the _____ system. It grows towards the _____. Herbs like coriander have a _____ stem. Banyan tree has a _____ stem and it is called _____.

strong sunlight weak trunk shoot

Fruits and Seeds

Fruit is the fleshy part of the plant. The fruits are developed from the flowers. Most fruits have seeds. Some fruits have only one seed. Eg: Apricot, Mango, Coconut, Peach.

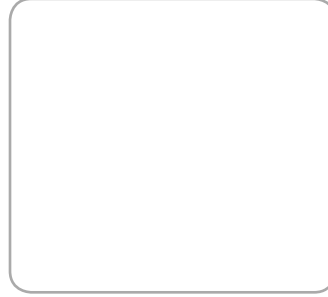
Some fruits have many seeds. Eg: Papaya, Watermelon, Orange

Some fruits are seedless. Eg: Pineapple, Banana

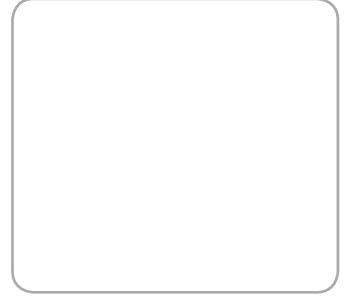
Single vs Multiple Seeds

Watermelon, Apple, Papaya, Date, Orange, Cherry, Coconut, Mango

Single Seed



Multiple Seeds



Multiple Choice Questions

1. Which of the following fruits do not have seeds?
 - a. Apricot
 - b. Papaya
 - c. Pineapple
2. Which of the following is not part of shoot system?
 - a. Seed
 - b. Root
 - c. Flower
 - d. Stem
3. Which of the following doesn't have fibrous root?
 - a. Grass
 - b. Wheat
 - c. Paddy
 - d. Radish
4. Which fruit has exactly one seed?
 - a. Cherry
 - b. Apple
 - c. Banana
 - d. Orange
5. Which part of the plant supports the whole plant?
 - a. Stem
 - b. Fruit
 - c. Branch
 - d. Leaf

Plants Habitat

Habitat

Plants grow almost everywhere on the Earth. They grow both in land and water. The plants adapt to their surroundings and hence have special characteristics based on their habitat. The natural home of a plant is called its habitat. Plants make suitable adjustment with their surroundings to meet their requirements. This is known as adaptation.

Terrestrial Plants

The plants that grow on the land are called terrestrial plants. Land forms can be further divided into desert, plain, mountain and forest.

Desert Plants

These plants grow in hot, dry and sandy places. Deserts get very less rainfall and experience high temperature. Hence, there is scarcity of water.

1. Leaves are changed to spines to reduce the loss of water.
2. The stem is green and fleshy. They store water and produce food.
3. These plants have a long root that goes deep into the soil.
4. Eg: Catcus, Opuntia, Date Palm and Aloe vera

Plants on Mountain

These plants grow in cold and freezing places.

1. These trees are conical in shape. This shape allows snow to slide from the trees easily.
2. Needle like leaves help them to survive in cold conditions like snow.
3. These trees do not shed leaves.
4. They have cones instead of flowers. These cones protect the seeds during harsh winter. Eg: Pine tree, Redwood tree

Plants in Plains

Plants in plains need to adapt to both dry conditions and extreme temperatures.

1. They grow in warmer climate and usually shed their leaves in winter to protect themselves from cold.
2. They have flat and broad leaves.
3. They have thick and woody stem. Eg: Mango, Banyan, Teak.

Do you know?

Banyan, Peepal and Tamarind trees live more than hundred years.

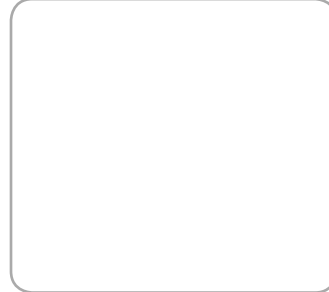
Plants in Coastal Areas

1. They are tall and mostly straight.
2. The leaves are called frond.
3. The frond look like feathers meant for protection from wind.
4. These plants are tolerant to saline (salt) water. E.g., Coconut tree, Casuarina

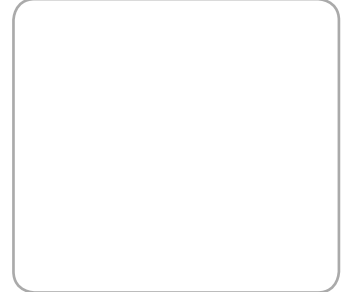
Desert vs Plain

Aloe Vera, Banyan, Cactus, Date Palm, Mango, Teak

Desert



Plain

True or False

1. Banyan tree can live for more than 100 years.
2. Plants in coastal areas are tolerant to saline water.
3. Teak is an example of desert plant.
4. Mountains are much colder than plains.
5. Banana tree can live for more than 100 years.
6. Trees in cold places do not shed leaves in autumn.
7. A desert plant can easily survive in a mountain.

Aquatic Plants

The plants that grow in water bodies like pond, lake and sea are called water plants or aquatic plants. They are classified into three types.

Free floating plants

These are found on the surface of the water. They freely float with the help of spongy body filled with air. They have poorly developed roots. Eg: Water hyacinth, Pistia.

Fixed rooted plants

These plants have root that are fixed in the bottom of the water bodies. These plants have air tubes in their stem to help them float. Their leaves are broad and coated with wax to make them water proof. Eg: Water lily, Lotus.

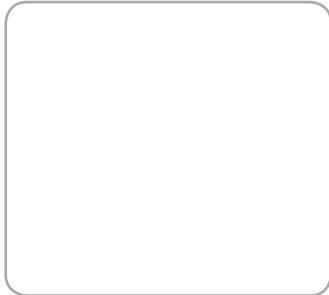
Submerged plants

These plants are completely submerged in the water. Their stem is thin and leaves are very small. There is no opening on the leaf surface. They breathe through stem. Eg: Vallisneria, Hydrilla.

Terrestrial vs Aquatic

Tulip, Rose, Water Hyacinth, Papaya, Pistia, Pineapple, Hydrilla, Tulsi, Vallisneria, Lotus, Water Lily

Terrestrial



Aquatic



Multiple Choice Questions

- The plants that grow in water bodies like ponds and lakes are called ____ plants.
 - aquatic
 - terrestrial
 - coastal
- Plants make suitable adjustment with their surroundings to meet their requirements. It is known as _____.
 - adaptation
 - habitat
 - photosynthesis
- Trees like teak, banyan and mango usually grow in _____.
 - mountains
 - coastal areas
 - deserts
 - plains

- Which habitat has varying climate?
 - Mountain
 - Plain
 - Coastal
 - Desert
- Which habitat gets strong winds?
 - Plain
 - Mountain
 - Coastal
 - Desert
- Which aquatic plant breathe through stem?
 - Submerged plants
 - Free floating plants
 - fixed rooted plants

Click the blanks and fill it with the right word.

- Mountain plants have _____ (cones, cylinders) instead of flowers. Their needle like leaves help them to survive in ____ (cold, hot, rainy) condition.
- Banyan tree can live for more than ____ (100, 1000) years.
- The trees in _____ (plains, deserts, mountains) shed their leaves once in a year.
- Potato is a food stored in the ____ (stem, root) of the plant.
- The trees in cold regions are _____ (conical, spherical, cylindrical) in shape. This shape allows snow to ____ (slide, stay).
- The free floating plants have a ____ (spongy, rigid, rough) body filled with _____ (air, water, minerals).
- In fixed rooted plants, the leaves are ____ (broad, narrow) and coated with ____ (wax, gum, paste) to make them water proof.

Fill in the blanks using the words given at the bottom.

- Plants _____ to their surroundings and hence have special characteristics based on their _____.
 - Deserts get very less _____ and experience high _____. Hence, there is _____ of water.
- adapt habitat rainfall temperature scarcity

1. The leaves of coastal areas are called _____ and they protect from _____. These plants can grow in _____ condition.

2. Usually the trees in plains have _____ leaves and _____ stem.

thick broad saline wind frond

1. _____ is an example of free floating plant. They have poorly developed _____.

2. _____ is an example of fixed rooted plant. They have a long _____.

3. _____ is an example of submerged plants. They _____ through stem.

breathe Lotus root Pistia stem
Hydrilla

Match plants with their habitat.

Desert	Teak
Mountain	Cactus
Plain	Coconut
Coastal	Lotus
Aquatic	Pine

Plain	Date Palm
Coastal	Redwood Tree
Aquatic	Casuarina
Desert	Neem
Mountain	Pistia

Submerged in water	Water hyacinth
Fixed rooted	Pine
floating plant	Lotus
Needle like leaves	Aloe vera
Desert	Hydrilla

Parts of a Leaf

Leaves are of different shapes and sizes and have different parts.

The broad flat part of the leaf is called blade. The tip of the leaf is called apex. The midrib runs along the center of the leaf. Veins branch out from the midrib. They are the framework of hollow tubes that carry water and

minerals. Petiole joins the leaf to the main stem.

Stomata are tiny openings or pores mostly found at the base of the leaves. Air enters and leaves the plant through these openings. Stomata helps the plants to breathe. Stomata are used to exchange gases.

Parts of a Leaf

apex, veins, midrib, blade, petiole



Fill in the blanks using the words given at the bottom.

1. The broad flat part of the leaf is called _____. The tip of the leaf is called _____. The _____ runs along the center of the leaf. From the midrib we can see lot of branches called _____. They are the framework of hollow tubes that carry water and _____. The leaf is joint to the main stem through _____.

veins blade petiole apex midrib
minerals

Exotic Plants

The plants that are growing outside its native area either purposefully or accidentally are called exotic plants.

Most of these plants are brought to new areas for decoration purposes.

Eg: Crotons, Fern, Cycas, Travelers palm, Boat lily, Aloe vera

Food Factory

Plants produce their own food with the help of chlorophyll, a pigment present in leaves. Humans and animals depend on plants for their food either directly or indirectly.

Most of the plants are able to make their own food through a process called photosynthesis. 'Photo' means 'light'. 'synthesis' means 'to make'.

Photosynthesis is a process by which plants make their food using chlorophyll, water, carbon dioxide in the presence of sunlight.

Water is absorbed by the roots and is passed to the leaves through the tubes. Carbon dioxide in the air passes through small pores in the leaves.

A green pigment in the leaves help them to trap sunlight. This pigment is called chlorophyll. Most leaves are green in colour because of this green pigment.

Through photosynthesis plants produce the food and release oxygen into the air.

As plants prepare food for themselves and also for other living things, they are called primary producers.

Without primary producers, living things that are not capable of producing their own food and will not be able to live.

Plants like cactus do not have leaves. Their food is made in their green stems.

Click the blanks and fill it with the right word.

- Plants are called _____ (primary, secondary) producers.
- 'Photo' means _____ (light, sound, water).
- Plants like cactus do not have _____ (leaf, stem, root).
- _____ (Petiole, Apex) joins the leaf to the main stem.
- In cactus plant, food is made by green _____ (stem, leaf).
- _____ (Stomata, Petiole) are tiny openings or pores mostly found at the _____ (base, top, corner) of the leaves.

Multiple Choice Questions

- Leaves are green in color due to _____.
 - chlorophyll
 - photosynthesis
 - sunlight
- What is one of the effects of photosynthesis?
 - Oxygen is converted to nitrogen.
 - Oxygen is converted to carbon-dioxide.
 - Carbon-dioxide is converted to oxygen.
- What will be the effect if there are no plants on the Earth?
 - Only meat eating animals will live.
 - Animal life will be very difficult.
 - Animal life doesn't exist.
- Which of the following is not an ingredients in photosynthesis?
 - nitrogen
 - water
 - sunlight
 - carbon-dioxide
- When does photosynthesis happen?
 - Only in the evening.
 - Both day and night.
 - Only during day time.
 - Only during night.

Match the Following

green pigment	photosynthesis
plants	chlorophyll
food preparation	plants breathe
stomata	apex
tip of leaf	primary producers

Non-Green Plants

Plant that lacks chlorophyll pigment and looks not green are called non-green plants. They cannot prepare their food. These plants depend on other organism for their food and living place.

Eg: mushroom, bread moulds, bracket fungi

Reproduction in Plants

Reproduction in Plants

Reproduction is the process by which new individuals of the same species are produced. Both plants and animals reproduce. There are two kinds of reproduction that take place in plants. They are sexual reproduction and asexual reproduction. In asexual reproduction, new plants are produced from roots, leaves, stems and buds. In sexual reproduction, new plants emerge from seeds.

Flower

Flower is the reproductive part of a plant. Flowers have four important parts. They are:

Sepal

It is the outer part of the flower. Usually it is small and green in colour. It protects the bud in the early stage.

Petal

It is often colourful and it attracts the insects.

Androecium

It is the male reproductive part of the flower. It is composed of stamens. Each stamen consists of a stalk called filament and a small bag like structure called anther at the tip. The pollen grains are produced in the anther within the pollen sacs.

Gynoecium

It is a female part of the flower. It has three parts. They are: ovary, style and stigma. The ovary contains the ovules.

The flowers which contain either androecium or gynoecium are called unisexual flowers. Eg: corn, papaya, cucumber. The flowers which contain both androecium and gynoecium are called bisexual flowers. Eg: mustard, rose.

To attract the pollinators (insects) flowers are bright in colour and produce smell. Plants which are pollinated by the honey bees and butterflies have sweet scents and bigger colourful petals. Eg: sunflower, pumpkin. Pigments present in petals give them different colours.

Plants which are pollinated by the moth and bats release their fragrance mostly at night and have

colourless petals. Eg: mango, banana, guava, jasmine etc.

Pollination

The transfer of pollen grains from the anther to stigma of a flower is called pollination. Pollination is the first important event in the development of fruit and seed. Pollination is followed by fertilization. Two types of pollination take place in the flowering plants. They are self pollination and cross pollination.

The transfer of pollen grains from the anther of a flower to the stigma of the same flower is called self pollination. The transfer of pollen grains of a flower to the stigma of another flower of a different plant of the same species is called cross pollination.

In self pollination, seeds produce weak plants and new varieties of plants cannot be produced. In cross pollination, seeds produce good plants and new varieties of plants can be produced. Pollination takes place through different agents.

Pollination by Wind

The flowers pollinated by wind are mostly small in size and do not have any attractive colour, smell and nectar. The pollen grains are non-sticky, dry, light and powdery. Hence, they are easily carried by the wind. Eg: grass, maize, pine.

Pollination by Water

The flowers of water plants are not colourful and they have no nectar. Pollen grains of these plants have mucilaginous covering to protect them from getting wet. They float in water and reach the other plant. Eg: vallisneria, hydrilla

Pollination by Insects

This is the most common type of pollination in plants like sunflower, ladies finger, brinjal and pumpkin. Some flowers are large in size and they have sweet smell. Some of these flowers produce nectar. They attract insects like butterflies and honey bees.

Fertilization

The process of fusion of male (pollen grains) and female (stigma) gametes is called fertilization. The cell

which results after fusion of the gametes is called a zygote. The zygote develops into an embryo.

Fruits and Seed formation

After fertilization, the ovary grows into a fruit and other parts of the flower fall off. The seeds develop from the ovules. The seed contains an embryo enclosed in a protective seed coat.

Fill in the blanks using the words given at the bottom.

1. New plants coming from seed is _____ reproduction. New plants coming from roots is _____ reproduction.
2. _____ is usually green in color.
3. _____ is often colorful and it attracts the insects.
4. _____ is the male reproductive part of the flower.
5. _____ is the female reproductive part of the flower.

Petal Sepal asexual sexual
Androecium Gynoecium

1. _____ has unisexual flower.
2. _____ has bisexual flower.
3. _____ present in petals give them different colours.
4. _____ is the transfer of pollen grains from the anther to stigma.
5. In self pollination, seeds produce _____ plants and in cross pollination, seeds produce _____ plants.

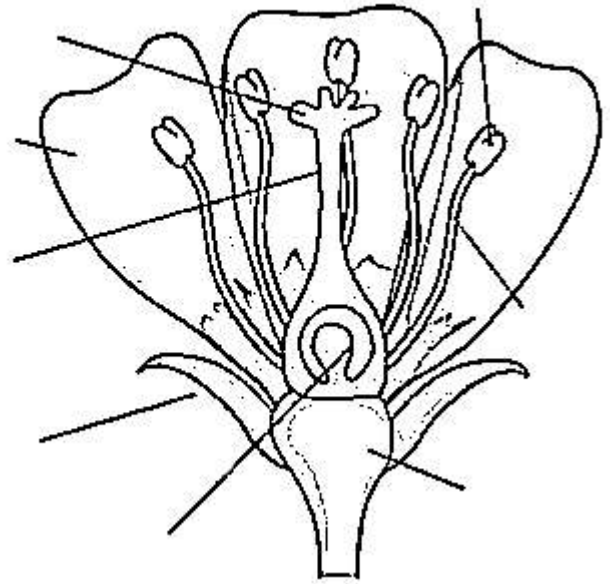
Pigment Pollination weak Rose
Papaya good

1. The process of _____ of male (pollen grains) and female (stigma) gametes is called fertilization. The cell which results after fusion of the _____ is called a _____.
2. After fertilization, the _____ grows into a fruit and other parts of the flower fall off. The seeds develop from the _____. The seed contains an _____ enclosed in a protective seed coat.

zygote gametes ovary embryo
fusion ovules

Parts of a Flower

petal, stigma, style, sepal, ovary, receptacle, anther, filament



True or False

1. Not every living things reproduce.
2. The process of fusion of male and female gametes is called fertilization.
3. Pollination can happen both at day and night.
4. Gynoecium is the male part of the flower.
5. Insects are known as pollinators.

Multiple Choice Questions

1. Pollination cannot happen by _____.
a. sunlight
b. insects
c. wind
d. water
2. Which of the following is usually not pollinated by insects?
a. grass
b. brinjal
c. sunflower
d. ladies finger

3. Which of the following has a protective coat?

- a. Seed
- b. Sepal
- c. Petal

4. After fertilization, the ovary grows into a ____.

- a. fruit
- b. leaf
- c. seed

5. Which of the following is usually green in color?

- a. Petal
- b. Pollen grains
- c. Filament
- d. Sepal

Life Cycle of a Flowering Plant

The major stages of the flowering plants are the germination of seed, growth, flowering, re-production (pollination), seed formation and seed spreading. Every seed has minute plant called the embryo. Under favourable conditions like sunlight, water and soil, embryo is grown up into a new plant. This new plant bears fruits with seeds and multiplies. This cycle continues forming the life cycle of flowering plants.

Dispersal of Seeds

Spreading of seeds from one place to another with the help of agents like air, water, animals and birds is known as dispersal of seeds. A single plant produces a large number of seeds. If all these seeds fall directly below the parent plant, the seedlings would have to compete for space, water, oxygen, minerals and sun light. When the seedlings are grouped together in one place, they can easily be destroyed by grazing animals. But, by nature the seeds and fruits of plants are distributed far and wide through various agencies.

Dispersal by Wind

The seeds which are smaller, lighter and tiny float in air over long distance. Some of them proceed with hairs and membranous wing like structures and so they are carried away easily. Eg: cotton seed, drumstick

Dispersal by Water

Fruits which are dispersed by water have outer coats modified to enable them to float. The mesocarp (middle layer) of coconut is fibrous and is easily carried away by water. They reach different places and grow into a new plant. Eg: lotus, coconut

Dispersal by Animals

Some fruits have hooks, spines, bristles, stiff hair etc, on their outer coat. These fruits stick on the furry coats or skins of some animals and are carried from one place to another.

Dispersal by Birds

While eating fruits like tomato and guava, birds eat seeds also along with the edible portion and they are passed out in the excreta later. These types of seeds are protected from the digestive juices by their seed coat.

Self Dispersal Method

Some fruits disperse their seeds in the wind through an explosive mechanism and spread them. Eg: ladies finger, balsam

Note: Man is also responsible for the dispersal of many fruits and seeds. Useful plants like cinchona, rubber and eucalyptus have been successfully introduced by man, to the new surroundings far away from their original habitat.

Germination of Seeds

The seed is a fertilized ovule. It consists of embryo, food materials which are protected by the seed coat. During favourable conditions, the seed germinates and gives rise to a new seedling. During the early stages of germination, the seedlings get the food required for its growth from the cotyledons. After the food stored in the cotyledons has been used up, the seedling gets its food from the soil. The seedling absorbs water and nutrients from the soil with the help of its roots. It develops leaves and grows into a plant.

Fill in the blanks using the words given at the bottom.

1. Every seed has minute plant called the _____. Under _____ conditions like sunlight, water and _____, embryo is grown up into a new plant. This new plant bears fruits with seeds and _____. This

cycle continues forming the life cycle of _____ plants.

embryo multiplies favourable soil
flowering

1. The seed is a fertilized _____. It consists of _____, food materials which are protected by the seed coat. During _____ conditions, the seed _____ and gives rise to a new _____. During the early stages of germination, the seedlings get the food required for its growth from the _____.

seedling germinates cotyledons
favourable embryo ovule

True or False

- When birds and animals eat the fruits, the seeds will be easily digested.
- It is safe for the young plants to grow very near to the parent plant.
- Small seeds are usually dispersed by wind.
- The fibrous middle layer in coconut allows it to float in water.
- Man is also responsible for the dispersal of many fruits and seeds.

Multiple Choice Questions

- During germination, initially the seed gets its food from _____.
a. water
b. soil
c. cotyledons
- Which plants have a life cycle?
a. Non-flowering plants
b. Flowering plants
c. All plants
- The life cycle of a plant starts with a _____.
a. seed
b. flower
c. bud
d. fruit

4. Drumstick seeds are usually dispersed through ____.

- birds
- wind
- water
- animals

5. Which of the following is incorrect?

- The seeds of some plants stick to the skin of some animals.
- Bees and insects are attracted by the smell of lotus flower.
- Useful plants are dispersed by human beings.
- Seed coat protects the seed for a long time.

Click the blanks and fill it with the right word.

- The seedling absorbs water and nutrients from the soil with the help of its _____ (roots, seeds, embryo).
- Every seed has minute plant called the _____ (embryo, seedling, cotyledons).
- Some fruits disperse their seeds in the wind through an _____ (explosive, firework) mechanism and spread them.
- During _____ (favourable, unfavourable) conditions, the seed germinates and gives rise to a new seedling.
- Man is ____ (also, not) responsible for the dispersal of many fruits and seeds.

Match the seeds with the common dispersal mode.

Wind	Guava
Water	Balsam
Birds	Cotton Seed
Self dispersal	Rubber
Man	Coconut

Agriculture

Man started practicing agriculture thousands of years back. This was one of the developments of civilization. In the modern days agriculture is practiced on a large scale due to the advancement of science and technology. Application of modern technologies like plant breeding and usage of chemicals like fertilizers and pesticides have increased the yield. Major agricultural products are cereals, vegetables, fruits and

oil seeds. They are cultivated not only for our basic needs but also for commercial purpose.

Soil

Soil is one of the most important natural resources. It is essential for agriculture. It supports the growth of plants by holding the roots and supplying water and nutrients. It is the home for many organisms. Soil is formed by the breaking of rocks by the action of wind, water and climate. The mixture of rock particles and humus is called the soil. The soil is classified on the basis of the proportion of various sizes.

Sandy soil

It contains greater proportion of big particles. They cannot fit closely together. Water can drain quickly through the spaces between the sand particles. So, sandy soils tend to be light, well aerated and dry.

Clay soil

It contains greater proportion of fine particles, packed tightly together, leaving little space for air. It can retain a lot of water in the tiny gaps between the particles. Plants like paddy grow well in this soil.

Loamy soil

It contains large and fine particles in almost same proportion. The best top soil for growing plants is loam. It is a mixture of sand, clay and another type of soil particle known as silt. Silt occurs as a deposit in river beds. It has right water holding capacity for the growth of plants. Clay and loamy soil are suitable for growing wheat, gram and paddy.

Friends of Farmer

Insects are generally considered to be harmful. But, many of them are helpful to us in many ways. Earthworm, honeybee and dragonfly are useful to plants and farmers.

Earthworm

Earthworms help to increase the amount of air and water that gets into the soil. They break down organic matters like leaves and grass into smaller particles that plants can use. When they eat them, they leave behind

castings that are a type of fertilizer. The process of decomposing bio-degradable wastes by earthworms is known as vermicompost.

Honey bee

Honey bees are helpful for cross pollination in flowers. They are attracted by the colour and smell of the flowers. They convert the pollen which is the only natural protein source for them into honey. Honey is used as food and also for medicinal purposes. Bees also produce wax, which is used for making candles.

Dragon fly

It destroys the egg and larva of harmful insects and mosquitoes and prevents the spreading of diseases. It is also helpful in cross fertilization.

Multiple Choice Questions

- Which of the following is not a soil type?
 - loamy soil
 - rocky soil
 - sandy soil
 - clay soil
- Which is not a friend of farmers?
 - Dragon fly
 - Earthworm
 - Rat
 - Honey bee
- Which of the following helps in vermicompost?
 - Dragon fly
 - Honey bee
 - Earthworm
- Dried leaves decompose into _____.
 - loamy soil
 - humus
 - slit
 - vermicompost

5. Which of the following is not a chemical?

- a. vermicompost
- b. fertilizer
- c. pesticide

Fill in the blanks using the words given at the bottom.

1. Earthworm, honeybee and dragonfly are useful to plants and _____ .
2. _____ help to increase the amount of air and water that gets into the soil. They break down _____ matters like leaves and grass into smaller _____ that plants can use. This process of _____ bio-degradable wastes is known as _____ .

farmers Earthworms organic
decomposing particles vermicompost

Match the following

well aerated	tightly packed
loamy soil	vermicompost
clay soil	wax
earthworm	sandy soil
Honey bee	mixture

river	humus
paddy field	loamy soil
silt deposit	clay soil
dried leaves	pollination
honey bee	sandy soil

Nutrients

Why food is important?

Every day we feel hungry and then eat something. Our body is telling us that it needs food. Why do we need food?

1. Food gives us energy to work and play.
2. Food builds our body.
3. Food keeps us healthy.

We eat different food items, some are raw and some are cooked. Each of these food items contains different nutrients. There are five main nutrients that our body requires. They are carbohydrates, proteins, fats,

vitamins and minerals.

Carbohydrates

Our body needs energy to do work, play and do other activities. Carbohydrates are energy-giving food. Food that contains carbohydrate are rice, wheat, potato, sugar cubes and bread.

Proteins

Proteins build, maintain and replace the tissues in our body. They are also known as body - building foods. E.g., Fish, Milk, Egg, Nuts and Sprouted seeds.

Fats

Fats provide energy to us. They act as the body's energy reservoir. Fats also help to keep the body warm during very cold weather. Too much fat in the body may lead to obesity or overweight. Some food items that contain fat are cheese, butter, ghee, meat, oil and nuts.

Vitamins

Our body needs vitamins to work properly. They protect our body from deficiency diseases. E.g., Carrot, Orange, Gooseberry, Papaya and Greens.

Minerals

Minerals help in formation of blood, bone, teeth, etc. They regulate the body functions. E.g., Fig, Pear, Garlic, Banana and Apple.

Most children love to eat food items like burgers, pizzas and chocolates, which are not good for health. They make children to gain extra weight. Avoid eating unhealthy foods and eat nutritious food to stay healthy. A healthy snack may include sprouts, fruits and salads.

Classify the below food items based on its major nutrients.

Rice, Egg, Bread, Fish, Sugar, Wheat, Potato, Nuts, Milk, Sprouted seeds

Carbohydrates

Proteins

Classify the below food items based on its major nutrients.

Orange, Ghee, Gooseberry, Oil, Carrot, Cheese, Butter, Spinach, Meat, Papaya

Fats	Vitamins

Match the foods with their major nutrients.

Rice	Proteins
Fish	Minerals
Meat	Vitamins
Papaya	Carbohydrates
Garlic	Fats

Multiple Choice Questions

- Bread, wheat and potato are rich in _____.
a. fats
b. roughage
c. protein
d. carbohydrate
- A balanced diet contains _____.
a. Fibre and water
b. Carbohydrates and vitamins
c. All
d. Proteins and fats and minerals
- The Vitamin present in carrot is _____.
a. Vitamin-K
b. Vitamin-A
c. Vitamin-D
d. Vitamin-E

- Which of these things are BAD for you?
a. Eating lot of fat food items
b. Eating green vegetables
c. Washing vegetables before cutting them
d. Eating lot of pulses

- What is the food that we eat in the morning called?
a. Breakfast
b. Dinner
c. Lunch

Fill in the blanks using the words given at the bottom.

- Food rich in proteins are called _____ food.
- Food helps in proper _____ of our body.
- A _____ is necessary for the proper growth and development of our body.
- Sprouted seeds contain more _____.
- _____ is the second meal of a day.

proteins body-building lunch balanced
diet functioning

Match the words with same meaning.

Carbohydrates and fats	Supports body growth
Vitamins	Energy-giving food
Protein	Regulates body functions
Minerals	Fights diseases

Balanced Diet

Diet refers to the food we eat. A balanced diet contains all nutrients in the right amounts. It also includes fibre and water. It helps in the growth and development of our body. Fibre is an indigestible food that your body cannot absorb.

A meal is what we eat during a particular time of the day. Breakfast, lunch and dinner are the three main meals we eat every day.

Food habit of people at a place depends on the climate, culture and availability of food. For example, in coastal areas, people eat a lot of sea food. India is a big country with different climate and culture.

South Indians depend on rice, dhal, coconut, jaggery for their food. Hence, they make food like Idly, Sambar and Payasa.

North Indians depend on wheat, onions, milk and curd.

Hence, they make foods like Chappathi, Paratha and Lassi.

The amount of food a person needs depends on his age. These needs change with age groups and level of physical activity. Athletes may need more amount of energy during training. Young children should eat a wide variety of food.

Our ancestors ate food that were easily available from nature, which lead to healthy lives.

Home Garden

Cultivation of crops in a small available place in house-holds is known as Home garden or Kitchen garden or Nutrition garden.

Advantage of Home Garden

1. Waste water can be reused.
2. It saves our money.
3. We get vegetables which are fresh and high in nutritive value.
4. It can be a good hobby.

Match the time and the meal.

6 AM	Snacks
8 AM	Dinner
1 PM	Tea
5 PM	Breakfast
8 PM	Lunch

Multiple Choice Questions

1. What is indigestible for our body?
 - a. protein
 - b. fibre
 - c. vitamin
2. Food habits of the people depends on _____
 - a. availability of food
 - b. all of the above
 - c. culture
 - d. climate

3. Which of the following is not an advantage of home garden?

- a. We can reuse waste water
- b. It is a good hobby
- c. We can sell our vegetables
- d. We get fresh vegetables

4. A _____ diet contains all nutrients in the right amounts.

- a. heavy
- b. lunch
- c. light
- d. balanced

5. How many main meals do we eat every day?

- a. four
- b. two
- c. three

Classify the below sentences as true or false

1. Athletes need less amount of energy.
2. The amount of food a person needs depends on his age.
3. People living in coastal areas, usually don't eat sea food.
4. Our ancestors ate food that were easily available from nature.
5. Our ancestors led a healthy life.

Our Need for Food

Why do we feel hungry?

Our bodies must work properly. It also provides us with the energy we require to do work. When we work a lot and eat less, our body will become weak. It makes us very hungry.

Oilcake

After extracting oil from seeds such as groundnut, sesame, or cottonseed, the fibrous component is pressed into slabs. This is known as oilcake. Ambon is an animal feed made from a fermented mixture of oilcake, jaggery, and coarse grain particles combined with water.

Animals & Foods

1. Cows eat grass, hay, oilcake, and ambon.
2. Horses consume soaked Bengal gram (harbhara), grass, and hay.
3. In addition to grass, goats and sheep eat the leaves of numerous bushes.
4. Milk is consumed by cats. Birds such as sparrows, doves, and pigeons are also hunted and eaten by them.
5. Dogs will eat chapatis or bhakaris, but meat is their preferred food.
6. Deer, bison, and nilgai eat a wide variety of green grasses, crops, and leaves.
7. Wild animals such as the tiger and lion hunt and eat other animals. When they are starving, they are sometimes driven to enter neighbouring villages. The livestock is then killed and taken away.
8. Foxes have been known to venture into human settlements. They are unable to kill cattle. The majority of their time is spent stealing poultry.
9. Some birds eat grains. Hens eat small worms. Crows eat the meat of dead animals. Some birds eat the fruits of trees.

Plants Need Food Too

1. However, they are unable to travel from one location to another in search of food.
2. Plant roots take up water from the earth. In this water, several soil substances are dissolved. This water reaches the plant's leaves.
3. On the surface of leaves, there are numerous tiny holes. We can't see them with our eyes since they're so small. These pores allow air to penetrate the leaves.
4. As a result, air and water collide in the leaf. Plants use the water and air in their leaves to create their own food with the help of sunlight.

classify: Herbivorous & Carnivorous

Wolf, Lion, Sheep, Horse, Tiger, Cow, Deer, Hyena

Herbivorous

Carnivorous

Match the related ones.

Cat	Carrot
Lion	Oilcake
Rabbits	Bengal gram
Horse	Flesh
Cow	Milk

True or False

1. With the help of sunlight, plants prepare their own food.
2. There is no difference in the food habit of a tiger and a vulture.
3. The dog is a herbivore.
4. Food for different living things, is different.
5. The entire living world depends on the food prepared by plants.

Fill in the blanks using the words given at the bottom.

1. The main sources of our _____ are plants and animals.
2. The _____ absorb water and minerals from the soil.
3. A plant needs _____ to prepare food.
4. _____ are unable to kill cattle.
5. The process of making food using sunlight, carbon dioxide and water is called _____.

Photosynthesis Foxes sunlight roots
food

Our diet

1. Every day, we eat some food. We eat between meals. We also have milk, tea, coffee. Our daily diet includes everything we eat and drink.
2. We make a lot of muscular movements when working. This labour is difficult. It's called physical labour. Work makes us hungry.
3. Some tasks can be done while seated. It requires no physical exertion. Such work is called sedentary work.

Variety in food

1. Rice becomes a key element of the diet of those who live in areas where rice grows abundantly.

2. People in areas where jowar or bajra is a major crop include more 'bhakari' in their diets.
3. In certain regions, wheat is the major crop. People in those regions eat more chapatis.
4. In the sea, fish are abundant. As a result, the Konkan people consume a lot of fish in their diet.
5. We receive different vegetables and fruits on different seasons. As a result, the foods in our diet change as well.

Watch What We Eat

1. We should eat food made at home.
2. Sprouted pulses, leafy vegetables, buttermilk and yogurt should be included often in our diet.
3. We should avoid products shown in newspapers and TVs. The advertisements are tempting, but it does not mean that they are healthy for our body.

Classify the following.

Potato chips, Pizza, Cookies, White bread, Vegetables, Sprouts, Pulses, Wheat

Healthy

Unhealthy

Classify the following.

Cycling, Sweeping, Drawing, Operating a laptop, Playing kho-kho, Reading book, Climbing a mountain, Playing carrom

Physical labour

Sedentary work

Fill in the blanks using the words given at the bottom.

1. Healthy food makes our body _____ .
2. A balanced diet contain all the _____ .
3. Work done when sitting is _____ work.
4. Oils and fat give us _____ .
5. If our diet is not balanced we may suffer from _____ .

calories fit nutrients sedentary
diseases

True or False

1. People who don't work, won't feel hungry.
2. Meat alone is sufficient to provide all nutrients for the body.
3. Water is the most important part of our diet.
4. We eat the same kind of food throughout the year.
5. Deficiency diseases can be prevented by eating a balanced diet.

Match the related ones.

Rice	Andhra Pradesh
Wheat	Maharashtra
Bhakri	Punjab
Turmeric	Madhya Pradesh
Pulses	Odisha

Our Diet

Inside the Kitchen!

1. Heating is used to prepare our food.
2. To cook rice, we add water to the rice and bring it to a boil.
3. Puris and pakodas are deep-fried. They are fried in oil or ghee.
4. Idlis and modaks are steamed.
5. Chapatis and bhakarlis are roasted.
6. When foods are heated, they become tastier and easier to digest.

Combustible material

A combustible substance is something that can burn. Fuel is a combustible substance that can be utilized to generate heat in a convenient manner. Fuels include cooking gas, kerosene, and coal.

Methods of supplying heat for cooking

1. Some people use kerosene stoves for cooking.
2. Nowadays, hotplates are also used for cooking on electricity. They are very convenient to use.
3. Some people use biogas.
4. Some people use the heat from the sun for cooking. They use the solar cooker.

Fill in the blanks using the words given at the bottom.

1. We boil water to kill _____ .
2. _____ makes food soft, tasty and easy to digest.
3. The material that is burnt to produce heat is known as _____ .
4. Wood and _____ produces more smoke, while using as a fuel for cooking.
5. _____ are used for cooking food.

coal fuel Utensils Cooking bacteria

Match the related ones.

Blender	Heating
Oven	Juicing
Refrigerator	Baking
Electric juicers	Mixing
Crock pot	Cooling

Fill in the blanks using the words given at the bottom.

1. The process by which foodstuffs become tastier and easier to digest is _____ .
2. Foods which we eat mostly without cooking are _____ .
3. A device that uses the energy of direct sunlight to cook, is _____ .
4. Grilled sandwiches can also be made with the help of _____ .

heating fruits Solar cooker toaster

True or False

1. A pan is used to chop things on so you don't scratch up your kitchen counter.
2. Most tables have salt and pepper shakers for spicing up food.
3. Plastic containers are used to cook food.
4. You can use a spatula to flip over your eggs easily.

5. Plastic containers are used to store food.

Food and Hygiene

Raw and Cooked Food

Food is one of the basic needs of life. We get energy for all our activities from food. Food obtained from the nature provides all the nutrients to our body. But seeing the advertisement, we are attracted towards junk food.

In our daily life, we depend on plants and animals for our food. Food that we eat directly without cooking is called raw food. We eat fruits, some vegetables, tubers and nuts in the raw form. Some pulses and cereals are also eaten as raw food.

Food that needs to be processed using heat before it can be eaten is called cooked food. Why should we cook food?

1. Cooked food is digested easily.
2. Cooking softens the food materials.
3. Cooking kills germs.
4. Cooking adds taste and flavour to food.

Cooking methods

Some of the commonly used cooking methods are given below.

Boiling:

It is a method of cooking food by immersing it in boiling water. So that the food becomes soft. Example: Rice, Egg.

Steaming:

It is a method of cooking food in steam by immersing the vessel in a container with boiling water. Example: Idli, Idiyappam.

Pressure cooking:

It is a method of cooking food in a pressure cooker. Example: Rice, Dhal.

Roasting:

It is a method of cooking food by heating on a tawa or frying pan without covering it. Example: Groundnuts, Cashewnut.

Frying:

It is a method of cooking food in hot oil. Example:

Chips, Poori.

Boiling, steaming and pressure cooking uses moist heat. Roasting, frying and baking uses dry heat. There are other cooking methods like microwave cooking and solar cooking.

We get the below food items from plants and animals. Classify.

Butter, Egg, Meat, Corn, Potato, Brinjal, Curd, Mushroom, Carrot, Ghee, Milk, Onion, Fish

Plants

Animals

We can eat some food items raw, without cooking.

Classify

fish, apple, cucumber, dhal, meat, potato, tomato, lady's finger, brinjal, carrot, cashewnut, tapioca

Raw

Only Cooked

Match the following.

Idli

Rice

Egg

Cashewnut

Chips

Frying

Boiling

Roasting

Steaming

Pressure cooking

Multiple Choice Questions

1. Which of the following vegetable is not used while making salad?

- a. potato
- b. carrot
- c. cabbage
- d. cucumber

2. Pick the food items that are made from milk?

- a. curd
- b. butter
- c. mushroom
- d. ghee

3. Which cooking process needs a lot of oil?

- a. Boiling
- b. Frying
- c. Roasting

4. Cakes are usually prepared by the process of _____.

- a. frying
- b. baking
- c. roasting

5. What are the benefits of cooking food?

- a. Easy to digest
- b. adds taste and flavour
- c. kills germs
- d. all of the above

Classify the below sentences as true or false

1. We make salad by cooking vegetables.
2. Cooked foods are difficult to digest.
3. Honey is the only food that does not spoil.
4. Chips are made by the process of boiling.
5. Cooking kills germs.
6. Idlis are made by the process of steaming.

Food Hygiene

We need to follow the below basic habits.

1. Wash your hands with soap before cooking.
2. Wash vegetables and fruits before cutting.
3. Wash cooking vessels and knives.
4. Don't cook food for a long time because it destroys

the nutrients present in the food.

5. Don't use the same oil for cooking food many times.
6. Using the food items after their expiry date is not good for health.

Utensils

Utensils are in different shapes and sizes. We use specific utensils for each cooking method. Clay pots were used earlier. Stainless steel and aluminum vessels are now generally used for cooking.

Meal-time Hygiene

Meal-time hygiene includes ways to make sure that we do not get sick because of the way we eat or make food.

1. Always cover food to protect them from dust and insects.
2. Eat fresh food always.
3. Avoid taking food that is too cold or too hot.
4. Avoid fast food and fried food.
5. Always wash your hands before and after eating.

Food During Illness

When we are sick, we should avoid food items that are fried in oil. We should take energy-giving, easily digestible food. Some of them are given below:

1. Porridge of rice or cereals.
2. Fruit juice, tender coconut.
3. Steamed foods like idli.

Food Wastage

We should not waste food. Food that is not eaten is called leftover food. That is discarded as waste. Following are the simple ways to avoid food wastage.

1. Take what you'll eat and eat what you take.
2. Share the excess food.
3. Give the excess food to hungry animals.

One third of the food produced in the world is wasted. On the other hand, one section of people do not get enough food. 28th May is observed as world hunger day.

Food Preservation

We can preserve the food for long time by using the following methods.

1. Pickling - Mixing fruits and vegetables with oil and salt.
2. Refrigerating - Keeping food in the fridge to preserve them for a short time.
3. Drying - Removing the water content of the food.
4. Canning - Storing food in air tight containers.

Multiple Choice Questions

1. We should avoid eating ____ food.
 - a. raw
 - b. fresh
 - c. junk
 2. _____ is an easily digested food.
 - a. Idli
 - b. Briyani
 - c. parotta
 3. What type of food should we take when sick?
 - a. fried food
 - b. easily digestible
 - c. energy giving
 - d. meat
 4. Which day is observed as world hunger day?
 - a. 28th June
 - b. 18th May
 - c. 18th June
 - d. 28th May
 5. The preservation method of mixing vegetables with oil and salt is known as _____.
 - a. canning
 - b. drying
 - c. pickling
- Classify the below sentences as true or false
1. Pressure cooker is not a cooking utensil.
 2. Junk food is good for health.
 3. You should wash your hands before cooking.
 4. Solar cooker reduces the use of fuel.
 5. Vegetables and fruits should be washed after cutting.
 6. In olden days, people cooked their food in pressure

cooker.

7. You should wash your hands before and after eating.

Fill in the blanks using the words given at the bottom.

1. The process of mixing fruits and vegetables with oil and salt is called _____ .
2. Keeping food in the fridge to preserve them for a short time is called _____ .
3. Removing the water content of the food is called _____ .
4. Storing food in air tight containers is called _____ .

pickling refrigerating drying canning

Multiple Choice Questions

1. Which one can be eaten as raw food?
 - a. Potato
 - b. Fish
 - c. Meat
 - d. Carrot
2. Uncooked food is called _____.
 - a. raw food
 - b. junk food
 - c. hygienic food
 - d. cooked food
3. Solar cooker reduces _____.
 - a. Air Pollution
 - b. Water Pollution
 - c. Land Pollution
 - d. Noise Pollution
4. Which one cannot be preserved by drying method?
 - a. Fruits
 - b. Rice
 - c. Fish
 - d. Cereals

5. We can avoid food wastage by

- a. Eating more than we need
- b. Giving to the needy
- c. buying extra food
- d. throwing in a dust bin

Fill in the blanks with the given options.

1. ____ (Raw, Junk) food gives us energy to work and play.
2. Cooked food is easily _____ (digested, undigested).
3. Pressure cooker is one of the _____ (modern, olden) utensils.
4. We need pure air, protected water and _____ (hygienic, junk) food for our healthy life.
5. We make Idli by _____ (steaming, boiling) method.

Classify the below as hygienic or junk food.

milk, nuts, chips, fruits, samosa, panipoori, salad

Hygienic

Junk

Match the following

- | | |
|-----------------------|---------------------|
| Grapes | Modern utensil |
| Mixture of vegetables | Olden utensil |
| Electric rice cooker | Salad |
| Earthen pot | Food during illness |
| Less fatty food | Raw food |

Say Yes or No

1. Briyani is a raw food.
2. We can cook rice on a tawa.
3. Frying is a method of cooking.
4. Cooking in a solar oven needs sunlight.
5. Consuming too much oily food is bad for our health.

Value of FoodHow do we get grains?

We need rainwater to grow bajra. After sometime, ears of bajra are visible on every stalk. During harvest season, ears of corn are full. All the bajra's ears must be chopped and gathered. Then the process of threshing and winnowing starts. Through this process, we obtain the grains from the ears of bajra.

Do you know?

Birds come to eat the tender grains as the grains grow. Scarecrows must be placed and slung shots must be fired to scare the birds away.

We get different types of food from different places. We get fish from water. Fruits like amla, jamun, karvanda, bor grow in forests.

The grains and other foodstuffs are gathered and sold all over the country. They are transported by means of trucks or goods trains.

It is the turn of porters and truck-drivers to put in their labour. Transport costs a lot, too. All the processes of purchasing, transporting and marketing are expensive.

Fill in the blanks using the words given at the bottom.

1. Singhadas and makhanas are obtained from _____ plants.
2. If a machine is not available, _____ do the threshing.
3. The tiny peaks on our tongue are called _____.
4. A region's climate and _____ determine the crops that are grown in that region.
5. When the soil becomes _____ and humid the crop is sown.

freshwater taste buds bullocks hot soil

Fill in the blanks using the words given at the bottom.

1. The process of gathering of ripened crop. _____
2. To blow through grain in order to remove the outer covering. _____
3. Process of moving foodstuffs from warehouses to consumers through trucks. _____
4. The process of loosening the edible part of grain. _____

Harvesting Winnowing Transporting
Threshing

Match the following

Wheat	Horticulture
Fruits	Rabi crop
Rice	Oil
Chilly	Kharif crop
Sesame	Spices

Classify as sour or sweet

Sugar, Honey, Vinegar, Cupcake, Fruit juice, Candy, Tamarind, Lemon

Sour

Sweet

Odd one out

1. Hen, Cow, Sheep, Dog
2. Donut, Bread, Rice, Pizza
3. Fish, Milk, Butter, Yoghurt
4. Tamarind, Jaggery, Honey, Sugar

Food - 5

Spoilage of Food

Food items like fruits, vegetables, milk and meat will be fresh for very short time. These are called perishable foods and they get spoiled easily. Some food items like rice have long life time but they also decompose. The change in the normal state of the food is called spoilage of food. Spoiled food becomes unsuitable to eat. We can notice such changes from the taste and smell of the spoiled food. Eating spoiled food results in diseases.

Once the food items are harvested they begin to decompose. Food can be spoiled by factors like air and oxygen, moisture, enzymes, microorganisms, light and temperature.

1. Air and Oxygen: When oxygen reacts with food contents, it produces changes in the colour and flavour of the food.

2. Moisture keeps the food fresh. When the moisture is gone, vegetables and fruits shrink. Due to evaporation, moisture loss occurs in foods like meat, fish and cheese.

3. Enzymes break down the tissues and components of the food in different ways like oxidation, browning and ripening. So the food items decay.

4. Microorganisms such as fungi, yeast and bacteria can grow well in low temperatures. They multiply in food and spoil them.

5. Light produces colour changes and also vitamin loss.

6. Temperature: Sometimes rise in temperature causes food spoilage.

Spoiled foods are not suitable to eat. They may not be fresh and tasty.

Sometimes it will be harmful to consume them. Microorganisms present in spoiled foods may cause foodborne diseases like stomach pain, fever, dysentery, vomiting and indigestion.

While purchasing packed food items, we should check the following details.

1. Manufactured date
2. Expiry date
3. Ingredients
4. Energy content of the food material.

Preservation of Food

Chemical preservatives are added to stop the growth of micro-organisms in certain food materials. E.g. Sodium benzoate is added with fruits, Sulphur dioxide is added with dry fruits, Vinegar is added with pickles.

Irradiation is a modern method by which, food is exposed to gamma rays or ultra violet rays to kill the bacteria and the mould. It does not affect the taste of the food or nutritive value of the foods. E.g. Onion, Potatoes.

Purpose of Food Preservation

1. To retain the colour, taste and nutritive value of the food.
2. To make food available throughout the year.

3. To prevent the growth of microorganisms like bacteria and fungi in the food items.

4. To reduce the wastage of food materials.

5. Preserving food not only protects our health but also makes food available to the people who need it.

Classify the below as perishable or non-perishable food.

Corn, Oil, Pulses, Wheat, Salt, Sugar, Vegetables, Meat, Fruits, Nuts, Rice, Milk

Perishable

Non-perishable

Fill in the blanks with the given options.

1. Spoiled foods are _____ (unsuitable, suitable) to eat.
2. The change in the normal state of the food is called _____ (spoilage, storage) of food.
3. Food products start to decay after _____ (harvesting, cooking).
4. Eating spoiled foods bring ____ (food, air) borne diseases.
5. Sometimes we can check spoiled food by _____ (smelling, hearing).

Multiple Choice Questions

1. What are the details that can be found in packed food.
 - a. Price
 - b. Expiry date
 - c. Manufactured date
 - d. Ingredients
2. Which chemical is used to preserve fruits?
 - a. Sulphur Dioxide
 - b. Sodium Chloride
 - c. Copper Benzoate
 - d. Sodium Benzoate

3. Which chemical is used to preserve pickles?

- a. Vinegar
- b. Sodium Benzoate
- c. Sodium Chloride
- d. Copper Benzoate

4. Which of the following is not a micro-organism?

- a. yeast
- b. bacteria
- c. fungi
- d. enzymes

5. What keeps the food fresh?

- a. light
- b. oxygen
- c. enzyme
- d. moisture

6. What rays are used in irradiation process?

- a. gamma rays
- b. x-rays
- c. infra-red rays
- d. ultra-violet rays

Disease

A disease is an abnormal condition that affects a living organism. This abnormal condition affects the structure and function of the organism. Diseases may be caused by external factors as well as internal dysfunction. Each disease has symptoms. We come to know about the diseases from their symptoms.

Causes of Diseases

Diseases are caused by microorganisms like bacteria, virus, protozoa and fungi. They are transmitted by insects, and also through contaminated air and water. Some diseases are caused when the function of the organ is affected. In general, causes of diseases can be classified as below.

- 1. Metabolic factor. E.g. Diabetes
- 2. Genetic factor. E.g. Colour blindness
- 3. Microorganisms. E.g. Bacterial diseases
- 4. Nutritional factor. E.g. Marasmus
- 5. Environmental factor. E.g. Cholera

Types of Diseases

There are four main types of diseases. They are

1. Infectious diseases are caused by microorganisms which invade our body and multiply inside them. These diseases are spread from one person to another. E.g. Common cold.

2. Hereditary diseases occur due to abnormalities in the gene. These diseases are passed from parents to children. E.g. Heart disease.

3. Physiological diseases are caused due to malfunction of the body organs. E.g. Asthma.

4. Deficiency diseases are caused due to the deficiency in one or more of the nutrients. Eg. Anaemia

Protein deficiency diseases

Marasmus and Kwashiorkor are the protein deficiency diseases. In marasmus, the child loses weight and it will appear as though bones are covered by skin. In Kwashiorkor, the child develops an enlarged belly with swollen face and feet. By eating protein rich foods like egg, milk, fish and green leafy vegetables we can avoid protein deficiency diseases. Kwashiorkor disease is found more among people in developing countries. It is because their diet is high in carbohydrates which is cheaper and low in proteins. As they live below poverty line, they couldn't afford protein rich food which is costly.

Vitamin deficiency diseases

There are different types of vitamins, and they are named with letters.

1. Vitamin-A is present in egg, papaya, milk and carrot. Lack of vitamin-A may cause Night-blindness.

2. Vitamin-B is present cereals and green vegetables. Lack of vitamin-B may cause Beri-beri.

3. Vitamin-C is abundant in lemon, orange and tomato. Lack of vitamin-C may cause Scurvy.

4. Sun is the natural source of vitamin-D. It is also present in fish, egg and milk. Lack of vitamin-D may cause Rickets.

Mineral deficiency diseases

Iron and Iodine are common minerals that we need for good health. Cashewnuts, dates, spinach and lentils are rich in iron. Lack of iron may cause Anaemia. Iodine is

present in vegetables and iodized salt.

Match the Nutrients with its Sources.

Vitamin-C	Sunlight
Vitamin-B	Dates
Vitamin-A	Cereals
Vitamin-D	Fish
Iron	Lemon
Protein	Milk

Match the Nutrients with its deficiency Diseases.

Vitamin-C	Beri-beri
Vitamin-B	Marasmus
Vitamin-A	Scurvy
Vitamin-D	Night-blindness
Iron	Rickets
Protein	Anaemia

Match the different disease factors with the disease.

Metabolic	Cholera
Genetic	Typhoid
Microorganisms	Marasmus
Nutritional	Colour blindness
Environmental	Diabetes

Multiple Choice Questions

- The biotic factor which spoils the food item is _____.
a. temperature
b. drying
c. bacteria
d. humidity
- Grains are preserved by _____.
a. drying
b. freezing
c. adding sugar
d. adding salt

3. Anaemia is the disease which occurs due to lack of_____.

- Vitamin-A
- Vitamin-D
- Iron
- Vitamin-B

4. Storage of Excess fat in the body is known as

- Headache
- Obesity
- Stomach pain
- Fever

5. Carbohydrates are rich in

- Rice
- Fruits
- Ghee
- Oil

Classify the below sentences as True and False

- Irradiation affects the taste of the food materials.
- Vinegar is added as Preservative for Pickles.
- Growing children need more proteins in their food.
- Deficiency due to iodine is called as beriberi.
- In case of Gas leakage, we can continue to use electric appliances.

Fill in the blanks using the words given at the bottom.

- Night Blindness is caused by the lack of _____ .
- Marasmus is a _____ deficiency disease.
- Bad smell from the food item is due to _____ .
- Humidity in air is one of the _____ factor, which spoils food.
- Using low quality gas tubes in the gas stove may lead to _____ leakage.

gas important vitamin-A protein
spoilage

Food for all

Agriculture

Sixty percent of land in our country is used for agriculture. For agriculture, there are two main seasons in our country. The season from June to October is called the kharif season. The season from October to

March is rabi season. In the kharif season, the crops are watered by rain. In rabi season, rainwater that has soaked into the soil, the retreating monsoons and dew are the sources of water for the crops.

Methods of Irrigation

Water from rivers, lakes and wells is used for irrigation in addition to rainwater. Drip irrigation and sprinkle irrigation are two of these modern methods. The drip irrigation method makes use of pipes with holes and delivers water directly to the roots of plants. Sprinkle irrigation makes use of sprinklers of different sizes that spray water directly on plants.

Fertilizers and Pesticides

Fertilizers provide the required nutritive substances to the crop. There are two kinds of fertilizers, natural and chemical. Natural fertilizers are obtained from materials available in nature like green waste and animal dung. Chemical fertilizers are mixtures of different chemical substances in specific proportions, useful for agriculture. Chemical fertilizers came to be used for quicker growth and higher yields. Overuse of chemical fertilizers lowers the fertility of the soil and reduces its productivity.

It is important to avoid excessive use of fertilizers to protect the crops as overuse can damage the crops in fields. It is also important to store the harvested crop safely. Stored grains can get damaged by fungi and insects. To prevent such damage, neem leaves are mixed with the gains.

Food storage and conservation of environment

1. Green revolution- The increase in food grain production (such as rice and wheat) due to the introduction of high-yielding varieties, the use of pesticides, and improved management techniques.
2. In 2013, India enacted a food security law that made it possible to fight against hunger and malnutrition.
3. Various agriculture assistance programmes are organised for farmers to inform them about the latest technology, irrigation facilities, pesticides, fertilizers etc.

Fill in the blanks using the words given at the bottom.

1. _____ can resist pest attacks.
 2. Crops were traditionally watered through _____.
 3. _____ irrigation is a process that sprays water directly on plants.
 4. Natural and _____ are two kinds of fertilizers.
 5. _____ makes the land saline and fallow.
- Improved seeds canal Sprinkle
chemical Overwatering

Fill in the blanks using the words given at the bottom.

1. The process through which the water and nutrients are directly delivered to the plant's roots.

2. The great increase in the production of food grains.

3. Another name for natural fertilizers.

4. Crops are grown from March to June.

Drip irrigation Green revolution Manures
Summer crops

Fill in the blanks using the words given at the bottom.

1. A Beverage crop- _____
2. A crop that grows in the temperate zone-

3. A crop which is grown extensively in Coimbatore-

4. The Oldest method of irrigation- _____
5. Rearing of animals- _____

MAIZE WHEAT COTTON WELL MIXED
FARMING

Classify the below sentences as true and false

1. Japan is the land of farmers.
2. Canal irrigation is the most important form of irrigation in India.
3. Two third of our nation's income comes from agriculture.
4. Agriculture led to the development of human civilization.
5. Thanjavur is known as the rice bowl of Tamil Nadu.

Multiple Choice Questions

- Which is called the golden fibre?
 - Silk
 - Cotton
 - Jute
- Which of these is not a rabi crop?
 - Barley
 - Wheat
 - Maize
- Farming that relies on natural material?
 - Home
 - Organic
 - Commercial
- Which state is the chief producer of tea in India?
 - Assam
 - Karnataka
 - Kerala
- The person who is engaged in agriculture.
 - Teacher
 - Doctor
 - Farmer

Preserving FoodFood Preservation

- In the winter season, to keep food longer foodstuffs are kept in the refrigerator.
- Grains should be dried in sun before storing them
- We should boil milk, curries and vegetables to prevent them from spoiling.
- We should keep the food away from mice, rats and other insects.

Microorganisms are present all around us. If microorganisms grow, they spoil the food. The nutrition value of such food is decreased. Such food can cause diseases.

Methods of Preservation

Drying- It is the process in which foodstuffs are dried to remove the water content.

Cooling- It is the process in which the foodstuffs are kept in the refrigerator. Through this process, micro-organisms do not get any warmth so they are unable to grow.

Boiling- In this process the foodstuffs are boiled to destroy microorganisms.

Storing in airtight containers- In this process the foodstuffs are placed in airtight containers to ensure that water or air are not entered the foodstuff.

Classify the below sentences as true and false

- Foodstuffs get warmth when they are stored in the refrigerator.
- We make efforts to preserve food to prevent them from getting spoiled.
- Milk products are made and preserved for a whole year.
- Spices have a strong taste and are obtained from plants.
- The process through which water content is lost is cooling.

Fill in the blanks using the words given at the bottom.

- Microorganisms grow fast in the presence of air and _____ .
- A _____ is a type of micro-organism.
- Mango pulp and _____ are foodstuffs that spoil quickly.
- Food spoiled from micro-organisms can cause _____ .
- _____ ensure that water or air will not enter the foodstuff.

moisture diseases fungus Airtight cans
milk

Fill in the blanks using the words given at the bottom.

- Food is dried to prevent water content.

- Food is rapidly frozen. _____
- Food is placed in an airtight container.

- Food is stored in an airtight container under a vacuum. _____
- Soaking food in saltwater, vinegar or oil.

Drying Freezing Pickling Canning

Vacuum packing

Food Spoilage

Perishable foods get spoiled easily. The change in the normal state of food is called spoilage of food.

Why food gets spoiled?

1. Air, oxygen and moisture can cause spoilage of food.
2. When foodstuffs are exposed to warmth it leads to the growth of microorganisms. Microorganisms multiply in food and spoil them.
3. Light produces colour changes and also vitamin loss.
4. Enzymes are chemicals that are present in all foodstuffs. They speed up chemical changes that result in loss of flavour, colour and texture.

Purpose of food preservation

1. To keep the food's colour, flavour, and nutritional value.
2. To ensure that food is available all year.
3. To prevent the growth of germs such as bacteria and fungi in food.
4. To reduce the wastage of food.
5. Food preservation not only protects our health but also ensures that food is available to those in need.

Causes of diseases

Microorganisms such as bacteria, viruses, protozoa, and fungi cause diseases. Insects carry them, and they can also be spread by contaminated air and water. When an organ's function is disturbed, it can lead to disease.

Obesity

Obesity and overweight are both described as abnormal or excessive fat in the body that can harm one's health. Obesity is caused by an excess of calories consumed, a lack of physical activity, and genetic factors.

To avoid obesity and overweight, you must take the following steps.

1. Limit your intake of fast food, fried foods, and high-

fat meat.

2. Include fruits and vegetables, legumes, whole grains, and nuts in your daily diet.
3. Engage in regular physical activity.
4. Make sure you get enough sleep.

Types of diseases

Infectious disorders are caused by bacteria that enter and multiply within our bodies. Such diseases are passed from one person to the next.

Hereditary disorders are caused by genetic abnormalities. These diseases are passed from one generation to the next.

Physiological diseases are diseases that are caused by the malfunction of body organs.

Maintaining good health requires a diet that provides all important elements in the proper proportions. Deficiencies in one or more nutrients produce a variety of diseases. These are called deficiency diseases.

In marasmus, the child loses weight and the bones appear to be covered by skin. In Kwashiorkor, the child acquires a big belly, swollen face and feet.

Vitamin and mineral deficiencies can cause a variety of diseases. We can avoid these diseases by consuming vitamin and mineral-rich foods.

The food pyramid was created to encourage people to eat healthily. The requirements for certain nutrients vary from person to person depending on our work, age, and sex.

Kitchen safety

1. The kitchen is a necessary part of our houses. The kitchen's equipment and surroundings maybe a little dangerous. As a result, we must take precautions and care.

2. Gas easily catches fire. There could be serious consequences if gas is released. As a result, we must exercise care when handling cylinders.

3. Wet hands should not be used to operate electrical appliances, as this might produce electric shocks.

4. Keep flammable materials such as kerosene and gasoline away from stoves.

5. Cover the victim with a heavy blanket or carpet if the person's clothes catch fire.

6. If kerosene or oil catches fire, put it out with sand.

7. If solid items, such as wood, catch fire, put it out with water.
8. If an electrical appliance catches fire, turn off the power and unplug the appliances.
9. To put out the fire, use the correct fire extinguishers.
10. In the event of small burns, the affected area should be held under cool running water for a few minutes before receiving medical attention.

Fill in the blanks using the words given at the bottom.

1. Obesity is caused by _____ in the body.
2. Grains are preserved by _____.
3. In _____, the child develops an enlarged belly.
4. _____ is caused due to lack of iron.
5. _____ is a method by which food is exposed to UV rays to kill bacteria.

Irradiation Anaemia kwashiorkor drying
excessive fat

Match the following

Carbohydrates	Bacterial disease
Micro-organisms	Cereals
Milk	Iodine
Beri Beri	Rice
Goitre	Boiling

Fill in the blanks using the words given at the bottom.

1. Diseases caused due to abnormalities in genes are called _____ diseases.
2. Diseases which are caused due to a lack of essential nutrients in the body are called _____ diseases.
3. Diseases which are caused due to micro-organisms are called _____ diseases.
4. Diseases which are caused due to the malfunction of the body organs are called _____ diseases.

Hereditary Deficiency Physiological
Infectious

Multiple Choice Questions

1. In case of a minor burn, what will you do?
 - a. Expose the burnt area to cool running water
 - b. Apply warmth
 - c. Rub on the burnt skin
2. Which of the statement is false?
 - a. Use low quality gas stoves
 - b. tubes and regulators
 - c. Always use I.S.I standard gas
 - d. Keep the doors open to ensure ventilation
3. In which position we should keep the cylinder?
 - a. Inverted position
 - b. Vertical position
 - c. Horizontal position
4. Which of the following statement is true?
 - a. Turn on the electrical appliances in the kitchen
 - b. Turn the knob after lighting the lighter
 - c. Keep the cylinder in an inverted position

Food

What our ancestors ate?

Our ancestors mainly depended on meat caught by hunting and fruits for their nutrition. They gathered fruit, nuts, plants, vegetables and seeds that were edible.

Changes in food habits

Nowadays, we restrict our diet to few food groups. This diet does not provide us enough nutrients. This is a major cause for lifestyle diseases. To avoid this we need to strictly follow a balanced diet.

Food shortage

There are times when farmers are not able to grow enough food. Crops fail either because of lack of rainfall or due to floods. At times like these, the prices go up as the number of mouths to feed is far more than the food availability. In this case, it's the poor who suffer as they can no longer afford to buy food. Food shortages can also be created artificially. This happens when enough food is produced but is not released in the market in order to keep the prices high. Traders hoard food grains and make more money by selling them at higher prices.

Taste buds

Taste buds are sensory organs that are found on the tongue and allow us to experience taste that are sweet, salty, sour and bitter. The front part of the tongue recognises the sweet taste while the sides of the tongue recognises sour and salty taste. The back part of the tongue recognises bitter taste.

Multiple Choice Questions

1. What are taste buds?
 - a. sensory organs
 - b. nerve endings
 - c. bone
2. What will restricting our diet to a few food groups lead to?
 - a. lifestyle diseases
 - b. healthy living
 - c. strong body
3. Which of the following is not sweet?
 - a. candy
 - b. ice cream
 - c. chilli
4. Which of the following is bitter?
 - a. bitter gourd
 - b. carrot
 - c. orange
5. What part of our tongue recognises salty taste?
 - a. front
 - b. back
 - c. sides

Water

Water

Water is one of the most important resources on Earth. All living things need water to survive. People use water for various purposes. Rain is one of the main sources of water.

Potable Water

Drinking water is known as potable water. Not all water can be used for drinking or cooking.

Potable Water is:

1. free from harmful chemicals.
2. transparent.
3. odourless and colourless.
4. free from bacteria which cause diseases.

Sources of Drinking Water

Water is available through many sources, but not all of them are suitable for drinking. It can be boiled to kill the germs and to make it suitable for drinking.

Saving Water

Only 3% of the water in the entire Earth is freshwater. Thus, water is precious and we should never waste it.

Some ways to prevent wastage of water:

1. Never let water overflow from buckets.
2. Wash fruits and vegetables in a bowl and not under running tap.
3. Always close the tap while brushing your teeth.
4. Pour left over water in a plant.
5. Close the tap properly after use.
6. Use a sprinkler to water the garden.

Conservation of Water Bodies

Rain water flows through streams and rivers. Some water gets collected in low lying areas like ponds and lakes. Rain water also seeps into the ground and available as underground water. River waters can be blocked by building a dam, and we can use them in the Summer.

Lake

It is a large area filled with water and surrounded by land. It is usually a part of a river or some other water source.

Pond

A pond is a body of stagnant water, either natural or artificial and is smaller than a lake.

Tanks

A water tank is a container that stores water for our daily use.

Methods to Conserve Water Bodies

1. Deepening of ponds and lakes
2. Plant trees at the bank of water bodies
3. Reduce water pollution
4. Avoid digging too many wells in a region

Water borne diseases

Stagnant water is breeding ground for mosquitoes that result in Malaria and Dengue.

Waterborne diseases such as cholera, dysentery, typhoid are caused by drinking unclean water.

Experiment

Let us assemble a Simple Pump

Materials needed

A hollow tube - PVC, metal or even a long papaya stem

Procedure

Hold the tube with your left hand and move it up and down into a bucket of water. Keep your right palm on top of the tube and open and close it with each up and down reciprocation. Soon, water will start squirting out. Here the up-down motion of the left hand does the pumping while the right palm acts like a valve.

Do you know?

1. A camel can drink 60 to 100 litres of water at a time and live without water for several days.
2. World Water Day is on 22nd March.

Multiple Choice Questions

1. Which is the main source of water?
 - a. Sea
 - b. Lake
 - c. Rain

2. Only ____ of the water in the entire Earth is fresh water.
 - a. 30%
 - b. 0.3%
 - c. 3%
3. By _____ water, we can kill the germs present in it.
 - a. boiling
 - b. cooling
 - c. filtering
4. Which of these is not true?
 - a. Water is precious
 - b. We should use water carefully
 - c. Plants and animals need water
 - d. We should always waste water
5. Where does the rain water go?
 - a. Plants absorb the water
 - b. Mixes with lake and pond
 - c. Seeps into the ground
 - d. Mingles with sea and ocean
6. Which animal can live without water for several days?
 - a. camel
 - b. elephant
 - c. lion
 - d. tiger
7. World water day is observed on _____.
 - a. March 22
 - b. March 2
 - c. May 22
 - d. May 2
8. Which of the following can be man-made?
 - a. ocean
 - b. river
 - c. sea
 - d. pond

9. Which of the following is responsible for water in a well?

- a. stream
- b. water tank
- c. river
- d. ground water

10. Which of the following does not relate to preserving water?

- a. taking umbrella while going out in rain
- b. saving rain water
- c. avoiding water pollution
- d. planting more trees

Underline the odd one

- 1. Pond, Hill, Sea, Lake
- 2. Rose, Lily, Lotus, Water Hyacinth
- 3. Fish, Horse, Cow, Tiger
- 4. Combing, Swimming, Washing, Bathing
- 5. Lake, Water Tank, Sea, Ocean
- 6. Ice, Vapour, Water, Ice Cream

Classify the below sentences as true and false

- 1. Planting more trees lead to rainfall.
- 2. Living things do not need water.
- 3. We should bathe in shower to save water.
- 4. A tank is a larger than a reservoir.
- 5. We should wash our vehicles everyday.
- 6. Saving water is our duty.
- 7. It is necessary to collect rain water.
- 8. Always close the tap while brushing.

Fill in the blanks.

- 1. Drinking water is known as _____ (potable, pot) water.
- 2. Water that collects in the low lying areas is called ____ (lake, sea).
- 3. It is our _____ (responsibility, work) to keep the public water resources clean.
- 4. The largest source of water on the earth is _____ (ocean, sea).
- 5. ____ (All, Few) living things need water.
- 6. _____ (Malaria, Cholera) is caused by mosquitoes.

Experiments with Water

Add a spoon of salt in a cup of water and stir it with the spoon. Observe what happens. Repeat the same experiment using sand instead of salt. Observe the difference.

What mix with water?

We can find salt dissolves in water. The added salt is not visible in the water. But sand doesn't dissolve in water. We can see them at the bottom of the cup.

Substances like salt, sugar, detergent dissolve in water. But oil, turmeric powder, sand, sawdust doesn't dissolve in water.

Floats vs Sinks

Matters that don't mix with water either floats on the surface of water or sink and settle at the bottom. If it is heavier than water than it sinks. If it is lighter than water than it floats.

Things like coin, rock, sand, marble sink in water. Things like wood, sponge, apple, paper, eraser floats in water.

New Words!

1. Solution: The mixture of water and the substance dissolved in it is called a solution. Water retains the taste of the substance dissolved. For example, water with salt dissolved in it will taste salty.

2. ORS: It stands for Oral Rehydration Solution and is a solution of water, salt and sugar. People with upset stomach can drink this.

3. Saline: It is usually a solution of salt and water that is given to patients in the hospitals through drips.

4. Micro-organism: An organism that is not visible with the naked eyes. 'Microscopes' are the instruments used to see them. Some of these are very important and useful for both nature and us, humans.

Do you know?

- 1. Sea water is unfit for drinking because its saline.
- 2. Taste of well-water differs from area to area. It is because the ground water also dissolves different substances present in the soil.
- 3. Carbondioxide is dissolved in water (under pressure) to make cold-drinks.

4. Particles of soil are heavier than water but since they're small in size, they take time to sink. Also, swirling alum in water helps these particles to settle down faster.

5. Boiling the water kills micro-organisms present in it and makes it safe for drinking.

Fill in the blanks using the words given at the bottom.

1. Salt and sugar _____ in water.
2. Mixture obtained after dissolving a substance in water is called _____ .
3. Some micro-organisms can cause _____ if they enter our body.
4. Things that float in water are _____ .
5. Things that sink in water are _____ .
6. _____ is swirled in muddy water to clean it.

Alum dissolve solution diseases
lighter heavier

Identify what will dissolve in water.

Alum, Salt, Sugar, Detergent, Oil, Turmeric powder, Sand, Sawdust

Dissolve	Do not dissolve

Identify what will sink and float in water.

Pencil, Mud, Leaves, Wood, Paper, Flower, Turmeric powder, Stone, Sand

Sink	Float

Fill in the blanks using the words given at the bottom.

1. We need water to
2. 1. _____ our face
3. 2. _____ our teeth
4. 3. _____ our food
5. 4. _____ the kitchen vessels
6. 5. _____ plants
7. 6. _____ a bot

wash brush row grow cook clean

Classify the activities that need water.

Planting, Water coloring, Singing, Running, Writing, Boating, Playing, Washing

Needs water	Doesn't need water

Find out the different sources of water.

1. A I N R :
2. E K A L :
3. N D O P :
4. M A E R T S :
5. L L W E :
6. E A S :
7. N A C E O :

Order the below water bodies based on the size

- ☐ sea
- ☐ lake
- ☐ water tank
- ☐ pond
- ☐ river
- ☐ ocean

Match the following

Sea	Unclean water
River	Mosquito
Dengue	Ground water
Typhoid	Fresh Water
Well	Salt Water

Water Cycle

WaterThree states of water

Water occurs naturally in three forms: ice, water and water vapour. These forms are also called states of water. Ice is in solid form, water is in liquid form and water vapour is in gaseous form. These states occur naturally because of temperature changes. Water becomes ice in cold regions, remains as water in oceans/river and becomes water vapour due to the heat of the Sun.

We measure heat and cold using temperature. The natural temperature is known as room temperature. When we get fever, our body temperature will raise. We can measure temperature using a thermometer

At temperature below 0° C, water becomes ice. This process is called freezing.

Water Cycle

Continuous movement of water from the Earth to the atmosphere and back to the Earth is known as water cycle or hydrologic cycle. Water cycle consists of the following four stages.

Evaporation

Water can slowly convert to water vapour even in room temperature. It is called evaporation. It takes place from the surfaces of rivers, oceans, lakes and ponds. Wet clothes dry when exposed to sunlight or air due to evaporation. Plants also release water by transpiration.

Condensation

The process of converting water vapour into water on cooling is called condensation. Water vapour in the atmosphere being lighter, rises up and cools down. It

further condenses to form tiny water droplets.

Precipitation

The water droplets join together to form clouds. As they get cooler, the droplets become bigger and heavier and fall as rain. If the air is very cold, they freeze to fall as hail or snow.

Flowing back to Oceans

Rain water forms streams and springs which join together to form rivers. Rivers flow finally into the sea and ocean thereby completing the cycle.

Activity 1

Take half a glass of water. Clean the outside part of the glass. Add few ice cubes and leave it for 5-10 minutes. You will observe drops of water appearing outside the glass. This happens because the water vapour in the air condenses on the cold surface of the glass.

Let us do

1. Fill water in an ice tray and keep it in the freezer. After few hours, take it out. What happened to the water?
2. Now keep this ice tray on a table for some time. What happens to the ice?
3. Pour water from the ice tray into a kettle. Ask an elder at your home to heat the kettle and observe the mouth of the kettle when the water starts boiling. What do you see?

Rainwater harvesting

It is the process of collecting and storing rainwater for future use. Rainwater can be collected in natural reservoirs or artificial tanks. Roof top harvesting is also a type of rainwater harvesting. The rainwater on the top of the building is collected and passed into the ground through pipes. Water passing through the pipes enters the pit which consist of gravels and coarse sand. As it passes impurities are filtered and stored as ground water. Do you know?

1. Each day, we lose a little more than a cup of water when we exhale.
2. 73% of our brain's mass consists of water.
3. The Antarctic region has about 70% of the world's

fresh water.

Multiple Choice Questions

- Water is the most _____ resource on the Earth
 - precious
 - solid
 - gas
- Water exists in _____ states.
 - two
 - four
 - three
- At temperature below _____ water freezes to form ice.
 - 100° C
 - 10° C
 - 0° C
- _____ is the process by which water becomes water vapour.
 - Freezing
 - Condensation
 - Evaporation
- Which controls the ecological functions of life?
 - Recycle Water
 - Bicycle
 - Water cycle
- Water is present in huge quantities as vapour and clouds in the _____.
 - sky
 - rain
 - atmosphere
 - earth

Click the blanks and fill it with the right word.

- Water is converted into _____ (water vapour, ice cube) when heated.
- Water becomes ice on _____ (freezing, heating).
- Water droplets combine to form _____ (clouds, rain).
- Water cycle increases the availability of _____ (ground, sea)water.

5. Rainwater _____ (harvesting, recycling) helps in improving ground water.

True or False

- At 100° C, water becomes ice.
- Roof top harvesting method is used in agriculture field.
- 37% of our brain's mass consists of water.
- Water cycle controls Earth's temperature.
- Water is a good example for the three states of matter.
- Water becoming water vapour on heating is called vapourization.

Fill in the blanks using the words given at the bottom.

- If you _____ water to a temperature of _____ , it _____ to form water vapour.
- If you _____ water to a temperature of _____ , it _____ to form ice.
- Ice _____ when we keep it in _____ temperature.

100 °C melts 0 °C heat room
cool vapourize freezes

Match the following

Freezing Point	Clouds
Boiling Point	3 States
Temperature	0° C
Water	100° C
Condensation	Thermometer

Rearrange the below based on their usual temperature.

- ☐ cool drinks
- ☐ hot water
- ☐ ice cubes
- ☐ boiling water
- ☐ tap water

Storing and Fetching Water

In olden days, people lived near to rivers and other water sources, so that they get access to water.

Later they dug wells on the ground, so that they can use the available ground water. They were called draw wells. Water was taken out using a bucket tied to a rope. Fetching water will be easier with the help of pulley or rotating rod.

In olden days, bunds were built across the rivers to save water. They also built reservoirs and tanks to save water. They built cannels to take river water and rain water to the tanks. These made life possible in the summer and during times when there was no rain.

New Storage Methods

Dams

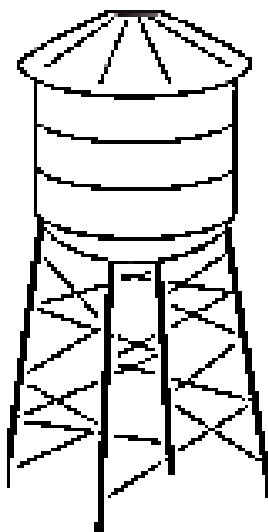
Big dams were built across rivers to store large quantity of water. These dams also helps in generating electricity.

Borewells

These wells are very deep and narrow. The groundwater is extracted with the help of electric pumps and motors.

Water Towers

They are build in our locality and water is pumped and stored at a height. It is connected through pipes and reaches our bathroom and kitchen.



In olden days, there was no tap water in the houses. People have to walk a distance to get water. But nowadays, we get water in our houses directly through

pipes. In case if there is any problem in getting water, we will call a plumber who will fix the problem for us.

Drag and drop the water storage techniques accordingly.

Dams, Draw Wells, Water Tower, Bunds, Reservoirs, Borewells

Old ways

New ways

Multiple Choice Questions

- Which is the most important technique for water storage?
 - Dams
 - Reservoirs
 - Forts
- Which of these does not require machine work?
 - Draw-wells
 - Borewells
 - Dams
- _____ were built in areas with no major river.
 - Reservoirs
 - Dams
 - Borewells
- We get water in our house through pipes connected from a _____.
 - dam
 - river
 - water tower

Clean Water

Earlier, earthen pots and copper pots were used to store water at homes. But these days we generally use plastic or steel bottles and containers for the same.

How to keep water clean:

1. Keep the containers covered to prevent dust and insects.
2. Keep a dipper to take out water from these containers, else dirt from our hands will contaminate the water. Also, we can have a tap on these containers to avoid contamination.
3. Wash the container before refilling it.

Do you know?

People think that we can't drink water from previous day. But the truth is, water remains as clean as it was before if kept safely. So, we can drink the water we stored on previous day.

New Word!

1. Water tower: It is basically a huge water tank and water is stored on its top. Electric pumps and motors are used to raise the water to its top. It stores purified water and supplies water to different areas through a large network of pipes.

Arrange these steps in the order of occurrence.

- ☐ Spread of water through pipelines
- ☐ Storage of water in water tower
- ☐ Purification of water
- ☐ Reaching homes and industries
- ☐ Source of water

Match the following

Pure water	Wells
Copper pots	Pipelines
Water supply	Old way
Groundwater	Drinkable
Potable water	Water tower

Water Management

Water

About 97% of total water available on the earth is too salty to be used for drinking and irrigation. The rest 3% of water is fresh water.

Agriculture is the source of our living. It uses most of the world's fresh water resources. It consumes around

70% of the available fresh water.

Water management is the activity of planning, developing and managing the optimum use of water resources. Nowadays we don't get enough rainfall and except few, most of the rivers are drained. Due to recent changes in the climate we don't have water in lakes and ponds. People in many countries suffer without water even for their basic needs. So, we need to manage the available water.

Rain Water Harvesting

The process of collecting rain water from the roof top of the buildings is called rain water harvesting. In this system rain water is stored into a storage tank for later use. Rain water available in the open spaces around the buildings may also be recharged into the ground. It is another method of rainwater harvesting.

Advantages

1. Rain water harvesting can reduce flooding in the cities.
2. Rain water harvesting can reduce top soil loss.
3. Ground water level can be increased.
4. Ground water can be conserved.
5. It can improve plant growth.

Farm Ponds

A farm pond is a structure dug out on the Earth. It is usually square or rectangular in shape. Rainwater is stored in it for irrigation purposes. It is surrounded by a small bund, which prevents erosion on the banks of the pond. The size and depth of the pond depend on the type of the soil, water requirements of the farmer, its uses and the cost of excavation. Water is conveyed to the fields manually, by pumping, or by both.

Waste Water Management

Used water from any combination of activities such as domestic (houses), industrial, commercial, agricultural is called waste water. This water has been used for laundry, bathing, dish washing, toilets and industrial purposes. Waste water also includes rain water that has been accumulated pollutants as it runs into the oceans, lakes and rivers. Pollutants are unwanted chemicals or materials that contaminate water. The goal of waste

water management is to clean and protect water so that it can be reused. It also must be clean before it flows into oceans, lakes and rivers.

Waste Water Treatment

Generally, waste water is treated by physical, chemical and biological processes using filtration, sedimentation, adding cow dung powder and bacteria. This method is followed in industries.

Advantages

1. Waste water treatment ensures that the environment is clean.
2. There is no water pollution.
3. It prevents waterborne diseases.
4. It ensures that there is adequate water for irrigation.

Desalination of Sea Water

Desalination is an artificial process of converting saline water (sea water) into fresh water. The common desalination processes are:

1. Distillation
2. Reverse Osmosis

The process in which both evaporation and condensation go side by side is called distillation. Reverse osmosis is a process of forcing water under pressure through a semi-permeable membrane. Tiny pores in the membrane allow water to pass but exclude most salts and minerals. The reverse osmosis process helps to solve the water scarcity problem.

Water Pollution

Contamination of water bodies by human activities is called water pollution. Our water resources (pond, lake, river, canal and well) are polluted by sanitary water, industrial wastes, insecticides, fertilizers, sewages, synthetic detergents, chemical fertilizers, oil, heavy metals and radioactive wastes. These unwanted and harmful substances which pollute water are called water pollutants.

The major sources of water pollution are industrial waste, sewage, domestic waste, chemical fertilizers and insecticides, synthetic detergents and oil spill.

Industrial Waste

The discharge of untreated industrial wastes from the industries into rivers and lakes is one of the main causes of water pollution. The industrial wastes contain harmful substances such as acid, alkalis etc. The chemicals like Arsenic, Lead, Mercury and Cadmium are released by the industries and it leads to toxicity in plants and animals.

Sewage

The dumping of sewage into rivers and lakes is the second major cause of water pollution in big cities.

Domestic Waste

Food waste, soaps and detergents, garbage, wrappers, plastics and other materials carried by the flowing water pollute the water bodies.

Chemical Fertilizers and Insecticides

The excess use of fertilizers and pesticides causes water pollution. Because these chemicals are washed into the rivers and lakes with rainwater, they pollute the soil and underground water also. Pesticides like DDT (Dichloro Diphenyl Trichloroethane) enter the bodies of aquatic animals and reach the human body by the way of food chain.

Synthetic Detergents

Excess use of synthetic detergents for washing purposes produces foam and they pollute the water.

Oil Spill

Oil leakages on the surface of the sea affect the marine organisms.

Prevention of Water Pollution

1. Plastic waste, food materials and vegetables should not be thrown into open drains.
2. Proper sewage treatment and management should be implemented.
3. Excess use of fertilizers and pesticides should be avoided in agricultural land.

Waterborne Diseases

Illness caused by the micro-organisms present in the untreated or contaminated water is called waterborne

diseases. They are responsible for morbidity and mortality in all age groups particularly among children under 5 years of age. It is believed that 80% of all diseases in the world are caused by inadequate sanitation and polluted water. Poverty, illiteracy, overcrowding and low health services are also directly or indirectly responsible for the prevalence of these diseases.

Diarrhoea, dysentery, typhoid and cholera are some of the common waterborne diseases. They are caused by micro-organisms like bacteria and virus. Some of them are spread by mosquitoes.

Aedes mosquito breeds in stagnant water and it causes Dengue fever. Similarly, pigs feed in the stagnant sewage water. The pigs infected by virus spread Swine flu.

Prevention of Waterborne Diseases

1. Good personal hygiene should be practiced and basic sanitation should be improved.
2. Chlorinated and boiled water should be used for drinking.
3. Drink boiled or pasteurized milk.
4. Dispose infectious wastes properly.

Multiple Choice Questions

1. Which of the following micro organisms causes water borne diseases?
 - a. All
 - b. Virus
 - c. protozoa
 - d. Bacteria
2. _____ water is free from suspended impurities.
 - a. River
 - b. Well
 - c. Underground
 - d. Sea
3. _____ of water is in oceans and seas
 - a. 97%
 - b. 87%
 - c. 77%
 - d. 47%

4. _____ is an artificial process of converting sea water into fresh water
 - a. Desalination
 - b. Reverse Osmosis
 - c. Decantation
 - d. Distillation
5. Which of the following are advantages of rain water harvesting?
 - a. Rain water harvesting can reduce flooding in the cities.
 - b. Rain water harvesting can reduce top soil loss.
 - c. Ground water level can be increased.
6. Which of the following are sources of waste water?
 - a. agriculture
 - b. houses
 - c. industries
7. Which of the following is not a desalination process?
 - a. Reverse Osmosis
 - b. Filtration
 - c. Distillation

Fill in the blanks using the words given at the bottom.

1. The accumulated underground water comes out in the form of _____ .
 2. The process of changing water into water vapour by the heat of the Sun is called _____ .
 3. Rain water forms _____ which join together to form rivers.
 4. The process of collecting and storing rain water is called _____ .
 5. Cholera is caused by _____ .
- streams evaporation bacteria rainwater
harvesting springs

Match the following.

Leakage of oil	Man-made lake
Reservoir	Influenza virus
Condensation	Pollution
Rainwater harvesting	Cloud
Swine Flu	Save water

Click the blanks and fill it with the right word.

1. Due to recent changes in the _____ (climate, weather) we don't have water in lakes and ponds.
2. Rain water _____ (harvesting, ploughing) can reduce flooding in the cities.
3. Waste water treatment ensures that the _____ (environment, atmosphere) is clean.
4. Desalination is _____ (an artificial, a natural) process of converting saline water (sea water) into fresh water.
5. The discharge of _____ (untreated, treated) industrial wastes from the industries into rivers is the main cause of water pollution.
6. Toxic mean _____ (poison, unhealthy).
7. Water borne diseases are caused by _____ (micro, macro) organisms.

Classify the below sentence as Good or Bad.

1. Drink boiled water.
2. Proper rainwater harvesting is done in buildings.
3. Allow mosquitoes to live in our surroundings.
4. Discharge untreated water from industry.
5. Increase the use of plastics.

WaterPollution of water

Water is polluted when other substances get mixed in it. Some float on its surface while some dissolve in it. This makes the water unfit and unhealthy for drinking.

Disposal of waste water

Waste water is impure water and thus is polluted. Sewage water carries microbes that spread diseases. Waste water from industries can also be poisonous. If we mix this waste water into our water sources like oceans, rivers, and seas, then it will be a big problem for us.

This is why all industries must treat the waste water before releasing it. Similarly, sewage is also purified before releasing the water into a water body. Likewise, water is purified before being supplied across the town.

Mineral water

It is conveniently available in general stores and stations. The bottles are packed and sealed. We should always check the date of sealing and the date of expiry printed on the neck of the bottle before buying it.

Checking for dates is important for not just mineral water bottles but for other packed edibles like food and medicines as well.

Famine

Places with least or no rainfall face scarcity of water, which further leads to drought.

When there is no water to drink, bathe, cook and for agriculture, this condition is called famine.

The government moves people from the affected areas to a safer place, temporarily.

Do you know?

1. Air and water are mixed with the help of pumps. This leads to the dissolution of oxygen in the water. The process is called oxygenation.
2. In chlorination, chlorine is mixed in water to kill the germs present in it.

Fill in the blanks using the words given at the bottom.

1. _____ water is available in sealed bottles.
2. _____ water is polluted water.
3. _____ should be treated before merging with rivers.
4. _____ means mixing oxygen and water through pumps.
5. _____ is when there's no water left.
6. _____ is the excess flow of water.

Famine Mineral Sewage Oxygenation
Waste water Flood

Match the babies

Mineral water	Impure water
Sewage	Excess water
Famine	General store
Flood	Waste water
Pollution	Scarcity

Classify the below sentences as true and false

1. Waste water is directly disposed into rivers and seas.
2. We must not waste water at any cost.
3. Water pollution refers to the purification of water.
4. Famine is a natural disaster.
5. We should ignore the manufacture and expiry date in mineral water bottles.
6. We cannot consume polluted water.
7. Droughts lead to scarcity of water.

Everyday Science

Science in Kitchen

Science is the study of the natural world around us. We learn science by observing, experimenting and describing. Science is all around us.

Examples of science can be observed from the time we wake up till we go to sleep and even while one is sleeping.

Science influences most aspects of everyday life, including food, energy, medicine, transportation and leisure activities.

Even in our sleep our body is working continuously. We dream while we sleep.

When we eat food, our digestive system is at work.

Medicine, vessels and furniture we use are the products of science.

Kitchen Science

If one wants to explore science in everyday life, then kitchen is the right place to start. To understand how water boils or how idlis are cooked, we must know science.

What is boiling?

Heating a liquid until it becomes gas is called boiling. Boiling the water means to heat the water until it becomes gas and mixes with the air.

Boiling Point

The boiling point of a substance is the temperature at which the liquid boils. At this temperature, the liquid changes into gas.

Benefits of boiling water

1. Destroys germs
2. Improves digestion
3. Prevents us from the infection of waterborne diseases

Steaming

Idli is cooked by the method called Steaming. Idli batter produced from rice and lentils is fermented for 8 hours before use.

Advantages of Steaming

1. Easy cooking method.
2. Steamed food is easily digested.
3. Steamed food retains Vitamin C and E.

Pressure cooking

Cooking food using water in a sealed vessel (cooker) is called pressure cooking. It can cook foods four times faster than ordinary cooking. The advantages of pressure cooking are:

1. It saves time
2. It minimizes the usage of fuel and saves energy
3. It retains nutrients in food

Home appliances

Things like electric bulb and fan are called home appliances. It is not easy to run our life these days without home appliances. Home appliances are machines that make life easier and convenient.

Kitchen appliances

1. Gas stove is used to cook food. We can control heat by a knob.
2. Grinder is used to grind food grains and prepare batter.

3. Mixer is used to grind spices, make chutney and prepare juices.
4. Vegetable cutter is used to chop vegetables.
5. Kettle is used to boil water and heat tea or coffee.
6. Induction Stove is used as a substitute to stove and works on electricity.

A Refrigerator (Fridge) is a popular home appliance for preserving food. It works on the principle of cooling. The fridge has a pump that transfers heat from the inside of the fridge to its outside. This helps it to keep things cold. The cold temperature inside the fridge slows down the bacterial growth in food and thus preserves the food for a longer time.

Safety Measures

1. Never play with kitchen utensils such as knives, match boxes and glasswares.
2. Use a cloth to hold hot pans.
3. Inform an adult in case you smell cooking gas leakage.
4. Turn off the gas stove, microwave oven and any other electrical gadget immediately after use.

Medicine in the kitchen

In the past times, kitchen medicine was practiced in every house. People knew how to treat some of the ailments of the family members and manage emergencies with what was available in the kitchen.

Garlic is called the poor man's antibiotic. It helps to balance blood pressure and reduces symptoms of common cold.

Asafoetida improves digestion. It is used as a remedy for diarrhoea and dysentery.

Ginger helps to improve digestion. It also reduces nausea.

Turmeric is a common anti-infectant and it helps to heal wounds.

Black Pepper is a great remedy for colds, coughs.

Cloves helps to relieve toothache.

Preparation of coriander tea

This is made from coriander seed powder. One tablespoon of powder is mixed to two or three cups of water. Jaggery is added and they are boiled for 5 minutes. It improves digestion.

Multiple Choice Questions

1. Which of the following are the benefits of boiling water?
 - a. Destroys germs
 - b. Improves digestion
 - c. Prevents us from the infection of waterborne diseases
2. Idli is prepared by the process of _____.
 - a. pressure cooking
 - b. steaming
 - c. boiling
3. Which of the following is not a home appliance?
 - a. Shoes
 - b. Fan
 - c. Grinder
 - d. Stove
4. Which of the following is safe to play with?
 - a. Kettle
 - b. Match box
 - c. Plate
 - d. Gas stove
5. Medicine for common illness can be found in _____.
 - a. kitchen
 - b. dining room
 - c. living room
 - d. bedroom
6. _____ is called the poor man's antibiotic.
 - a. Garlic
 - b. Ginger
 - c. Turmeric

Odd one out

1. Gas Stove, Kettle, Fridge, Mixer
2. Idli, Tea, Juice, Coffee
3. Cough, Sleep, Cold, Fever
4. Vegetable cutter, Induction Stove, Kettle
5. Pan, Fork, Spoon, Ladle

Match the following

Grinder	Electricity
Mixer	Batter
Kettle	Store Vegetables
Induction Stove	Juice
Fridge	Boil water

Classify the below sentences as true and false

1. Cooking involves lot of science.
2. Kids can play with match boxes.
3. We can use the induction stove, even without electricity.
4. Kitchen has medicine to some of the common illness.
5. In modern days, it is possible to live without appliances.
6. The cold temperature inside the fridge slows down the bacterial growth in food and thus preserves the food for a longer time.
7. We keep vegetables in fridge to protect from insects like cockroach.

Fill in the blanks using the words given at the bottom.

1. Science is the study of the _____ world around us.
 2. A refrigerator is also known _____. It works on the principle of _____
 3. Kids should never play with _____ .
 4. Heating a liquid unit becomes gas is called _____ .
- knives cooling fridge boiling natural

Match the following

Asafoetida	Blood Pressure
Garlic	toothache
Turmeric	Digestion
Black Pepper	Wounds
Cloves	Cough

Everyday Science

Gadgets

A gadget is a small electronic machine or device which does something useful. Number of gadgets have changed our lives. They make our life enjoyable.

Examples: Laptop, Phone, Camera, Pen drive, Speaker

Smart Phones

Apart from communication, smart phones have the ability to access the internet and store files, take photos, track location and much more.

Portable Music Player

It stores and plays thousands of songs. We can listen to songs anywhere, anytime.

Tablets

People use tablets to read books, play games and watch videos.

Pen Drive

It is a small gadget used for storing and transferring any type of file in / from a computer.

Electric Torch

Portable hand-held electric light. Torch is used to provide light in the dark places when it is switched on.

There are many advantages in using gadgets. But too much of anything is not good. As responsible kids, we should put a time limit on using gadgets.

Watching the screen of mobile or TV for long hours will affect our eye sight. It also makes us lazy and we get diseases like obesity.

In the previous generation, there was no gadgets like smart phone and tablets. Children used to play outdoor games which involves lot of running and exercises. Keeping this in mind, kids should play lot of outdoor games, rather than playing video games.

Internet

Internet allows us to connect with anyone in the world present in different places. Students can attend online classes only because of the internet.

Match the following

Music Player	Communication
Smart Phone	Stores Data
Electric Torch	Read books
Pen drive	Songs
Tablet	Light

Multiple Choice Questions

- What is essential for the the working of gadgets?
 - Electricity
 - Sun light
 - Clean house
- What do we use while going to unfamiliar places?
 - Youtube
 - Facebook
 - Google Map
- What is the best habit to have for kids?
 - Have a time limit for using gadgets
 - Avoid using gadgets
 - Watch videos but don't play games.
- What is the most important requirement for attending online class?
 - Internet
 - Mic
 - Camera
- Which is the best gadget for reading books?
 - Music Player
 - Smart watch
 - Pen drive
 - Tablet

Find the word.

- TPAPLO :
- REAMAC :
- ASMTR :
- ENHPO :
- PERESKA :

Click the blanks and fill it with the right word.

- A gadget is a small _____ (electronic, electric) machine.
- _____ (Pen drive, Mouse) is used to store files.
- Watching the _____ (screen, camera) of mobile for a long hours will affect our eye-sight.
- In the _____ (previous, current) generation, there was not many gadgets.
- _____ (Internet, Websites) connects the world.

Everyday Science

Reversible Changes

Change is the transition of a substance from one form to another. We see many changes around us. We see changes like day and night, summer and winter and so on. We also see changes in objects. Growth of a tree, ripening of fruits, falling of leaves are some of the changes taking place around us. You can observe changes in you also. Your height and weight increase, hair and nail grow and you have grown up as a whole compared to last year. These changes can be classified as reversible and irreversible changes.

Reversible Changes

Changes which can be reversed are called reversible changes. If you keep water in the freezer for some time, it is tranformed into ice. If it is taken out, it becomes water again. This is a reversible change.

Irreversible Changes

Changes which cannot be reversed are called irreversible changes. If you burn a piece of paper it burns and turns into ash. It cannot become paper again. This is an irreversible change.

Irreversible changes are also known as permanent changes. Processes like burning, cooking, rusting of iron cause permanent changes.

The chemical properties of the substance do not change in reversible changes. On the other hand, the chemical properties of the substance will change in irreversible change.

Wastes Generated in our Environment

Waste is any substance which is discarded after

primary use. It is worthless, defective and of no use.

They are unwanted and undesirable materials.

Wastes from home is known as household waste and they are classified as below

Organic wastes:

Kitchen wastes, Vegetables, Flowers, Leaves, Fruits

Toxic wastes:

Old medicines, Paints, Chemicals, Bulbs, Spray cans, Fertilizers, Pesticide, containers, Batteries, Shoe polish.

Recyclable wastes:

Paper, Glass, Metals, Plastics.

E-wastes:

Computer parts, Electronic materials, Cell phone parts, CFL bulbs.

Waste management is needed for the following reasons.

To control pollution

Various pollutions like water pollution, air pollution and soil pollution can be avoided.

To conserve natural resources

Waste disposal is important for the conservation of our environmental resources like forest, minerals and water.

To control spread of diseases

Spread of infectious diseases can be controlled.

Recycle for further use

Wastes can be recycled to get products for further use.

We need to learn how to reduce, reuse and recycle wastes. The following practices will be helpful to reduce wastes in our home and school environment.

1. Use reusable and recyclable bags and containers.
2. Avoid one time use items and use items which can be used repeatedly.
3. Segregate wastes into bio-degradable and nonbiodegradable items.
4. Do not throw away your wastes every where. Put them in dustbins and dispose them properly.

5. Don't waste food. Waste food in schools can be collected and used to feed cattles.

6. Organic wastes can be converted into manures.

Pick the odd one out

1. Cooking, Melting, Freezing, Boiling
2. Rusting of iron, Burning, Cooking, Boiling
3. Fruits, Vegetables, Chemicals, Flowers
4. Paper, Metals, Paints, Glass

Classify the below, as reversible or irreversible process.

1. Freezing water in a fridge.
2. Stretching a rubber band.
3. Bursting a balloon.
4. Burning of papers
5. Blowing air into a balloon.
6. Cutting a rubber band into pieces.

Match the following

Used Mobile	organic
Vegetable waste	reversible
Paper	irreversible
Rusting	e-waste
Freezing	recyclable

Multiple Choice Questions

1. An example for reversible change is _____.
 - a. melting of ice
 - b. change of milk into curd
 - c. burning paper
 - d. burst of balloon
2. Chemical reactions are example for
 - a. both of them
 - b. reversible change
 - c. irreversible change
 - d. none of them

3. Which of the following is not an organic waste?

- a. Flowers
- b. Battery
- c. Vegetables
- d. Fruits

4. _____ wastes can be converted into manures.

- a. organic
- b. recyclable e-waste
- c. toxic

5. Which of the following help to reduce waste?

- a. Use reusable bags
- b. Don't waste food
- c. Segregate wastes into bio-degradable and nonbiodegradable items

Fill in the blanks using the words given at the bottom.

1. Most of the physical changes are _____ changes.

2. Most of the chemical changes are _____ changes.

3. Wastes from house and apartments are called _____ wastes.

4. News paper is a _____ waste.

5. Kitchen wastes are _____ waste.

irreversible recyclable reversible
organic household

Air

Air - Introduction

Air is a natural resource. We cannot live without it. It is present around us. It has no definite shape and colour. Air has weight and it occupies space. We cannot see air but it can be felt. Air can flow everywhere.

Push an empty cup upside down into the water. Slowly turn the cup. You can see air bubbles coming out of the cup.

Tie a balloon to the mouth of a bottle. Keep the bottle in a vessel containing hot water. Observe it for some time. The balloon expands. Why? Due to the heat of the water in the vessel, air inside the bottle becomes hot. Hot air fills the balloon. Therefore the balloon expands.

Air has weight

Take two balloons. Fill air in one balloon and keep the other balloon as it is. Make a measuring tool using a stick and tie the balloons on both the ends. Balloon filled with air is heavier than the empty balloon.

Light an incense stick in the corner of the classroom and observe. The smoke of the incense stick moves everywhere. The air pushes the smoke.

See the clouds in the sky that moves everywhere. Clouds move because of the movement of air.

Electricity is generated from wind with the help of the windmills.

Can you remove a small plastic ball from a glass vessel without physically touching it? Yes, you can. If you blow towards one wall of the glass very hard and the ball will be ejected out of the glass.

Take a plastic bottle and fit a soggy newspaper pellet tightly in its mouth. On pressing the bottle, the pellet will come out with a loud POP sound.

Make a paper plane with waste paper and fly it in the air.

Light a candle and place it on a table. Now cover the lightning candle with a glass jar. Observe what happens? The light will go off. Air is required for burning.

All living things need air for their survival. Plants breathe through leaves and fish breathe through gills. Humans breathe in and breathe out through lungs.

Inhalation is the process of taking the air inside and exhalation is the process of releasing the air outside. This cyclical process of inhalation and exhalation is called breathing. We take oxygen and release carbon dioxide gas while breathing.

Why the doctor checks your pulse when you are sick and ask you to breathe in and breathe out? When we breathe-in our chest raises up and when we breathe-out it lowers down.

Take some sand in your hand and release the sand. It falls in the direction of the wind. Moving air is called wind. It moves across the surface of the Earth. Based on the speed of air, wind can be classified as breeze, storm and gale.

Speed of the wind is measured using an instrument called 'Anemometer'.

Breeze

A gentle wind is called breeze. Sea breeze and land breeze are the two types of breeze.

Sea breeze

The breeze that blows from the sea towards the land during day time is known as sea breeze. As the warm air from the land rises up and the cold air from the sea occupies the space over the land.

Land breeze

The breeze that blows from the land towards the sea during night time is known as land breeze. The warm air from the sea rises up, and so the cold air from the land moves towards the sea.

Storm

Strong wind is called storm. Sometimes storm can uproot trees and can destroy the crops.

Gale

A very strong wind is called gale. Gale is stronger than storm.

Fill in the blanks using the words given at the bottom.

1. We inhale _____ and exhale _____. This cyclical process of inhalation and exhalation is called _____.
2. The air present in Earth, is majorly made up of _____.
3. Air has _____ but it doesn't have _____.

carbon-dioxide shape weight oxygen
breathing nitrogen

Pick the odd one out.

1. storm, wind, water
2. balloon, stone, kite
3. cough, inhale, exhale
4. day, cloud, night
5. heart, lungs, nose

Match

breathing	Breeze
windmill	Storm
Gentle wind	electricity
Strong wind	Anemometer
wind speed	lungs

True or False

1. Air occupies space but has no weight.
2. We release oxygen during breathing.
3. Clouds move because of the movement of air.
4. Air has definite shape.
5. A very strong wind is called gale.
6. Air fills the empty space.
7. Air is colourless.

Multiple Choice Questions

1. Which of the following is required for good health?
 - a. Dust
 - b. Smoke
 - c. Clean air
2. Air has _____.
 - a. weight
 - b. shape
 - c. color
3. _____ is used to measure the speed of wind.
 - a. Thermometer
 - b. Speedometer
 - c. Anemometer
4. We inhale _____.
 - a. carbon dioxide
 - b. nitrogen
 - c. oxygen
5. Very strong wind is called _____.
 - a. gale
 - b. storm
 - c. breeze

6. Clouds move because of movement of _____.

- a. air
- b. sun
- c. moon

Our Need for Air

Air is all around us, even though we cannot see it. But we are able to feel air. Air does not have colour, smell, or taste.

We need air to breathe. Inhalation and exhalation are together called breathing. We breathe continuously and this process is called respiration.

We need air for our body to function properly. It also makes us feel fresh and lively. We require air to produce the energy that we need to do all our works.

Fill in the blanks using the words given at the bottom.

1. As _____ goes on continuously, a sleeping man's chest can be seen going up and down.
2. There is _____ all around us.
3. Like us, all living things _____ air.
4. We can _____ air although we cannot _____ it.

5. Air does not have _____, smell or taste.

need feel air colour breathing see

Classify the below sentences as true and false

1. Air makes us feel dull.
2. Air does not have smell or taste.
3. Air is colourless.
4. We do not require air to function properly.
5. Air is all around us.
6. We cannot see air.
7. We can feel air.

Complete Word - Breathing

1. The process by which we breathe in air through our nose.

I _ H _ _ A _ I _ _

2. The process by which we breathe out air through the nose.

E _ H _ _ A _ I _ _

3. Inhalation and exhalation are together called _____.

B _ _ _ T _ _ _ G

4. The process by which we breathe continuously is called _____.

R _ _ P _ R _ _ _ O _

Air

Atmosphere

The earth we live on is round in shape. There exist a blanket of air surrounding the earth. This blanket of air is known as atmosphere. The atmosphere is as high as 50km.

As we go farther from the earth, the layer of air becomes thin. The air at greater heights is rarer and the layers of air are also not held close together.

Air plays a role in burning. The component of air that helps in burning is a gas called oxygen. Oxygen is also used for respiration by us. Another component of air is carbon dioxide which is used by plants to make food. However, the largest component in air is nitrogen. Air has several gases mixed in it therefore, air is called a mixture of gases.

Some fuels like coal, petrol and diesel give out smoke while burning. This mixes with air and pollutes it.

Match the following

Nitrogen	0.07%
Oxygen	small quantities
Argon	21%
Carbon dioxide	78%
Other gases	0.03%

Click the blanks and fill it with the right word.

1. About ____ (78%, 97%) of air is made up of nitrogen.
2. About ____ (21%, 50%) of air is made up of oxygen.
3. As we go higher from the surface of the earth, the air in the atmosphere becomes _____ (rarer, denser).
4. _____ (Oxygen, carbon dioxide) is required for burning.
5. Plants use _____ (carbon dioxide, oxygen) to make food.
6. The fizzy bubbles in soft drinks are due to the presence of _____ (carbon dioxide, nitrogen).

Classify the below sentences as true and false

1. We inhale carbon dioxide.
2. Plants need carbon dioxide to prepare food.
3. We exhale oxygen.
4. At heights air is denser.
5. Burning fossil fuels pollutes the air.
6. Oxygen is required to produce energy to do work.

Odd one out

1. stratosphere, atmosphere, biosphere
2. xenon, oxygen, nitrogen, carbon dioxide

Complete Word

1. Burning of fossil fuels release smoke, which may lead to _____.
A _ _ _ P _ _ _ U _ _ O _
2. Layer of atmosphere that protects us from UV rays is called _____.
_ Z _ N _
3. The largest component of air is _____.
N _ _ _ O _ _ N
4. _____ is a mixture of several gases.
_ I _

Fill in the blanks using the words given at the bottom.

1. The layers of air in the atmosphere close to the earth are pressed _____ to each other while the upper layers are rarer.
2. There is _____ even in an empty container.
3. The air at a greater height from the earth is _____ than the air nearer to the earth.
4. If all the air were divided into five parts, the oxygen in the air would equal to _____ part.
5. There is air till a height of about _____ km from the earth.

closer air rarer one 50

Multiple Choice Questions

1. Air is _____ than water
 - a. lighter
 - b. heavier
 - c. rarer
 - d. denser

2. As we go farther from the earth, the layers of air become _____.

- a. thinner
- b. lighter
- c. thicker

3. The gas that fizzes out of soda-water is _____.

- a. carbon dioxide
- b. nitrogen
- c. oxygen

4. Water is present in air in the form of a _____.

- a. gas
- b. vapour
- c. liquid

The composition of AirImportance of air.

1. Oxygen present in air is needed for respiration.
 2. We can speak and hear the sound only when there is air around.
 3. Air helps in the dispersal of seeds for plant reproduction.
 4. Monsoon and rain occurs due to the wind action.
 5. Air regulates the atmospheric temperature.
- The properties of all the gases present in Air.

Nitrogen

1. It is used to fill up food packages to extend their shelf life.
2. Liquid nitrogen is used to store living cells.
3. Plants need nitrogen for their growth.
4. We can see root nodules containing nitrogen in some plants.
5. Nowadays people use nitrogen gas to fill the tires of their vehicles.
6. Some compounds of nitrogen are used as explosives also.

Oxygen

1. The presence of oxygen can be tested with a piece of glowing splint, which relights in oxygen.
2. All living things use oxygen for breathing.
3. Oxygen is essential for burning.

4. Oxygen cylinders are used in hospitals to enable the patients to breathe when they cannot breathe normally.
5. Oxygen is used in gas welding.
6. Mountaineers carry oxygen cylinders at high altitudes.
7. Deep sea divers also carry oxygen cylinders along with them while diving deep into the sea.

Carbon dioxide

1. The presence of carbon dioxide can be tested with help of lime water. The lime water changes from colourless to milky in presence of carbon dioxide.
2. Carbon dioxide helps plants in photosynthesis.
3. It is used in fire extinguishers.
4. It is used in refrigerators as dry ice for cooling purposes.
5. It is used to make plastics and polymers.

Air pollution

Air pollution

The atmospheric balance is disturbed by human activities. The air carries soot, smoke, and other particles from car exhaust and power plants. These are the major contributors to air pollution.

Adverse effects of air pollution

1. Global warming
2. Formation of smog
3. Acid rain
4. Aerosol formation
5. Depletion of ozone

Effects of air pollution on human beings

1. Irritation in the eyes, nose and throat
2. Wheezing, coughing and breathing problems
3. Respiratory diseases
4. Cardiovascular damage.
5. Fatigue, headaches and anxiety.
6. Nervous system damage.

Steps to check air pollution

1. Alternative source of energy (E.g. Solar energy) should be used.
2. Air filters should be used to prevent harmful gases

mixing with air.

3. Smoke emission test and certification of motor vehicles must be enforced.
4. More trees should be planted to absorb carbon dioxide.

Alternative source of energy are Solar Power, Nuclear Power, Hydroelectric Energy, Wave Energy, Biofuels, Natural Gas, Geothermal Power, Wind Energy, Biomass Energy, Tidal Energy and Hydrogen Gas.

Click the blanks and fill it with the right word.

1. Clay pot has thousands of tiny pores through which water seeps out. This causes _____ (cooling, heating) effect.
2. The _____ (flute, piano) is an example for wind instrument.
3. In 1772, the Scottish chemist, Daniel Rutherford, reported noxious air, which now we call _____ (nitrogen, oxygen).
4. A grown up tree intakes _____ (1/3, 2/3) of carbon dioxide exhaled by one person and it gives out the same amount of _____ (oxygen, carbon dioxide) required by a person.
5. _____ (Three, Five) trees are needed to fulfill the required oxygen for a man to survive.

Classify the below sentences as true and false

1. Carbonated drinks are bad to health.
2. The gas used for burning things is Argon.
3. Plants need nitrogen for their growth.
4. Air pollution has good impact on human health.
5. Covering our mouth and nose while sneezing or coughing prevents spreading of germs through air to people around us.
6. The Scottish chemist Joseph Black discovered that carbon dioxide is present in air.
7. Air is made up of oxygen only.

Complete Word - Air Composition

1. It gives you oxygen.
T _ _ E
2. Melting of snow caps and increase in sea levels due to _____.
G _ _ _ A _ W _ _ M _ _ _

3. Dust particles and smoke combine with fog in the presence of sunlight to form _____.

S _ _ G

4. Liquid or solid particles are dispersed in air are called _____.

A _ R _ S _ L

5. Hydrocarbons such as the Chloro Fluoro Carbons (CFCs) destroy the _____ layer.

O _ O _ _ _

Match the following

Smog	Alternative source
Lung cancer	Air
Balloon	Smoke and fog
Solar	Air pollution

Multiple Choice Questions

1. The Scottish chemist Joseph Black discovered that _____ is present in air.

- a. oxygen
- b. carbon dioxide
- c. nitrogen

2. _____ radiation harms wildlife, damages plants and causes skin cancer in humans.

- a. IR
- b. UV
- c. X ray

3. _____ present in air is needed for respiration

- a. nitrogen
- b. Oxygen
- c. carbon dioxide

4. Monsoon and rain occurs due to the _____ action.

- a. storm
- b. wind
- c. breeze
- d. gale

5. _____ can be tested with lime water.

- a. Nitrogen
- b. Oxygen
- c. Carbon dioxide

6. We can speak and hear the sound only when there is _____ around.

- a. air
- b. water
- c. light

7. _____ is used to make plastics and polymers.

- a. Carbon dioxide
- b. Oxygen
- c. Nitrogen

8. Air regulates the atmospheric _____.

- a. pressure
- b. balance
- c. temperature

9. _____ cylinders are used in hospitals to enable the patients to breathe when they cannot breathe normally.

- a. Carbon dioxide
- b. Nitrogen
- c. Oxygen

10. We can speak and hear the sound only when there is _____ around.

- a. air
- b. water
- c. light

11. While _____ with firewood, fanning air helps in burning of fire wood.

- a. burning
- b. heating
- c. cooking

12. _____ is used to fill up food packages to extend their shelf life.

- a. Carbon dioxide
- b. Oxygen
- c. Nitrogen

13. _____ is used in fire extinguishers.

- a. nitrogen
- b. oxygen
- c. carbon dioxide

Air-5

Air

Atmosphere

Atmosphere is the layer of gas that surrounds Earth. Atmosphere is divided into five different layers:

1. Troposphere: It is the lowest and densest layer. It extends up to 10km from sea.
2. Stratosphere: It is the region above troposphere. It extends up to 50km. There is no water vapour in this layer. The temperature is around -500C.
3. Mesosphere: It is the region above stratosphere. It extends to a height of about 85km. The temperature is around -1100C. Most of the meteors burn in this layer.
4. Thermosphere: It is very rare layer of air above mesosphere.
5. Exosphere: It is the outermost layer with extremely thin air. It extends up to 400 to 1500km.

Importance of Air

1. All living organisms require air.
2. It regulates the water cycle.
3. Air supplies energy.
4. Sound travels through air.
5. Plants require air to grow.
6. Helps in transport.
7. Produce wind energy.
8. Help in movement of parachutes and hot air balloons.

Classify the below sentences as true and false

1. Plants absorb nitrogen in the form of ammonia.
2. Spacecrafts are seen in thermosphere.
3. Exosphere is nearest to earth.
4. Ultraviolet rays can cause damage to our skin and eyes.
5. Movement of clouds is possible due to air.
6. Body cells burn the food molecules with the help of

oxygen and produce energy.

Match the following

Troposphere	satellite
Stratosphere	outermost layer
Exosphere	meteors
Thermosphere	ozone
Mesosphere	weather change

Multiple Choice Questions

1. Second highest layer of Earth's atmosphere is _____.
 - a. mesosphere
 - b. exosphere
 - c. thermosphere
 - d. stratosphere
2. The _____ layer protects us from the harmful UV rays coming from the sun.
 - a. atmosphere
 - b. ozone
 - c. mesosphere
3. _____ is used by plants as nitrates.
 - a. nitrite
 - b. ammonia
 - c. nitrogen
4. Movement of air is called _____.
 - a. wind
 - b. breeze
 - c. gale
5. _____ is the recreational and competitive adventure sport of flying.
 - a. hand gliding
 - b. surfing
 - c. paragliding
6. Process of nitrogen fixation by _____ is called nitrogen fixation.
 - a. earthworm
 - b. plants
 - c. microbes

7. Sound travel through _____.

- air
- land
- water

Air Pollution

Air Pollution

Presence of harmful substances in air have an adverse effect on living beings and environment. This is called air pollution.

Causes:

- Industries
- Burning of fossil fuels
- Agricultural activities like use of pesticides
- Mining
- Use of chemical for cleaning

Effects:

- Spread of diseases
- Global warming
- Acid rain
- Depletion of ozone layer
- Adverse effect on marine life
- Adverse effect on wildlife

Prevention:

- Use public transport
- Reduce usage of fossil fuels
- Use renewable energy sources
- Recycle and reuse
- Switch off appliances after using them
- Plant more trees

Click the blanks and fill it with the right word.

- Combustion of fossil fuels like coal and petroleum release _____ (sulphur dioxide, carbon dioxide)
- Air pollution can be natural or _____ (man-made, industrial).
- Extraction of _____ (minerals, salts) from the earth is called mining.
- Taj Mahal in Agra is built entirely with _____ (white,

yellow) marbles.

5. Air pollutants cause pneumonia and _____ (asthma, cold) in children.

6. The growth of _____ (green, red) algae in water bodies is called eutrophication.

Classify the below sentences as cause and effect of air pollution

- Depletion of ozone layer
- Global warming
- Acid rain
- Adverse effect on marine life
- Industries
- Burning of fossil fuels
- Use of chemical for cleaning
- Agricultural activities like use of pesticides
- Adverse effect on wildlife
- Mining
- Spread of diseases

Classify the following based on whether it is natural or man-made pollution

volcanic eruption, lightning, industrial waste, mining, burning coal, storm

Natural

Man-made

Airborne Diseases

Airborne Diseases

Diseases which are caused by microorganisms and communicated through air are called airborne diseases. Air borne disease can be further classified into two.

1. Bacterial diseases: Diphtheria, Whooping Cough and Tuberculosis are some of the common airborne diseases caused by bacteria.

2. Viral diseases: Common cold, influenza, measles, mumps and chickenpox are some of the diseases caused by virus.

Prevention:

1. Avoid close contact with people who have active symptoms of disease.
2. Maintain personal hygiene.
3. Keep the patient in complete isolation. Cover nose and mouth while sneezing or coughing.
4. Avoid touching the face or other people with unwashed hands.
5. Wash your hands thoroughly.
6. Timely vaccination can prevent the diseases.

Find the causative organism

1. The causative organism of Common cold is _____.

R _ _ _ O V _ _ U _

2. The causative organism of Influenza is _____.

M _ _ O V _ _ U _

3. The causative organism of Measles is _____.

R _ _ E _ _ A V _ _ U _

4. The causative organism of Chicken pox is _____.

V A _ _ _ L _ _ Z _ _ S

5. The causative organism of Tuberculosis is _____.

M _ _ _ B _ C _ _ R _ _ M

6. The causative organism of Diptheria is _____.

C _ _ _ _ B _ _ T _ _ I _ _

7. The causative organism of Whooping cough is _____.

B _ _ D _ _ A _ _ A P _ _ T

_ _ I _

Classify the diseases based on causative organism.

mumps, measles, tuberculosis, diptheria, influenza

Bacteria

Virus

AtmosphereImportant terms

1. Lithosphere: land on Earth.
2. Atmosphere: air on Earth.
3. Hydrosphere: water on Earth.
4. Biosphere: life on Earth.
5. Weather: day to day conditions of atmosphere.
6. Climate: average weather for a given period of time.
7. Solar radiation: heat energy from sun.
8. Meteorology: study of weather.
9. Latitude: an imaginary line drawn horizontally on Earth's surface.
10. Longitude: semicircle extending from North pole to South pole.
11. Prime meridian: 0 degree longitude
12. IST: Indian Standard Time.
13. Rain water harvesting: technique of collection and storage of rain water.

Important Dates

1. World Environment Day - June 5
2. World Ozone Day - September 16
3. World Weather Day - March 23

Effects of solar radiation

1. Land - conduction
2. Water - convection
3. Atmosphere terrestrial radiation

Important Latitudes

1. Equator - 0 degree
2. Tropic of Cancer - 23(1/2) degree North
3. Tropic of Capricorn - 23(1/2) degree South
4. Arctic circle - 66(1/2) degree North
5. Antarctic circle - 66(1/2) degree South

Heat zones of Earth

1. Torrid zone: zone between Tropic of Cancer and Tropic of Capricorn.
2. Temperate zone: receives slanting rays of sun.
3. Frigid zone: do not get sun's rays.

Important Mountain peaks

1. Mount Everest
2. K2
3. Kanchenjunga
4. Nanga Parbat
5. Annapurna

Instrument

1. Barometer: used to measure pressure.
2. Wind vane: used to measure direction of wind.
3. Anemometer: used to measure speed of wind.

Types of wind

1. Planetary wind
2. Monsoon wind
3. Sea breeze
4. Land breeze
5. Local wind
6. Jet streams
7. Hurricane

Types of clouds:

1. Cirrus cloud: These may not give rain. They are seen at very high altitudes.
2. Stratus cloud: They are grey in colour and are spread out. They may give small shower.
3. Cumulus cloud: It looks like a burst cotton and gives convectional rain fall. These clouds are associated with rainfall lightning and thunder.
4. Nimbus cloud: It appears as dark or grey in color. It gives heavy rainfall. It is called vertical or rain clouds.

Complete Word-1

1. _____ is the land on Earth.
L _ _ _ O _ _ E _ R _
2. _____ is the air on Earth.
A T _ _ _ P _ _ R _
3. _____ is the water on Earth.
H _ _ _ _ S _ _ _ R _
4. _____ is the life on Earth.
B _ _ S _ _ _ R _
5. _____ is the day to day conditions of atmosphere.
W _ _ T _ E _

Fill in the blanks using the words given at the bottom.

1. _____ is the average weather for a given period of time.
2. _____ is the heat energy from sun.
3. _____ is the study of weather.
4. _____ is an imaginary line drawn horizontally on Earth's surface.
5. _____ is a semicircle extending from North pole to South pole.

Meteorology Longitude Solar radiation
Climate Latitude

Classify the below sentences as true and false

1. The natural materials and living things, including sunlight are called environment.
2. Monsoon winds move in the same direction throughout the year with the rotation of the Earth.
3. Air currents in the upper layers of atmosphere is known as Jet streams.
4. Land breeze blows from sea to land during the evening.
5. Sea breeze blows from land to sea in the morning.
6. Rain water must be saved and not be wasted.
7. Condensation of the wind causes rain fall.

Fill in the blanks using the words given at the bottom.

1. _____ is used to measure pressure.
2. _____ is used to measure direction of wind.
3. _____ is used to measure speed of wind.

Barometer Wind vane Anemometer

Fill in the blanks using the words given at the bottom.

1. Technique of collection and storage of rain water is called _____
2. Zone between Tropic of Cancer and Tropic of Capricorn is called _____
3. The area that receives slanting rays of sun is called _____
4. The zone that do not get sun's rays is called _____

Rain water harvesting Torrid zone Temperate zone Frigid zone

Match the following

Cirrus clouds	vertical cloud
Stratus clouds	do not rain
Cumulus clouds	small shower
Nimbus clouds	burst cotton

Click the blanks and fill it with the right word.

- The equator is seen at ____ (0, 2) degree.
- Tropic of Cancer is at 23(1/2) degree ____ (N, S).
- Tropic of Capricorn is at 23(1/2) degree ____ (S, N).
- ____ (Arctic, Antarctic) circle lies at 66(1/2) degree N.
- ____ (Antarctic, Arctic) circle lies at 66(1/2) degree S.
- 0 degree longitude is called as Prime ____ (meridian, median).
- IST stands for ____ (Indian, India) Standard Time.

Multiple Choice Questions

- The atmosphere is divided into _____ layers.
 - 4
 - 7
 - 5
- The world weather day is on march _____.
 - 25
 - 24
 - 23
- The Indian Standard Meridian passes through the city of _____.
 - Secunderbad
 - Hyderabad
 - Ahmedabad
 - Allahabad
- Zone located in between Tropic of cancer and Tropic of Capricorn is _____ zone.
 - Torrid
 - Temperate
 - Subtropical

5. _____ is used to measure pressure in the air.

- Barometer
- Thermometer
- Anemometer
- Wind vane

6. Monsoon is derived from the _____ word.

- English
- Arabian
- Latin

7. Vertical cloud is called _____.

- Nimbus clouds
- Cirrus cloud
- Stratus clouds
- Cumulus clouds

Humanbody-3

Sense Organs

It is very interesting to learn about our human body. We learn about our body and the external world through our sense organs. Sense organs help us to observe and understand the world around us. We have five sense organs.

Eyes

They help us to see the things around us. Eye is the most important sense organ as we learn lot of things through seeing. We can see and tell different colors with the help of eyes. We cannot do most of our works with closed eyes.

Ears

We are able to hear the sounds around us with the help of ears. If we close our ears, we can realize that volume of music or noise will be reduced.

Nose

Nose helps us to breathe. Apart from that, they also help us to smell our surroundings. Nice food smell increases our appetite. We detect rotten food by its smell. Animals like dog have better smelling ability than us.

Tongue

Tongue helps our to enjoy our food. It helps us in detecting different tastes like sweet, salty, bitter or sour.

Skin

Skin is the largest organ as it is located throughout our body. Through skin we experience pain, temperature, pressure etc. And these help us to protect ourself from danger.

Multiple Choice Question

1. We get to know about the external world through our _____.
a. sense organs
b. eyes
c. brain
d. ears
2. Which is considered as the most important sense organ?
a. eyes
b. skin
c. ears
d. nose
e. tongue
3. What is the largest organ?
a. brain
b. stomach
c. skin
d. tongue
4. Which organ helps in detecting whether the food is good?
a. skin
b. eyes
c. nose
d. ears

5. Which organ helps in detecting temperature?

- a. ears
- b. eyes
- c. nose
- d. skin

Internal and External Organs

A part of the body that is used to perform a certain function is called an organ. We use our legs to walk. Hence, our legs are our organs for walking. We use our ears for hearing. Hence, our ears are the organs for hearing.

External Organs

Organs on the outside of our body are external organs. They can be easily seen. eg: ears, nose, legs

Internal Organs

Organs that are situated inside the body are called internal organs. It cannot be seen by our eyes.

Many functions go on inside our body. A network of blood vessels is spread throughout the body. Blood flows through them continuously. The air we breathe in is carried to all parts of the body through the blood. The food that we eat is digested. These functions are carried out by different organs called internal organs.

Classify External and Internal Organs.

eye, nose, liver, kidney, heart, lungs, fingers, brain, ears, skin

External

Internal

Fill in the blanks using the words given at the bottom.

1. We cannot see our _____ organs.
2. We breathe _____ through our _____ .
3. Blood _____ carry oxygen to _____ part of our body.
4. We experience pain through our _____ .

internal skin vessels every nose
oxygen

Internal Cavities

The important internal organs should be protected. The structure of our body is such that our internal organs can remain in their places no matter how much we move. They will remain in their place even while moving fast or standing upside down. There are hollow spaces for these organs inside the head and the torso. They are called cavities.

The cavity inside the head is called the cranial cavity.

The cavity in the torso has three parts. The cavity in the chest is called the thoracic cavity. The cavity inside the abdomen has two parts. They are the abdominal cavity and the pelvic cavity. All the internal organs of the body are situated in these cavities. They are situated in such a way that they will not leave their places and move here and there.

True or False

1. The lungs are present in pelvic cavity.
2. The important organs does not move from its original place.
3. All important organs are hard in nature.
4. The cavity inside the head is called the cranial cavity.
5. Internal cavities help in keeping the organs in its place.

Heart

We take in air when we breathe. Our blood carries the air to all parts of the body. The food that we eat gets digested. It is again blood that carries the digested part to every particle of the body. For these purposes, it is necessary to keep blood flowing through the blood vessels that spread throughout the body. It is the function of the heart to keep the blood flowing.

The heart is an important internal organ. It is in the centre of the thoracic cavity, a little to its left. It is slightly bigger than one's fist. The walls of the heart too are flexible.

1. The heart contracts : The heart becomes smaller.
2. The heart relaxes : The heart returns to its original size.

Place your palm a little to the left of the centre of your chest. You can feel your own heartbeat.

When it contracts the blood in the heart is pushed into the blood vessels. At every contraction, it is pushed further and further. A contraction of the heart is called a 'heartbeat'. If you place your hand on the middle of the chest a little to the left, you can feel the throbbing of your heart due to the heartbeats.

At the wrist, there is a blood vessel that flows very close to the skin. If you place your fingers there, you can feel the heartbeats. This is called feeling the pulse.

Do you know ?

When we are sleeping quietly, the pulse becomes slower. When we are running, the pulse becomes faster.

Multiple Choice Questions

1. _____ carries oxygen to all parts of the body.
 - a. heart
 - b. lungs
 - c. blood
2. Heart beat can be felt at _____.
 - a. fingers
 - b. nails
 - c. hand
 - d. wrist
3. Heart is present in the centre of the _____.
 - a. pelvic cavity
 - b. thoracic cavity
 - c. cranial cavity
4. While sleeping, our pulse _____.
 - a. remains the same
 - b. increases
 - c. decreases
5. The size of our heart is similar to the size of our _____.
 - a. fist
 - b. wrist
 - c. elbow
 - d. palm

Lungs

When we breathe in, we take air in through the nose. The internal organs through which this air is supplied to the body are called lungs.

The right lung is slightly bigger than the left lung. A pipe-like internal organ carries the air we breathe in into the lungs. It is called the windpipe. The windpipe separates into two branches. Each branch is called a bronchus. When we breathe in, the lungs expand a little. That is why our chest swells up when we breathe in. The functions of the heart and the lungs depend on each other. Both these internal organs are very important. They are situated in the thoracic cavity, inside a cage made of bones called the ribcage. That is why, they are safe and secure.

Fill in the blanks using the words given at the bottom.

1. Our chest _____ when we _____ in.
2. Our heart _____ while pumping _____.
3. The doctor puts her fingers on our _____ to feel your _____.

breathe expands pulse contracts
wrist blood

Our BodyParts of our Body

1. Head: The head is covered with hair. Below the forehead are two eyes, with eyebrows and eyelashes. On the sides are the ears. In front is the nose. Below the nose, is the mouth and chin. The part that joins the head to the torso is the neck.

2. Torso: The chest, abdomen and back together make up the torso. The part where the arm is joined to the torso is called the shoulder. The leg is joined to the torso at the hip-joint.

3. Arm: The arm has three parts – upper arm, forearm and hand. The fingers are part of the hand. The upper arm and forearm are joined at the elbow. The forearm and hand are joined at the wrist.

4. Leg: The leg, has three parts – thigh, shank and foot. Toes are part of the foot. The thigh and shank are joined at the knee. The shank and foot are joined at the ankle.

Organ

A part of the body that is used for a particular purpose is called organ. Organs are further classified as internal and external organs.

Body Movement

1. Neck: The neck bends forward as well as backward. It turns left or right. It also bends left or right.
2. Arm: We can bend our arm at the shoulder, elbow and wrist. The fingers of our hands can bend too.
3. Waist: We can bend our torso only at the waist. We can bend forward at the waist.
4. Leg: Our legs can bend at the hip-joint, the knees and the ankles. Our toes too can bend, but not as much as our fingers.

Fill in the blanks using the words given at the bottom.

1. The head is covered with _____.
 2. Below the forehead are two _____, with _____ and eyelashes.
 3. On the sides are the _____.
 4. In front is the _____.
 5. Below the nose, is the _____ and chin.
 6. The part that joins the head to the torso is the _____.
- ears hair nose eyes eyebrows
mouth neck

Fill in the blanks using the words given at the bottom.

1. The chest, _____ and back together make up the torso.
 2. The part where the _____ is joined to the torso is called the _____.
 3. The leg is joined to the torso at the _____.
- shoulder arm hip-joint abdomen

Fill in the blanks using the words given at the bottom.

1. The arm has three parts – upper arm, forearm and _____.
 2. The _____ are part of the hand.
 3. The upper arm and forearm are joined at the _____.
 4. The forearm and hand are joined at the _____.
- elbow wrist hand fingers

Fill in the blanks using the words given at the bottom.

1. The leg has three parts – thigh, _____ and foot.
2. _____ are part of the foot.
3. The thigh and shank are joined at the _____.
4. The shank and foot are joined at the _____.

ankle knee Toes shank

Classify the below sentences as true and false

1. We can move our toes more than our fingers.
2. Neck cannot bend backward.
3. We use our legs too for several purposes.
4. We can bend our torso only at the waist.
5. Ankle is a part of our hand.
6. We can bend our arm at the shoulder, elbow and wrist.

Click the blanks and fill it with the right word.

1. A part of the body that is used for a particular purpose is called _____ (organ, body part).
2. The neck bends forward as well as _____ (backward, rightside).
3. We can bend our arm at the shoulder, _____ (elbow, knee) and wrist.
4. The _____ (fingers, toes) of our hands can bend.
5. We can bend our torso only at the _____ (waist, hips).
6. We can bend _____ (forward, backward) at the waist.
7. Our legs can bend at the hip-joint, the _____ (knees, elbow) and the ankles.
8. Our toes _____ (can, cannot) bend, but not as much as our fingers.

Multiple Choice Questions

1. The leg is joined to the torso at the _____.
a. hip-joint
b. waist
c. shoulder
2. The part that joins the foot and the _____ is the ankle.
a. knee
b. shank
c. thigh

3. Some of our body parts can bend. That is why we are able to make _____.

- a. movements
- b. run
- c. sit

4. No two persons are exactly _____.

- a. same
- b. alike
- c. different

Sense organs and disabilitySensory Organs

Our sensory organs tell us about the situation all around us. The eyes, ears, nose, tongue and skin are our five sensory organs.

1. We can see with our eyes.
2. We can hear with our ears.
3. We can smell with our nose.
4. We taste things with our tongue.
5. We feel things with our skin.

Co-ordination

When we work, we need to have co-ordination in all the tasks. Difficulties may arise due to lack of co-ordination.

Disability

If any organ does not function well, we may face difficulties in doing our work. We must not give up in the face of difficulties. They can be overcome.

Overcoming Disability

Some disabilities can be corrected by medical treatment. In some matter, we can take the help of other people. Often, some special devices can be used to overcome the disability.

1. If we cannot see well, we can use spectacles.
2. If we cannot see at all, we can make use of sounds, or feel with our hands to get things done.
3. A person who cannot hear well, can use a hearing aid.
4. Those who cannot hear at all, can use sign language.

5. If there is a defect in the leg, a special wheelchair can be used.

Click the blanks and fill it with the right word.

1. If we cannot see well, we can use _____ (spectacles, walking stick).
2. If we cannot see at all, we can make use of _____ (sounds, hearing aid)
3. A person who cannot hear well, can use a _____ (hearing aid, translator).
4. Those who cannot hear at all, can use _____ (sign, braille) language.
5. If there is a defect in the leg, a special _____ (wheelchair, prosthetic leg) can be used.

Classify the below sentences as true and false

1. Our sensory organs tell us about the situation all around us.
2. Disabilities cannot be overcome.
3. Eyes help to smell.
4. Difficulties may arise due to lack of co-ordination.
5. Sign language is used by blind.
6. Some disabilities can be corrected by medical treatment.

Classify the sentence based on the sensory organ that gives you the information

1. Cuckoo is singing
2. See the sunrise.
3. There is a bump in the road.
4. There is a rock in your path.
5. Music is loud
6. Someone is calling out your name

Classify the sentence based on the sensory organ that gives you the information

1. The curry is too salty.
2. Apple is sweet.
3. Incense stick has a nice fragrance.
4. The medicine is bitter.
5. My socks are stinking.
6. Rose has a sweet smell.

Fill in the blanks using the words given at the bottom.

1. We can see with our _____ .
2. We can hear with our _____ .
3. We can smell with our _____ .
4. We taste things with our _____ .
5. We feel things with our _____ .

ears eyes tongue skin nose

Multiple Choice Questions

1. Our eyes tell us how _____ something is.
 - a. smelly
 - b. tasty
 - c. far
2. Our ears tell us which direction a _____ is coming from.
 - a. breeze
 - b. smell
 - c. sound
3. The smell tells us that the air is _____.
 - a. foul
 - b. harsh
 - c. colourless
4. Our _____ tells us that something is hot.
 - a. tongue
 - b. skin
 - c. touch
5. Our tongue feels as if it is burning when we eat a _____.
 - a. chilli
 - b. ice cream
 - c. mango

Our Teeth

Teeth

The teeth that grow when we are infants are called milk teeth. They start falling at seven or eight years of age. Then we get new teeth once again. These are called permanent teeth. If permanent teeth fall, we do not get new teeth in their place. So, we must take care of our teeth.

If our teeth are dirty, foul substances go into our stomach. We can fall ill. We must wash our hands before we eat. We must keep our hair, our nails, our sense organs and the entire body clean

Classify the below sentences as true and false

1. Clean gums may make us ill.
2. We start losing milk teeth at 12 years of age.
3. Last set of teeth is milk teeth.
4. First set of teeth is milk teeth.
5. We must rinse our mouth repeatedly with water after eating something.
6. Infected wound ooze pus.

Fill in the blanks using the words given at the bottom.

1. The teeth we get when we are small are called _____ teeth.
2. If _____ teeth fall, we do not get new teeth in their place.
3. We must take care of our _____ .
4. If our teeth are _____ , foul substances go into our _____ .
5. We must wash our _____ before we eat.
6. We must keep our hair, our nails, our sense organs and the entire body _____ .

stomach teeth hands permanent
clean milk dirty

Match the following

First teeth	toothpaste
Last teeth	loose teeth
Toothbrush	pus
Rotting	milk teeth
Infection	permanent teeth

Click the blanks and fill it with the right word.

1. Because of the rotting particles in the mouth, our teeth _____ (decay, cracks).
2. We must brush our teeth in the _____ (morning, evening) and before going to bed at night.
3. We must clean our _____ (gums, mouth) and tongue.
4. _____ (Neem, Tulsi) or babul sticks are sometimes used for cleaning teeth.
5. Infected cut or wound may start oozing _____ (pus, blood).

Multiple Choice Questions

1. _____ start falling at the age of seven or eight.
 - a. milk teeth
 - b. permanent teeth
 - c. teeth
2. If rotting _____ remain in the mouth, they cause teeth to fall.
 - a. teeth
 - b. food
 - c. particles
3. If we use a brush and _____ we can clean the gaps between our teeth properly.
 - a. powder
 - b. neem stick
 - c. toothpaste
4. We must clean our _____ and gums while brushing.
 - a. teeth
 - b. tongue
 - c. mouth
5. We must keep our five _____ clean.
 - a. nails
 - b. teeth
 - c. sense organs

Humanbody-4

Digestive System

We need energy to do our daily activities. We get energy from the food we eat. If we don't take food for some time, we will feel hungry.

A group of our body parts work together and convert the food we eat into fuel that body needs to function. While eating we first chew the food in our mouth. Saliva present in our mouth helps in breaking the food into small pieces. Your tongue does the work of pushing the food around, and your teeth will do the work of chewing. The food will be made into a soft moist ball which is

easy to swallow.

The esophagus is like a flexible pipe and it takes the food from mouth to stomach. Stomach is the place where digestion happens. Acidic fluids present in stomach helps in breaking down the food further. Energy present in our food, is absorbed from the walls of stomach and passed through blood stream.

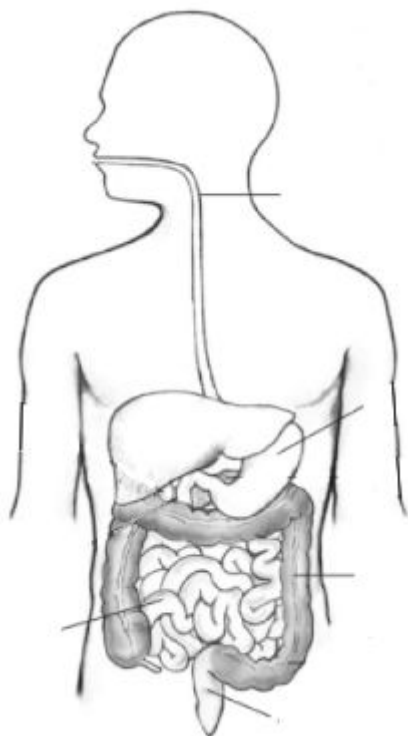
Then the food is passed to small intestine. Bile is a digestive juice helps in breaking down the fats when the food passes through small intestine. Bile is created in liver, which is the largest human organ.

After extracting fats and other nutrients, the waste is passed to large intestine, and finally reaches rectum.

All the body parts we discussed above, together form the digestive system. It is an important function of our body. Always eat healthy food even if they are less tasty, so that your digestive system will be happy.

Drag and drop the parts of digestive system at appropriate places.

esophagus, stomach, liver, small intestine, large intestine, rectum



Multiple Choice Question

1. If we don't take food for a long time, we will feel

- a. angry
- b. boring
- c. hungry
- d. sleepy

2. Which is the biggest organ in our body?

- a. Kidney
- b. Heart
- c. Lungs
- d. Liver

3. Bile helps in breaking _____.

- a. Fat
- b. Glucose
- c. Protein

4. What is the final destination of the food we eat?

- a. rectum
- b. large intestine
- c. small intestine
- d. stomach

5. What is the digestive juice generated by Liver.

- a. Bile
- b. Enzyme
- c. Acidic acid

The Brain

Brain is the decision maker of our body. It controls all the movements of the body. It is responsible for human intelligence, memory and imagination.

Brain is the most important organ for us. That is why, we should wear a helmet when you ride a two wheeler.

Structure of the Human brain.

The brain is kept in a bony case called Skull. Skull is made up of eight immovable bones. The brain is protected by three membranes called meninges. The brain is made up of tiny nerve cells called neurons. The brain is the centre of the nervous system.

The brain is made up of three parts.

- 1. Cerebrum
- 2. Cerebellum

3. Medulla oblongata

Cerebrum

1. It is the largest part of the brain.
2. It is responsible for our memory.
3. We are able to learn languages, understand signs and symbols with the help of cerebrum.
4. The right side of the Cerebrum controls the left side of our body and vice versa.
5. Cerebrum is responsible for intelligence, imagination and reasoning.

Cerebellum

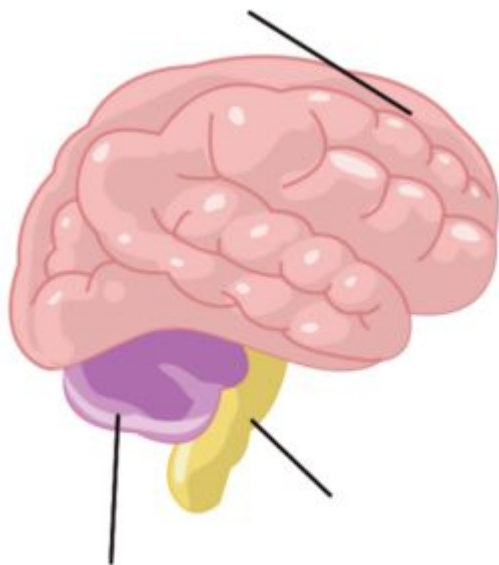
1. It co-ordinates the movements of the muscles of our body.
2. It helps to maintain the balance of the body.

Medulla oblongata

1. It is also called the brain stem.
2. It controls the breathing, heart beat and other involuntary muscles.
3. It connects the brain to the spinal cord.

Drag and drop the parts of the brain at appropriate places.

Cerebrum, Medulla oblongata, Cerebellum



Multiple Choice Question

1. What is the largest part of the brain?
 - a. Cerebrum
 - b. Cerebellum
 - c. Medulla oblongata
2. Brain is protected by _____.
 - a. skull
 - b. spinal cord
 - c. hair
 - d. neurons
3. Which part of the brain controls the movement of muscles?
 - a. Cerebellum
 - b. Medulla oblongata
 - c. Cerebrum
4. Which part of the brain controls heart beat?
 - a. Cerebellum
 - b. Cerebrum
 - c. Medulla oblongata
5. Which part of the brain connects the brain to the spinal cord?
 - a. Cerebrum
 - b. Medulla oblongata
 - c. Cerebellum
6. Medulla oblongata is also known as _____.
 - a. brain stem
 - b. neck
 - c. root of brain
7. The brain is made up of tiny nerve cells called _____.
 - a. neurons
 - b. meninges
 - c. nerves
8. Which part of the brain helps in learning a language?
 - a. Cerebrum
 - b. Cerebellum
 - c. Medulla oblongata

Our BodyPoints to remember.

1. The numerous important functions that go on inside our body are carried out by different organs. These organs are inside our body and cannot be seen from the outside. They are called internal organs.
2. The body is structured in such a way that the internal organs remain safe within the cavities inside the head and the torso.
3. The oesophagus carries the swallowed food from the throat to the stomach. It is situated in the thoracic cavity.
4. The heart keeps the blood flowing through the blood vessels which are spread throughout the body.
5. The heart is continuously contracting and relaxing.
6. The contractions of the heart push the blood from the heart into the blood vessels.
7. The lungs are the organs through which the air we breathe in is supplied to the whole body.
8. The right lung is a little bigger than the left lung.
9. The heart and the lungs are held safely in the ribcage in the thoracic cavity.
10. Our brain is a very important internal organ. It has a safe place inside the skull.
11. Controlling movements, becoming aware of emotions and interpreting the information collected by the sensory organs are the functions of the brain.

Fill in the blanks using the words given at the bottom.

1. The _____ keeps the blood flowing through the blood vessels spread throughout the body.
2. The heart is continuously _____ and relaxing.
3. The contractions of the heart _____ the blood from the heart into the blood vessels.

heart contracting push

Fill in the blanks using the words given at the bottom.

1. The _____ are the organs through which the air we breathe in is supplied to the whole body.
2. The _____ lung is a little bigger than the left lung.
3. The heart and the lungs are held safely in the _____ in the _____ cavity.
4. Our _____ is a very important internal organ. It has a safe place inside the _____.

thoracic right brain ribcage skull
lungsFill in the blanks using the words given at the bottom.

1. The cavity inside the head is called _____ cavity
2. The cavity in the chest is called _____ cavity
3. The cavity in the upper abdomen is called _____ cavity
4. The cavity in the lower abdomen is called _____ cavity

pelvic abdominal cranial thoracic

Fill in the blanks using the words given at the bottom.

1. The journey of food in our body begins in the _____.
2. The internal organs in the _____ help to digest it.
3. The undigested, unwanted part is passed out through the _____ in the form of _____. That is where the journey _____.
4. _____ travels through a pipe-like pathway from the mouth to the anus.
5. It is called the _____ canal. It is about _____ metres long.
6. The _____ is a part of the alimentary canal.

mouth faeces 9 ends Food
oesophagus alimentary anus abdomenClassify the below sentences as true and false

1. Beating of heart is a voluntary action.
2. Oxygenated blood flows through veins.
3. The heart pumps blood.
4. Lungs pump blood.
5. The brain controls the entire body.
6. Food pipe is in the thoracic cavity.

Click the blanks and fill it with the right word.

1. The body is structured in such a way that the internal organs remain safe within the _____ (cavities, spaces) inside the head and the torso.
2. The _____ (oesophagus, windpipe) carries the swallowed food from the throat to the stomach.
3. The heart keeps the blood flowing through the _____ (blood vessels, veins) spread throughout the body.

4. Controlling movements, becoming aware of _____ (emotions, movements) and interpreting the information collected by the _____ (sensory organs, internal organs) are the functions of the _____ (brain, heart).

Multiple Choice Questions

- The internal organ that help digest food is _____.
a. heart
b. lungs
c. stomach
- We have _____ lungs.
a. 2
b. 3
c. 4
- Every _____ of the heart is called a heartbeat
a. relaxation
b. contraction
c. pulse
- We become _____ of all our emotions in the brain.
a. unaware
b. aware
c. lost
- The structure of the human body is very _____.
a. simple
b. compound
c. complex

Match the following

Supply blood	brain
Breathing	heart
Carry food	lungs
Control center	alimentary canal

Humanbody-5

Our Internal Organs

Organ system.

- A group of organs that together carry out some function of the body is called a system.
- The nose, trachea, lungs and diaphragm are organs of the respiratory system.
- The mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus and certain glands outside the alimentary canal are the organs of the digestive system.
- Other systems like the circulatory system, the skeletal system, the excretory system also take care of other important functions of our body.
- The nervous system co-ordinates all the functions of the body.
- For us to lead a healthy life, all our systems must function smoothly.

Fill in the blanks using the words given at the bottom.

- The process of digestion _____ as soon as food is taken into the mouth.
- The teeth, tongue and _____ all help to convert food into a soft moist ball called a _____.
- The bolus passes through the _____ into the stomach.
- The _____ is shaped like a bag.
- The food is _____ in the stomach.
- The digestive _____ in the stomach bring about some digestive processes.

oesophagus juices begins stomach
saliva bolus churned

Fill in the blanks using the words given at the bottom.

- The food changes into a thin _____ in the stomach.
- Then it passes into the _____ intestine.
- The small intestine of an adult is about _____ metres long.
- The digestive juices in the _____ bring about several digestive processes.
- In the small intestine, they are absorbed into the _____.

6. The remaining substances pass into the _____ intestine.

small large intestine slurry 7 blood

Fill in the blanks using the words given at the bottom.

1. The large intestine of an adult is about _____ and a half metres long.

2. Here, much of the _____ in the remaining substances is absorbed into the body.

3. The _____ collect in the rectum for some time.

4. Later, they are expelled from the body through the _____.

anus faeces water one

Fill in the blanks using the words given at the bottom.

1. _____ takes place in different parts of a long and flexible tube called the _____ canal.

2. The upper end of this tube is the _____ and the lower end is called the _____.

3. The _____ of this tube is not the same in all its parts.

alimentary anus Digestion mouth shape

Fill in the blanks using the words given at the bottom.

1. When we inhale, the air from outside goes into the trachea and through its branches, into the _____.

2. In the lungs, these _____ divide further into smaller and smaller branches.

3. At the end of the last branches, there are air sacs or _____.

4. Between the thoracic cavity and the abdominal cavity, there is an organ like a flexible sheet called the _____.

5. When the diaphragm moves _____, we breathe in.

6. When the diaphragm moves _____, air in the lungs is pushed out.

upwards downward diaphragm alveoli branches lungs

Fill in the blanks using the words given at the bottom.

1. When the outside air reaches the alveoli, the _____ in it passes into the thin _____ vessels.

2. The _____ that is brought by the blood from all parts of the body enters the _____ in the alveoli.

3. When we _____, the carbon dioxide is also given out with the air.

carbon dioxide exhale blood air oxygen

Fill in the blanks using the words given at the bottom.

1. There is a _____ that connects the brain with all the different parts of the body.

2. This is a network of _____ that carry messages to and fro between the brain and the parts of the body.

3. The brain and the network of nerves are together called the _____ system.

4. The nervous system functions to _____ all our bodily functions.

network co-ordinate nerves nervous

Classify the below sentences as true and false

1. Beating of heart is voluntary action.
2. Alcohol affect liver and kidney.
3. Excretory system cleans air.
4. Heart pumps blood.
5. Oxygenated blood flows through veins.
6. Brain controls the entire body.

Click the blanks and fill it with the right word.

1. A sufficient quantity of _____ (water, energy) is necessary for the processes of digestion to take place properly.

2. The inner lining of the respiratory organs has fine hairlike structures called _____ (cilia, villi).

3. The _____ (skeletal, nervous) system gives support and shape to the body and protects the important organs inside it.

4. The _____ (excretory, respiratory) system expels the waste substances that are formed in the body.

5. If one keeps drinking alcohol for a long period of time, it causes _____ (ulcers, cyst) on the inner lining of the digestive organs.

Multiple Choice Questions

1. A group of organs that together carry out some function of the body is called a _____.
a. system
b. organ
c. function
2. The nose, trachea, lungs and diaphragm are organs of the _____ system.
a. nervous
b. respiratory
c. digestive
3. The mouth, oesophagus, stomach etc are the organs of the _____ system.
a. digestive
b. excretory
c. nervous
4. The _____ system co-ordinates all the functions of the body.
a. respiratory
b. nervous
c. excretory
5. For us to lead a healthy life, all our _____ must function smoothly.
a. function
b. organ
c. system

Match the following

Lungs	digestion
Stomach	circulation
Heart	co-ordination
Brain	excretion
Kidney	respiration

Form the word using the letters.

1. An organ that secretes a certain substance.
a n l d g
2. An organ that helps in circulation of blood.
r t h e a
3. An organ that helps in digestion of food.

a h t c o m s

4. An organ that helps to remove waste from our body.
i n y e d k

Organ SystemsDigestive system

The process of conversion of complex food molecules into simpler molecules is called digestion. The digestive system can be divided into two.

1. Digestive tract
2. Digestive glands

Respiratory system

The respiratory system provides oxygen to the tissues of the body and removes carbon dioxide from the tissues. There are three major parts forming the respiratory system.

1. Airway
2. Lungs
3. Muscles of respiration

Circulatory system

In this system blood is circulated to transport oxygen and nutrients to every part of the body. Circulatory system consists of the following:

1. Heart
2. Blood vessels
3. Blood

Excretory system

Excretory system removes the waste products from the body. It also regulates water and electrolyte balance. Kidneys, lungs, liver and skin together function as excretory organs. Excretory system consists of the following.

1. Kidneys
2. Ureters
3. Urinary bladder

Nervous system

Nervous system is an integration of nerves and they are composed of specialized cells called Neurons. The human nervous system is divided into the following.

1. Central Nervous System (CNS)

2. Peripheral Nervous System (PNS)

Skeletal System

The hard parts in our body that we call can feel in our knees and elbows are our bones. There are over 200 bones of different shapes and sizes in our body. They make up the skeleton or the skeletal system which forms the framework of the body. The skeleton mainly consists of the skull, spine or backbone and the ribs.

Functions:

1. It gives shape and support to the body.
2. It helps to keep the organs of the body in their place.
3. It protects the delicate internal organs of the body.

The place where two bones meet is called a joint. The joint allows you to bend, turn and move different parts of the body. Example: shoulder joint, knee joint. Drinking milk helps to keep the bones healthy.

Muscular System

Muscles are the soft part of the body under the skin which helps us to move. There are more than 600 muscles in the body. These muscles form the muscular system. Muscles and fat form the fleshy covering around the skeleton.

Functions:

1. Muscles pull at the bones to help the body move.
2. Bones and muscles together produce movements.
3. Muscles help the internal organs to work so that they can perform their functions.

Internal organs such as the heart, stomach and lungs have muscles. We can keep our muscles and bones healthy and strong by exercising regularly. We must also maintain a correct posture while sitting, standing and walking.

Arrange the organs in the sequence they occur.

- ☐ Pharynx
- ☐ Mouth
- ☐ Small intestine
- ☐ Buccal cavity
- ☐ Large intestine
- ☐ Anus
- ☐ Esophagus
- ☐ Stomach

Click the blanks and fill it with the right word.

1. Smoke contains large amount of carbon _____ (monoxide, dioxide) a toxic gas.
2. People when engulfed in smoke on fire die due to _____ (suffocation, allergy).
3. Muscles of respiration include diaphragm and _____ (intercostal, intravein) muscles.
4. Blood vessels consist of arteries, veins and _____ (capillaries, lymph).

Click the blanks and fill it with the right word.

1. The volume of blood in human adults is ____ (4-5, 6-7) litres.
2. _____ (Spinal cord, Vertebra) is a long a tube like structure which extends from the brain.
3. The brain loses the ability to function when it does not get oxygen for more than ____ (4, 10) minutes.
4. Enough sleep and healthy food increases the efficiency of our ____ (brain, kidney).

Classify the below sentences as true and false

1. We have 2 kidneys.
2. The functional unit of kidney is neuron.
3. Important function of the heart is to transport blood with nutrients, oxygen, waste and hormones.
4. Heart has 5 chambers.
5. The brain is protected by the rib cage.
6. The circulatory system is made up of the heart, blood and blood vessels.

Fill in the blanks using the words given at the bottom.

1. Salivary glands secrete _____ which moistens food.
 2. Saliva contains enzymes which break down complex molecules into _____ molecules.
 3. Pancreas produces _____ juice which contains digestive enzymes for digesting _____, proteins and carbohydrates.
 4. Liver produces _____ for the digestion of fat.
- simple saliva bile fats pancreatic

Fill in the blanks using the words given at the bottom.

1. There are some organisms which _____ in the digestive systems of animals.
2. _____ lives in the human intestine.
3. The three pairs of salivary glands parotid, _____ and submandibular gland secrete _____ litres of saliva every day.

live Tape worm sublingual 1.5

Arrange the organs in the sequence they occur.

- ☐ Alveoli
- ☐ Nostrils
- ☐ Larynx
- ☐ Bronchioles
- ☐ Bronchi
- ☐ Nasal cavity
- ☐ Trachea
- ☐ Pharynx

Fill in the blanks using the words given at the bottom.

1. The heart is a _____, muscular organ.
2. Heart is covered with double walled membrane called _____.
3. The space between the membranes is filled with _____ fluid.
4. The pericardial fluid protects the heart from _____.

5. The heart is divided into _____ chambers.
pericardial shock four hollow
pericardium

Fill in the blanks using the words given at the bottom.

1. Two upper chambers are called _____.
2. Two lower chambers are called _____.
3. The chambers of the heart are separated by _____ septum of the heart.
4. The right side of the heart receives _____ blood.
5. The left side of the heart receives _____ blood.

auriculo-ventricular ventricles atria
oxygenated deoxygenated

Fill in the blanks using the words given at the bottom.

1. The kidneys filter the _____ to remove waste and produce _____.
2. The kidneys are a pair of dark red, _____ shaped organs.
3. _____ kidney is slightly _____ than the left kidney.
4. Each kidney is covered by a fibrous membrane called _____.

5. The kidneys are made up of millions of excretory units, called _____.

6. Nephrons are the structural and _____ units of the kidneys.

lower urine Right capsule bean
functional blood Nephrons

Fill in the blanks using the words given at the bottom.

1. It is sac-like in shape and acts as a temporary storage organ of _____.
2. Urine entering the urinary bladder from the ureters fill the _____.
3. Urine is expelled from the body through the _____.
4. Every minute, kidneys receive approximately _____ litre of blood.

1.250 urethra bladder urine

Fill in the blanks using the words given at the bottom.

1. The _____ consists of cerebrum, thalamus and hypothalamus.

2. Fore brain is the centre of human _____.

3. Fore brain is responsible for intelligence, _____ and reasoning.

4. _____ co-ordinates the movements of the muscles of the body.

5. _____ connects the brain to the spinal cord.

fore brain memory imagination Mid
brain Hind brain

Fill in the blanks using the words given at the bottom.

1. Peripheral nervous system consists of nerves extending from the _____ to all parts of the body.

2. Somatic nervous system carries _____ from the organs to the brain.

3. Somatic nervous system take _____ from the

brain to the organs for movements.

4. Autonomous nervous system controls the

_____ of the inner organs of the body.

nerves messages sensations spinal cord

Complete Word

1. An animal with blue blood.

L _ _ _ _ _

2. An animal with colourless blood.

C _ _ _ _ _

3. Only artery that carries deoxygenated blood.

P _ _ _ _ _

4. Only vein that carries oxygenated blood.

P _ _ _ _ _

5. Largest part of brain.

F _ _ _ _ _

6. Part of brain controlling temperature.

M _ _ _ _ _

7. Part of brain also known as vital knot.

H _ _ _ _ _

Odd one out

1. Lung, Mouth, Buccal cavity, Pharynx

2. Stomach, Nostrils, Pharynx, Nasal cavity

3. Kidney, Mouth, Esophagus, Stomach

4. Hear, Smell, Taste, Think

5. Medulla Oblongata, Cerebellum, Cerebrum,

Nephron

Multiple Choice Questions

1. What is the length of the alimentary canal?

- a. 6-9 m
- b. 3-5 m
- c. 9-11 m
- d. 5-6 m

2. Which organ is involved in respiration?

- a. Brain
- b. Heart
- c. Lungs

3. How many kidneys do we have?

- a. 1
- b. 3
- c. 4
- d. 2

4. Functional unit of brain is _____.

- a. Brain stem
- b. Nephron
- c. Nerves
- d. Neuron

5. Blood is pumped by _____.

- a. Bones
- b. Kidneys
- c. Heart

6. Which system provides a framework to the body?

- a. skeletal
- b. circulatory
- c. digestive

7. What protects the brain?

- a. hip bones
- b. skull
- c. ribs

8. What pulls the bones to help the body move?

- a. muscles
- b. ligament
- c. skin

9. What is the place where two bones meet called?

- a. ligament
- b. bone marrow
- c. joint

Solar System

Heavenly Bodies

The sun, the moon, stars, planets we see on the sky are called heavenly bodies. Some stars are brighter than others. It depends on their size and distance. Some planets are also visible to our eyes. Stars twinkle but planets don't.

All planets in the solar system revolve around the Sun. They also rotate about their own axis.

Asteroids

Between the planets Mars and Jupiter, there is a band of numerous small heavenly bodies. They are called asteroids. Asteroids also revolve around the sun.

Gravity

All heavenly bodies exert a force of attraction or a pull on one another. This force is called the force of gravity. The sun exerts a gravitational pull on all planets. It is due to this force, planets revolve around the sun.

It is also due to gravity that the moon revolves around the Earth. Moon is called a satellite of our earth. Other planets also have their own moons. Mars has 2 moons, and Jupiter has 53 moons.

Satellites

Heavenly bodies that move around the planets are called satellites. Moon is a natural satellite. Apart from that, there are many man-made satellites that revolve around the Earth. They are sent to the space with the help of rockets. These man-made satellites help us in telecommunication, predicting weather, and making maps.

Do you know?

Space scientists have not yet been able to find a single other planet which has life on it. Therefore, our earth is an invaluable planet. The degradation of its environment for any reason will be a threat to the existence of life itself.

Multiple Choice Questions

1. The band of asteroids is seen between which planets?
 - a. Mars and Jupiter
 - b. Earth and Mars
 - c. Mercury and Earth

2. Where do satellites get their light from?

- a. Moon
- b. Sun
- c. Planets

3. What are the heavenly bodies that revolve around the planets?

- a. Satellites
- b. Asteroids
- c. Stars

4. What are man-made satellites used for?

- a. Map Making
- b. Weather Forecasting
- c. All of the Above
- d. Telecommunication

Fill in the blanks using the words given at the bottom.

1. _____ revolve around the planets.
2. _____ revolve around the Sun.
3. _____ is a natural satellite of Earth.
4. _____ are small heavenly bodies that revolve around the Sun.
5. _____ is the force between different heavenly bodies.

Gravity Asteroids Moon Planets
Satellites

Revolution & Rotation

The time taken by the earth to complete one rotation is called a day.

The time taken by the earth to complete one revolution around the sun is called a year. Actually, the earth takes 365 days and 6 hours to complete one revolution.

Leap Year

Usually a year has 365 days. But to account for the extra 6 hours, we have a leap year with 366 days. That extra day goes to the February month. It will have 29 days, instead of 28 days. Any year which is divisible by 4 is a leap year.

The period between two new moon day is 28-30 days.

Fill in the blanks using the words given at the bottom.

1. Usually a year has ____ days. But a leap year has ____ days.
 2. The Earth takes 365 days and ____ hours to complete one revolution around the Sun.
 3. If today is a full moon day, the next full moon day will come after ____ days.
 4. In a leap year, February month has ____ days, and on other years, it has ____ days.
- 365 366 6 30 29 28

Match the Following

Natural Satellite	Day
Man-made Satellite	Force
Gravitation	Year
Rotation	Moon
Revolution	Predicting Weather

Click on the blanks and fill it with the right word.

1. The sun, the moon, the stars, the planets, etc are all known as _____ (heavenly, heavy) bodies.
2. _____ (Stars, Planets) have their own light.
3. The ____ (sun, earth) is a star.
4. _____ (Planets, Stars) do not have light of their own.
5. Planets _____ (revolve, rotate) around a star, and they also _____ (rotate, revolve) around themselves.

Solar System

We can see numerous stars in a clear sky at night. The sun we see everyday is also a star and it is the nearest star to the earth. The planets revolve around the sun at different distances in different orbits. This is called solar system.

The sun is a ball of fire. It is very hot. Living organisms cannot exist on the earth in the absence of the sun. Our solar system has 8 planets.

1. Mercury is the smallest and the nearest planet to the sun.
2. Venus is the second planet. It is very hot. It is the brightest planet.
3. Earth is the third planet and it has air and water. It supports life and we all live here.
4. Mars is the fourth planet. It is red in colour.

5. Jupiter is the fifth planet. It is the largest planet in the solar system.
6. Saturn is the sixth planet. There are big rings around it.
7. Uranus is the seventh planet. It is made up of gases. It also has rings. It is the coldest planet.
8. Neptune is the eighth planet. It is bluish green in colour and it is surrounded by clouds.
9. Upto 2006, Pluto was considered as the ninth planet. Since it does not have the properties of a planet, it is now regarded as a dwarf planet.

The first four planets that are nearer to the sun are called terrestrial planets. They are made of rock and metals. The last four planets that are far from the sun are called gaseous planets. They are mainly made of lighter gases like hydrogen and helium and a small molten rock core.

Sort the planets based on its distance from sun.

(Nearest planet at top)

- ☐ Jupiter
☐ Mars
☐ Neptune
☐ Mercury
☐ Saturn
☐ Uranus
☐ Earth
☐ Venus

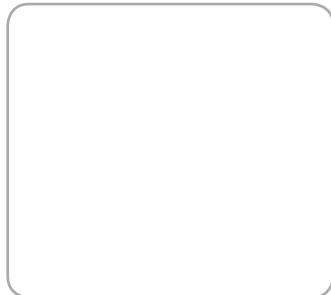
True or False

1. There is life in every planet.
2. There are eight planets in our Solar System.
3. Other planets are not visible to us.
4. The heavenly bodies that twinkle are called stars.
5. The heavenly bodies that looks like stars but do not twinkle are planets.
6. Our earth is not a planet.

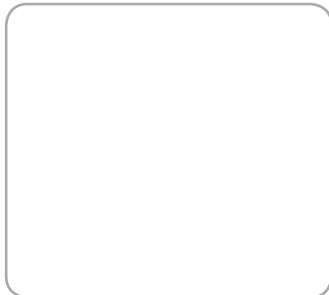
Terrestrial vs Gaseous Planets

Neptune, Mercury, Venus, Uranus, Mars, Earth, Saturn, Jupiter

Terrestrial



Gaseous



Fill in the blanks using the words given at the bottom.

- _____ is the center of solar system.
- _____ is the biggest planet.
- _____ has a big ring around it.
- _____ is the bright and hottest planet.
- _____ is the coldest planet.
- _____ is a dwarf planet.

Pluto Saturn Uranus Jupiter Sun
Venus

- Every planet in the solar system _____ around the sun in a specific path called _____ .
- Planets _____ about their own axis.
- Pluto is called a _____ planet.
- It takes one _____ to complete a revolution and one _____ to complete a rotation.

day dwarf year orbit revolves rotate

Eclipse

An eclipse happens when one object in space blocks another from view.

Solar Eclipse

It happens when the Moon comes between Earth and the Sun. The Moon blocks the Sun for a time so that people on Earth cannot see it.

In ancient times solar eclipses caused great fear and wonder. People did not understand why the sky sometimes darkened in the middle of the day. Today scientists understand why eclipses happen and can determine when they will occur.

Lunar Eclipse

The Moon does not make any light itself. Rather, the Sun shines on the Moon, and the reflected sunlight makes the Moon visible from Earth.

During a lunar eclipse Earth blocks sunlight from reaching the Moon. The Sun, Earth, and the Moon line up, with Earth in the middle. The Moon is then in Earth's shadow.

We should not watch the solar eclipse directly, as it may affect our eyes. The radiations during the solar eclipse are harmful to our eyes.

There is no harm in watching lunar eclipse.

True or False

- We get lunar eclipse when the moon comes between the sun and the earth.
- Eclipses can be predicted.
- Earth is a gaseous planet.
- Eclipses are natural events and they cannot be predicted.
- We should not see the solar eclipse directly.
- Jupiter is not a terrestrial planet.
-
- We should not see the lunar eclipse directly.

Multiple Choice Questions

- Eclipse happen when three heavenly bodies _____.
 - form a triange
 - are in a straight line
- If the moon comes between the sun and the earth, we get _____.
 - Solar eclipse
 - Lunar eclipse
- Which of these is a dwarf planet?
 - Pluto
 - Mars
 - Neptune
 - Venus
- If the earth comes between the sun and the moon, we get _____.
 - Solar eclipse
 - Lunar eclipse

5. Which of the following is not a gaseous planet?

- Uranus
- Neptune
- Jupiter
- Mars

6. Which of the following is a gaseous planet?

- Jupiter
- Mars
- Venus
- Earth

Who am I?

1. I turn around myself and revolve around the sun.

P _ _ _ _ _

2. No other planet has a living world like mine.

E _ _ _ _

3. I am the nearest star to the earth.

_ _ _

4. You can see me from the earth but the lighted part of me that you see changes every day.

M _ _ _

5. I have my own light. It is only from me that the planets get light and heat.

S _ _ _

Fill in the blanks

1. During ____ (lunar, solar) eclipse, the shadow of the Earth falls on the Moon.

2. ____ (Mars, Neptune) is a terrestrial planet.

3. ____ (Venus, Mercury) is the hottest planet.

4. ____ (Uranus, Earth) is a gaseous planet.

5. Solar Eclipse happen during ____ (day, night).

6. Mars has ____ (2, 3, 1) moons.

7. The ____ (Sun, Earth) is the center of the solar system.

Animals

Domestic Animals

People love to keep animals. The dog guards our house. People like to keep cats, too. Cows, buffaloes and goats give us milk. Some people keep hens. We get meat, milk and eggs from animals.

Bullocks help with farm work. Hitched to a cart, they

can draw heavy burdens, too. Horses and donkeys too, are used to carry burdens.

We look after the animals we keep. We feed them. We take care of them when they are ill. The animals we keep become very dear to us.

Fill in the blanks using the words given at the bottom.

1. The dog _____ our house.

2. Cows, buffaloes and goats give us _____ .

3. Bullocks help with _____ work.

4. Horses and donkeys are used to carry _____ .

5. Hen gives us _____ .

6. Goat gives us _____ .

weights egg farm meat guards
milk

Uninvited Guests

Some animals enter our houses even though we don't want them.

Mice and rats destroy stored grain, besides gnawing other things in the house.

Mosquitoes and bedbugs suck our blood.

Spiders make cobwebs in the house. Flies, gnats and cockroaches are a nuisance too.

Fill in the blanks using the words given at the bottom.

1. Bedbugs suck our _____ .

2. Spiders make _____ in the house.

3. Rats destroy stored _____ .

4. Though we can see _____ in our house, they are not our _____ animals. They are _____ guests.

pet lizards uninvited cobwebs
blood grains

1. Birds have _____ wings.

2. _____ is used as a draft animal.

3. Rats and mice _____ us.

4. Bedbugs suck _____ from our body

5. _____ have a special pouch in their body, to carry their young ones.

two (three) Ox (Dog) Kangaroos (Monkey)
trouble (help) blood (sweat)

Match the following

Spider	Friendly
Rats	Poison
Mosquito	Cobweb
Snake	Gnaw things
Dog	Suck Blood

So many kinds of Animals

The crow is black. The buffalo too is black. A swan is white. But the peacock has many different colours.

The horse and the bullock are large in size. The goat and the dog are of medium size. The mouse and the squirrel are small. The earthworm and the cockroach are smaller still. Gnats and ants are very tiny, indeed!

A squirrel is a small animal. It climbs up a tree quickly and runs along its branch.

An elephant's body is bulky. Its legs are heavy. So it cannot run at great speed.

A deer has thin legs, so it can run very fast. A frog's hind legs are long. So it can easily hop, jump, and leap.

Birds have only two legs. They have two wings to fly with. Their body is covered with feathers. Different birds have different flying ability. An eagle can soar high into the sky and stay in the air for a long time. But a hen does not fly high, and comes down soon.

Find the animal based on the hint.

1. My legs are thin, so I can run fast.

— — — —

2. I am huge and I cannot run fast.

E — — — — — — —

3. I am a bird of many colours.

P — — — — —

4. We are tiny animals and we move in a line.

A — — S

5. My hind legs are long. So I can easily hop.

— — — —

6. I can fly too high for a long time.

E — — — —

7. I make cobwebs in your house.

S — — — — —

Not a bird!

Butterflies have wings and they can fly. Still we don't call them birds. They are insects. They are smaller than birds and they have six legs.

Animals which have six legs are called insects. So, butterflies are insects.

Mosquitoes, houseflies and cockroaches are insects, too.

Bats have wings but they don't have feathers on their body. Bats give birth to young ones. Young ones feed on their mother's milk.

Bats are not birds like the crow, sparrow etc. They are included in the group of the cow, deer, mouse etc.

We have seen that animals around us can be grouped in different ways. We formed these groups using our everyday observations. However, when scientists classify animals, they look at more important characteristics.

Classify the below sentences as true and false

1. Fishes have fins, scales in their body.
2. Eagle flies higher than the pigeon.
3. Bats are not birds.
4. Cows are always black or white in color.
5. Butterflies are not insects.
6. Butterflies have six legs.
7. Spiders are insects with eight legs.
8. Bats have feathers.
9. Dogs have scales in their body.

Choose the Right Answer

1. Who classify animals?
 - a. Scientists
 - b. Teachers
 - c. Doctors
2. Which of the following animal is not used to carry weights?
 - a. donkey
 - b. dog
 - c. bullock
 - d. horse

3. All insects have ____.

- a. 8 legs
- b. 4 legs
- c. 6 legs

4. Which animal can live both in land and water?

- a. Bat
- b. Crocodile
- c. Cockroach
- d. Butterfly

5. Which is the biggest animal?

- a. Shark
- b. Giraffe
- c. Elephant
- d. Whale

Animal Shelters

House is a safe place where one is protected from any danger. A place where one is protected from the sun, rain, wind, etc. A house also protects us from thefts.

Do you know, like us, animals also need shelters to protect themselves? Some animals build a shelter for themselves while others find them ready in the surroundings.

Build House

Birds build nests as they are afraid of the animals that eat eggs. Nests protect the young birds as they are too weak to protect themselves. Nests are made up of grass, straw, and twigs. They may even contain cotton, wool, and pieces of thread and string.

Some birds don't make nests. Instead they make holes and make it their house. Eg: Parrot, Woodpecker.

Tailor Bird

It is smaller than a sparrow. It selects a plant with bigger leaves and builds its nest by stitching the leaves together. It uses a fine tendril to stitch them together. This little nest is big enough for the little tailor bird.

Honeycomb

Some insects also build their own shelters. For eg, honey bees build their honeycombs on trees or under the roof of an overhanging cliff.

Rats

Rats and mice live underground in fields. They dig into the soil and make holes and burrows to live in.

Find House

Some animals do not make any efforts to build a shelter. They simply look around for a safe place. Some live in small hollows on high cliffs or live near our houses. They find shelter in gaps in walls.

Fun Fact

It is believed that a cobra lives in an anthill. But anthills are built by ants, not by a cobra. The cobras live in holes.

For domestic animals, we build their shelters.

Classify the below animals based on their shelter.

Doves, Crow, Cobra, Honey bees, Tiger, Ants, Rats, Bats, Mice, Spider

Build House

Find House

Match the following

House

Coop

Stable

Shed

Parrot

Bird

Horse

Cow

Tree holes

Shelter

Bird	Honeycomb
Honey Bee	Nest
Rat	Den
Leopard	Old Building
Bat	Hole
Lion	Cave

Fill in the blanks using the words given at the bottom.

- _____ use grass, straw, twigs and even cotton and wool, to build their _____ .
- Tailorbird selects a plant with _____ leaves and builds its nest by _____ the leaves together.
- Tigers and hyenas live in _____ .
- _____ live in tall trees or in old, deserted buildings.

big stitching Bats nests caves
Birds

True or False

- A house protects us from thieves.
- Anthills are built by snakes as their shelters.
- Doves and pigeons make their shelters and live in caves.
- Bats build nests in old buildings.
- Every human being needs a house.
- Honey bees build their own shelter.

Life of Animals

Habitat

Our Earth provides place for lakhs and lakhs of animals to live. The living place of an animal or a plant is called habitat. The basic needs such as food, water, shelter and place to breed are found in a habitat.

Habitat can be as big as a forest or as small as a leaf. Animals live in different conditions.

Land Habitat

Animals that live on land are called terrestrial animals. eg: ant, cat, lion

It can further be divided into Plain and Forest habitat.

Animals like rat, cow, camel live in plain. Deer, fox, bear, bison live in forest.

Water Habitat

Animals that live in water are called aquatic animals.

This can further be divided into two groups.

- Freshwater. eg: crab, goldfish, snail, crab
- Marine (Sea water). eg: shark, seahouse, octopus

Arboreal Animals

Animals that live on trees are called arboreal animals.

eg: Squirrel, Monkey

Aerial animals

Animals that can fly most of the time are called aerial animals. eg: Crow, Dove

Amphibians

Animals that need both land and water to live are called amphibians. Eg: Frog, crocodile

Fill in the blanks using the words given at the bottom.

- Animals that live in tree are _____ .
- Animals that spend most of the time flying are _____ .
- Animal that live in both land and water is an _____ .
- Animals that live in water are _____ .
- River water is _____ .

arboreal aerial amphibian fresh water
aquatic

Multiple Choice Questions

- The living environment of an animal is called its _____.
a. shelter
b. habitat
c. house
- Which of the following is not an amphibian?
a. crab
b. tortoise
c. crocodile
d. dolphin

3. Which of the following statement is false?
- Amphibians can live without water for a long time.
 - Birds that can swim are called aquatic animals.
 - Birds that don't fly are not aerial animals.

4. Which of the following is not an aerial animal?

- hen
- crow
- eagle
- dove

5. Domestic animals live in ____.

- plains
- towns
- villages
- cities

True or False

- Animals like fox and wolf live in plains.
- The living place of an animal is called its habitat.
- Humans can live both in land and water.
- Some fishes live only in freshwater and some live only in sea water.
- All birds are aerial animals.
- Animals like camel, cow, goat live in plains.

Group the animals based on the given label.

Fish, Jellyfish, Cow, Deer, Horse, Fox, Bison, Octopus, Seahorse, Tiger, Starfish, Bear

Terrestrial

Aquatic

water snakes, alligator, shark, gold fish, jellyfish, seahorse, starfish

Freshwater

Marine

hen, fox, deer, cow, sheep, camel, goat, bison, bear

Plain

Forest

monkey, eagle, squirrel, pigeon, chameleon, parrot, vulture

Arboreal

Aerial

frog, fish, elephant, crab, lizard, hippo, snake, crocodile, tortoise, monkey

Amphibian

not an Amphibian

Match the following

Land	Living Place
Marine	Arboreal
Trees	Aquatic
Water	Sea
Habitat	Terrestrial

Tiger	Desert
Penguin	Salt water
Whale	Fresh water
Camel	Polar region
Frogs	Forest

Terrestrial	Whale
Arboreal	Goldfish
Aerial	Squirrel
Marine	Hippo
Freshwater	Elephant
Amphibian	Eagle

Forest	Tortoise
Arboreal	Dog
Aerial	Camel
Plain	Monkey
Desert	Fox
Amphibian	Pigeon

Food Habit of Animals

Herbivores

Animals that eat only plants are called herbivores or herbivorous animals. Eg: deer, cow, goat, elephant, giraffe. They have sharp straight edged flat front teeth called incisors to bit the grass and leaves.

Carnivores

Flesh eating animals are called carnivores or carnivorous animals. Eg: hyena, tiger, lion, cheetah. They have sharp, pointed teeth called canines and they are used to tear the flesh of animals.

Omnivores

Some animals eat both plants and the flesh of other animals. These animals are called omnivores or omnivorous animals. Eg: bear, man, crow, hen fox. These animals have a combination of tearing, biting and grinding teeth.

Birds and Beaks

Different birds have different beaks based on their food habit.

1. Eagle has strong sharp, curved beak to catch prey and tear its flesh.
2. Fish eating birds like kingfisher have spear-like beaks designed for stabbing fish.
3. The hooked sharp beak of parrot helps to collect and eat the grains
4. Strong chisel beak of woodpecker is used to make hole in the trees and catch small insects.
5. Sparrow has short, conical beak which helps to crack open the shells and extract the inner nut or seed.
6. Duck has flat beak that helps to grip plant and insect from water.

More facts

1. An elephant needs lot of food. It feed on coconut leaves, sugarcane, banana, and different plants. It uses its trunk to fetch its food and sucking water.
2. An earthworm lives in soil, and it can eat and digest soil along with organic wastes and microbes.
3. A spider spun webs and eat small insects that fall on it.
4. A butterfly has a tube like structure (proboscis) to suck nectar from flowers.
5. Female mosquitoes suck blood from animals. They have a needle like structure to suck blood. The male ones feed on plant juices.
6. The lizards and frogs have a sticky tongue to catch insects.
7. A Hen feeds on grains, small insects, earthworms etc.

Fill in the blanks using the words given at the bottom.

1. Plant eating animals are called _____ and they have _____ teeth.
2. Flesh eating animals are called _____ and they

have _____ teeth.

3. Animals that eat both plants and animals are called _____.

carnivores incisor herbivores
omnivores canine

1. Eagles have a strong, sharp _____ beaks.
 2. Fish eating birds have _____ like beaks.
 3. Woodpeckers have strong _____ like beaks.
 4. Sparrows have short _____ beaks.
 5. Ducks have _____ beaks.
- curved conical chisel spear flat

1. The lizards and frogs have a _____ tongue.
 2. _____ mosquitoes suck blood from animals. _____ mosquitoes feed on plant juices. They have _____ like mouth.
 3. Butterflies have a _____ like mouth to suck nectar from flowers.
- tube needle Male Female sticky

Multiple Choice Questions

1. Birds have different types of beaks based on their _____.
 - a. neck structure
 - b. food habit
 - c. habitat they live
 - d. weight
2. The teeth used to bit grass are called _____.
 - a. pre-molars
 - b. molars
 - c. canines
 - d. incisors
3. All animals have _____ teeth.
 - a. incisor
 - b. canine
 - c. molar

4. Which animal can eat and digest soil?

- a. termite
- b. rat
- c. ant
- d. earthworm

5. The teeth used to tear flesh are called _____.

- a. canines
- b. pre-molars
- c. incisors
- d. molars

6. Mosquito sucks its food. Which of the animals given below suck their food?

- a. Cockroach
- b. Parrot
- c. Butterfly

7. Bear sometimes eats pumpkin and sometimes eats fish. So, it is an _____.

- a. Omnivore
- b. Carnivore
- c. Herbivore

8. A bird that has beak which helps it to crack open shells and eat the seed inside is _____.

- a. sparrow
- b. owl
- c. kingfisher

9. Flesh eating animals have well developed _____.

- a. canines
- b. tusks
- c. molars

True or False

1. Only female mosquitoes suck blood from animals.
2. Elephants use their trunk to eat the food. Trunk is the mouth of elephants.
3. Ducks have sharp beaks.
4. Spiders spun webs to catch insects.
5. Dogs use their tongue to drink water.

Group the animals based on the given label.

Cheetah, Leopard, Crocodile, Cow, Lion, Goat, Seal,
Zebra, Buffalo, Elephant

Herbivore	Carnivore

Hyena, Bear, Fox, Human, Hen, Shark, Eagle, Crow,
Tiger

Carnivore	Omnivore

Match Animals and Food

Honey Bee	Plant
Leopard	Nectar
Hen	Flesh
Spider	Grain
Goat	Insect

Rabbit	Grass
Cat	Carrot
Goat	Milk
Tiger	Earthworm
Hen	Deer

Lion	Sugarcane
Cow	Nuts
Elephant	Insects
Parrot	Zebra
Spider	Grass

Young Ones

The babies of animals, either grow in their mother's tummy or hatch out of the eggs. Some animals like crows, spiders, and lizards lay eggs. Unlike a chicken, their eggs are tiny. Some animals lay eggs that are too tiny to be observed with naked eyes.

Animals that lay eggs are called Oviparous. Animals that give birth to young ones are called Viviparous.

Hen

A hen lays eggs. The warmth which is provided by the hen to her eggs helps the chick inside the egg to grow. After the full growth, the chick breaks the eggshell and comes out.

When a hen is hatching her eggs, she becomes aggressive for fear of their safety. She attacks anyone who tries to go near the eggs.

Unlike, a chick which does not look very different from a hen, in some animals, the young one grows into an adult animal that looks very different from the young one. This change of form is called metamorphosis. eg: butterfly, frog

Do you know?

After we have cleaned the grain we buy, we store it in a box. Even then, when we open the box after some days, we may see some insects in it.

There can be insects in the grain stored in places like warehouses, in the grocer's shop or even in our homes. Now, if a female insect lays eggs in this grain, we cannot see them because of their tiny size. The warmth and air they get in the box in which the grain is stored is enough for them to grow. So their growth continues inside the box. They also have the same stages of growth, namely, egg, larva, pupa and adult. When we open the box, we

see the insects in the grain at the different stages of growth in which they are.

Classify the below animals.

Cat, Horse, Snake, Donkey, Frog, Crow, Cow, Spider, Hen, Dog

Oviparous

Viviparous

Life Cycle of Butterfly

A butterfly has to go through various stages of growth, unlike other animals. These stages are egg, larva, pupa, and adult. The adult stage is called the butterfly. All the butterflies have to go through these four stages.

Butterflies of various shapes and beautiful colours are a part of our environment. They live their life among plants. Let us take the example of the common plain tiger butterfly.

The female butterfly lays eggs on a Milkweed leaf. In 6 to 8 days, the larva emerges from the egg. The larva of a butterfly is called a caterpillar.

When the caterpillar comes out of the egg it is very hungry. It begins to nibble and eat the very leaf on which it emerges from the egg. It eats very fast, and it grows very fast and it does not fit in its skin. To shed old skin to make way for new growth is called moult.

Again it begins to gobble up the leaf and continues to grow rapidly. In 2 or 3 days, it moults a second time. In this way, it moults 4 times. It remains in the caterpillar stage for 10 to 12 days.

Just before the last moult the caterpillar weaves a button of a silken thread on a stalk or a leaf and hangs itself from it. When it moults this time it forms a pupa which is the next stage of its growth. The pupa of a butterfly is also called a chrysalis. It remains inside the chrysalis for the next 11 or 12 days. It does not eat anything during this stage.

However, inside the chrysalis, important changes take place in its body. The growth of the Plain Tiger gets

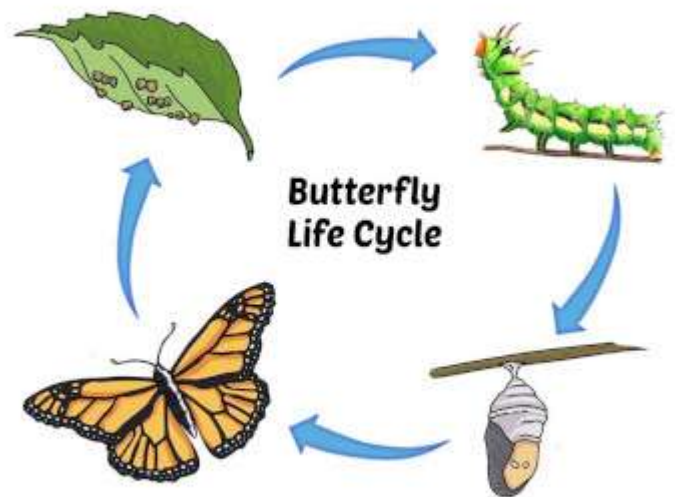
completed inside the chrysalis. Then, the adult butterfly emerges from the chrysalis. It now has four attractive wings and six long legs.

For each type of butterfly, the type of plants on whose leaves its female will lay eggs is fixed.

The time the larva take to emerge from the eggs is different for different types of butterflies. There is great variety in caterpillars. Different types of caterpillars are of different colours. Their body is long. Many types of caterpillars are hairy.

Life cycle of a Butterfly

Eggs, Larva, Pupa, Adult



Animals & their babies

Cat	Foal
Dog	Kitten
Butterfly	Kid
Goat	Cub
Lion	Caterpillar
Horse	Puppy

Multiple Choice Questions

1. Where does a plain tiger butterfly lay her egg?
 - a. Milkweed leaf
 - b. Neem leaf
 - c. Mulberry leaf
 - d. Mango leaf

2. What is the pupa of a butterfly called?
 - a. Chrysalis
 - b. Shell
 - c. Larva
 - d. Budding

3. The process of change in the shape of animals is called _____.
 - a. Photosynthesis
 - b. Metamorphosis
 - c. Metagenesis
 - d. Crystallization

4. The larva of a butterfly is called?
 - a. Stalk
 - b. Worm
 - c. Pupa
 - d. Caterpillar

5. While hatching eggs, the hen become _____.
 - a. aggressive
 - b. tired
 - c. kind
 - d. bored

6. Caterpillar are always very _____.
 - a. hungry
 - b. aggressive
 - c. angry
 - d. playful

7. Caterpillar eats the _____.
 - a. flower
 - b. fruit
 - c. stem
 - d. leaf

Fill in the blanks using the words given at the bottom.

1. To shed old skin to make way for new growth is called _____ .
 2. The four stages of butterfly growth are egg, larva, pupa, and _____ .
 3. The change in the shape of animals as they grow is called _____ .
 4. The pupa of a butterfly is also called a _____ .
 5. The larva of butterfly is called _____ .
- moult adult caterpillar chrysalis
 metamorphosis

1. All butterflies undergo _____ stages of growth.
 2. Caterpillar moults for _____ times.
 3. The butterfly remains in the chrysalis for _____ days.
 4. The adult butterfly has _____ legs.
 5. Usually the larva emerges from the egg in _____ days.
- six twelve five seven four

Classify the below sentences as true and false

1. Eggs of hen, tortoise need warmth to hatch.
2. Once we clean the grains, and put it in a box, it will be free from insects.
3. Different types of butterflies lay eggs in different types of leaves.
4. Different types of caterpillars are of different colors.
5. In the pupa stage, the butterfly eats a lot.

Adaptation in Animals

Adaptation in Animals

Adaptation is the most essential factor of all living beings. The changes in an animal's behaviour to adjust with its habitat is called adaptation. If an organism fails to adapt to the particular environment, its survival is difficult.

All animals have special body parts to live in a particular place at a particular time.

For example, giraffes have developed very long necks because of their environmental demands. Tigers and Zebras have lines so they can hide themselves. Camels have broad feet to walk in the desert. Fish have gills to

breathe in the water and fins to swim.

There are three basic types of adaptations seen in animals. They are,

Structural adaptations

Changes in the physical features of the animal are called structural adaptations. For example, polar bears living in cold climate have physical adaptations, such as thick fur and short ears to reduce heat loss.

Physiological adaptations

Changes in the functions of the animal's body are called physiological adaptations. E.g. Dog shivers to generate more heat when it is cold and pants when it is hot.

Behavioural adaptations

Changes in the activities of the animal are behavioural adaptations. Birds migrate to avoid adverse conditions.

Porcupines have thorns on their body to fight against their enemies. Alligators have sensitive skin which can feel even small vibrations in water.

Fill in the blanks using the words given at the bottom.

1. Thick fur in polar bears is a _____ adaptation.
2. Dogs panting is a _____ adaptation.
3. Birds migrating is a _____ adaptation.
4. Fish have _____ to breathe in the water and _____ to swim.

gills behavioural physiological fins
structural

1. _____ have broad feet.
2. _____ have thorns on their body.
3. _____ have sensitive skin.
4. _____ move from one place to another to avoid unfavourable climate.
5. _____ have stripes on their body.

Birds Porcupines Alligators Camels
Zebras

Match the following

Thorns	Sensitive skin
Alligators	Porcupines
Polar Bear	long neck
Giraffe	broad feet
Camels	Short ears

True or False

1. Adaptations can be classified into three basic types.
2. Fish have gills to swim.
3. Dog shivers to generate more heat.
4. Alligators have thick skins and cannot feel the vibrations in water.
5. Polar bear has short ears.
6. If an organism fails to adapt to the particular environment, its survival is difficult.

Choose the Right Answer

1. Dogs keeping its tongue out and panting is a _____ adaptation.
 - a. structural
 - b. physiological
 - c. behavioural
2. Porcupines have thorns on their body to fight against their enemies. It is a _____ adaptation.
 - a. behavioural
 - b. physiological
 - c. structural
3. Why do polar bears have short ears?
 - a. To protect themselves from cold weather.
 - b. To avoid insects from entering the ears.
 - c. To keep the body heat within the body.
4. Which of the following can travel long distance?
 - a. Fish
 - b. Deer
 - c. Tiger
 - d. Birds

5. Alligators have sensitive skin which can _____ in water.

- a. feel even small vibrations
- b. see even small objects
- c. feel even far away animals

Structure of Insects

Insects have three main body regions. They are head, thorax and abdomen. All parts of the insect are inside an exoskeleton.

Head

The main visible parts on the head are the large compound eyes, the antennae (feelers) and the mouth parts.

Thorax

The thorax is the middle region of the body. It bears three pairs of legs and two pairs of wings.

Abdomen

The abdomen is the last part of the insect body. Abdomen of most of the insects have clear segmentation.

Many types of Insects

Insects have differences in structures like wings, legs, antennae and mouthparts. The legs are modified for walking, jumping, digging or swimming.

Most of the insects have wings which can be folded flat over their body. Eg: bug

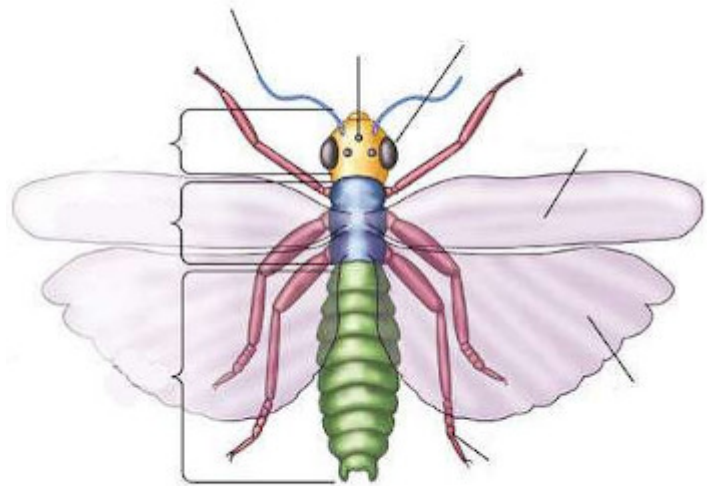
There are some insects which cannot fold their wings. Eg: dragonfly. Some insects are wingless. eg: ant, silverfish

The compound eyes of insects are made up of small units called ommatidia.

Insects use the antennae to smell and feel the surface.

Parts of an Insect

antenna, simple eye, compound eye, front wing, hind wing, leg, abdomen, thorax, head



Choose the Right Answer

1. Which body part in insects is usually segmented?

- a. abdomen
- b. thorax
- c. head
- d. wings

2. The wings are connected to the body at ____.

- a. thorax
- b. abdomen
- c. legs

3. Which insect doesn't have foldable wings?

- a. bug
- b. housefly
- c. dragonfly

4. What is the body part that connects the head and the abdomen?

- a. thorax
- b. wings
- c. legs
- d. ribs

Fill in the blanks using the words given at the bottom.

1. Like any insects, butterfly has _____ body parts. It has _____ wings and _____ legs, attached to the

_____. It uses its two _____ to smell.

throat six antennae four three

True or False

1. Insects use the antennae to drink water.
2. The legs and wings are attached to thorax.
3. All parts of an insect are inside an exoskeleton.
4. All insects can fly.
5. The thorax region is segmented.

Special senses

Some animals have well developed special senses. These special senses help the animals experience the world around them.

Ants have sense of sight, smell, taste and touch. Ants have organs of smell and taste in their antennae. They feel the vibrations in the ground through their feet.

Place a few sugar cubes in a plate. After sometime, you can see some ants visiting the plate.

Adding sugar to your cat's food is of no use, because cats cannot taste sweetness.

Most snakes have poor eyesight. Snakes use their tongue to smell their surrounding.

Bats have a good sense of hearing. They use sound navigation. They produce ultrasonic sound which helps the bats find their way at night and find out the objects on their path. This is called 'Echolocation'.

Vampire bats feed on the blood of their prey. Vampire bats have heat-detecting noses which allow them to find their prey.

Nocturnal animals

Some animals sleep in the day time and are very active at night. A good example is cat at your home. Such animals are called Nocturnal animals. Eg: owl, bat, mouse, firefly, moth

Animals that are active during day time are known as diurnal animals. Eg: hen, horse, camel

Lions are active both during day and night.

Nocturnal creatures generally have highly developed senses of hearing, smell, and specially adapted eyesight.

Choose the Right Answer

1. Bats have good sense of _____.
 - a. hearing
 - b. smelling
 - c. seeing
2. Snakes use their _____ to smell their surrounding.
 - a. eyes
 - b. nose
 - c. tongue
 - d. ears
3. For what purposes, an ant uses its antennae?
 - a. To feel the vibrations in the ground
 - b. To taste
 - c. To smell
4. Which animal is active both day and night?
 - a. lion
 - b. cow
 - c. owl
5. Which animal produces ultrasonic sound?
 - a. Owl
 - b. Vampire
 - c. Bat

Classify the below animals.

Horse, Cockroach, Cat, Hen, Mouse, Donkey, Bat, Owl, Eagle, Cow

Nocturnal

not a Nocturnal

Parental Care

Efforts taken by the adult to take care of their young ones is called Parental care.

Parental care increases the survival rate and improves the quality of young one. It also increases the reproductive success of animals.

Kangaroo

Kangaroo is best known for parental care. Female kangaroo carries its baby in its pouch. The pouch provides a safe place for the young ones to stay until they grow large enough to survive outside on their own.

Cow

Cow gives milk and protects its calf from the enemies. Mother and calf communicate with each other through a sound. Calves respond to the calls from their own mother by calling back.

Human beings

Humans promote and support the physical, emotional, social and intellectual development of their child. The human infant or baby is completely helpless at birth. Mother takes good care of the baby by feeding, helping to sleep and making comfortable with clothes etc. Through proper parenting the child is taught whatever needed to live successfully in the society.

Food Chain

Food Chain

Grass is food for deer and deer is food for tiger. Plants are food for grasshoppers and grasshoppers are food for bird. Studying the food chain helps us understand how living things are related with one another by the food they eat.

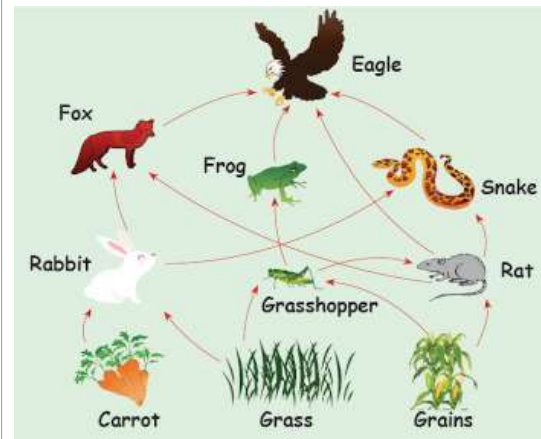
Examples of Food Chain

Leaves > Caterpillar > Hen > Hawk

Grass > Grasshopper > Rat > Owl

Food Web

Every organism can feed on different kinds of food. So a single organism will be part of many food chains. These food chains are interconnected to form a web.



A food web is an interconnection of multiple food chains. Transfer of energy between organisms of different energy sources occurs through food web.

Multiple Choice Questions

- In a food chain, _____ can be placed immediately before a snake.
 - grass
 - an eagle
 - a frog
- Select the animal that has similar eating habit like a bear.
 - Deer
 - Hen
 - Camel
- Which of the following represents the right food-chain?
 - leaf → insect → bird
 - leaf → bird → insect
 - insect → leaf → bird
- In a food chain, _____ can be placed immediately after a snake.
 - a frog
 - grass
 - an eagle

Fill in the blanks using the words given at the bottom.

- grass → _____ → lion
- _____ → rat → _____
- insect → frog → _____
- _____ → deer → _____

zebra grain tiger cat snake grass

Group Behaviour

Animals gain a lot of benefits from spending time together with other members of the same species. This is called group behaviour. Animals like elephant and lion live in groups. But some animals like tiger and bear, live in solitary (alone).

Group behaviour is also called social behaviour. Members of the group work together to find food, defend themselves and look after the young ones. For example, all the fish in a school move together, following their leader in the front. The main purpose of group behaviour is to help animals survive in nature.

Bees

When insects live together, they often follow a hierarchy. For example, bees have one queen bee in every hive. There are a few male bees called drones. There are hundreds of female bees, which are the worker bees.

Social Nesting

Different birds have different behaviours. Some social nesting birds do not build individual nests. All males work together and build a common nest in which hundreds of birds can be housed.

Elephants

Elephant group is called herd or parade. For each group, there is a female head, which leads the group towards the availability of food, water and safety. The leader fights for their group. All animals in a group obey the command of their leader. Older animals teach manners and life skills to young ones.

Advantages of group behaviour

1. It is easy to procure food. Lions hunt together and share the prey.
2. It is helpful in taking care of young ones. Female elephant takes care of its calf.
3. It helps to protect from predators. When an animal find a danger, it alerts the others in the group.
4. Work can be divided. Honey bees collect nectar, build comb and clean hives by splitting the work
5. Energy Conservation. Birds fly in "V" shape to reduce

wind resistance.

Animals & their Group

a pride of	ants
a school of	wolves
a colony of	cows
a pack of	fish
a flock of	lions
a herd of	sheep

a herd of	dolphins
a parliament of	monkeys
a school of	owl
a swarm of	dogs
a pack of	elephants
a troop of	bees

Multiple Choice Questions

1. The male bees are called _____.
 - a. workers
 - b. drones
 - c. king
 - d. queen
2. Each elephant herd, has _____.
 - a. two male leader
 - b. one male leader
 - c. one female leader
 - d. two female leader
3. Why does a school of fish move together?
 - a. To defend themselves.
 - b. To feed their young one.
 - c. To search for food.
4. Solitary animals _____.
 - a. live in plains
 - b. live in groups
 - c. live in forests
 - d. live alone

5. Why birds fly in a V-formation?

- To protect from eagles.
- They like the letter 'V'.
- To reduce wind resistance.

Fill in the blanks using the words given at the bottom.

- Lions _____ together and share the _____ .
- Bees _____ the work among them. There are a few male bees called _____ and hundreds of female bees called _____ .
- The main purpose of group behaviour is to help animals _____ in _____ .

split hunt nature prey workers
survive drones

- Animals that live alone are called _____ animals.
- Group behaviour is also called _____ behaviour.
- All animals in a group, _____ the command of their _____ .
- When an animal find a _____ , it _____ the other animals.

solitary social obey danger leader
alerts

True or False

- Tigers live in groups.
 - Only the leader lion will hunt.
 - Lions live in groups.
 - Different birds have different behaviours.
 - All animals like to live in groups.
 - Animals that live in group are called solitary animals.
7. All birds lay eggs.

Environment

Environmental Factors

Everything present around us is part of our environment. We are surrounded by living things like plants and animals and non-living things like water bodies, sunlight, air and land.

The living and non-living things in our environment interact with one another. Our environment has two main factors: biotic and abiotic factors

Biotic Factors

Living organisms in our environment are called biotic factors. Eg: lion, plantain, dove, human beings etc.

Abiotic Factors

Non-living things in our environment are called abiotic factors. Eg: air, soil, water, sunlight, temperature etc.

All biotic factors depend upon abiotic factors for their living. Biotic and abiotic factors are linked to each other by the flow of energy through food. Plants are the most important among all the living organisms. Because they only can make food from abiotic factors like air, soil, water and sunlight.

Environmentalist

A person who protects the environment. As an environmentalist, you can volunteer to protect plants and animals.

True or False

- Environmentalist is a person who creates the environment.
- Plants cannot live without animals.
- Animals cannot live without plants.
- Abiotic factors cannot live without biotic factors.
- Biotic factors cannot live without abiotic factors.

Classify the below as nature or manmade

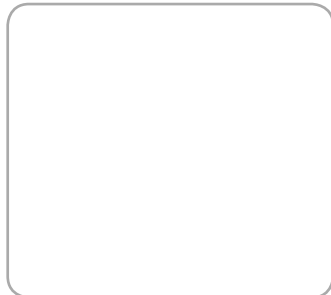
river, coconut tree, cell phone, building, temple, jasmine flower, hill, silver vessel, cake, cloud, dam

Nature

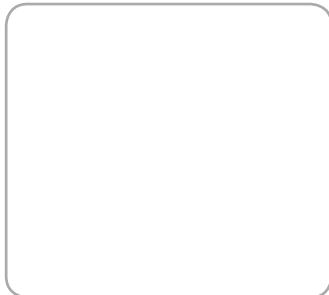
Man-made

water, doll, crocodile, sunflower, football, book, ship, sun, aeroplane, air, pencil

Nature



Man-made



Fill in the blanks using the words given at the bottom.

1. All _____ factors depend upon _____ factors for their living. Only plants can make food from abiotic factors like air, soil, water and _____ .
 2. Biotic and abiotic factors are _____ to each other by the flow of _____ through _____ .
- biotic abiotic sunlight linked energy
food

Balanced Ecosystem

Imagine an environment where there are only plants, deer and lions.

1. What will happen to the deer if we remove all the lions?
2. What will happen to the plants if there are no lions to eat the deer?
3. If all the plants are eaten, what will happen to the deer?

It is important for the food chain to exist in any ecosystem to make sure that the energy flows between the biotic and abiotic factors. A balanced ecosystem supports animals, plants and micro organisms to grow in their environment. An ecosystem is balanced, when the biotic and abiotic factors are able to cycle the energy and food as per their need. The biotic factors in an ecosystem includes producers, consumers and decomposers.

Producers

The living things that can prepare their own food are called producers. Green plants are the producers. They make their own food by the process of photosynthesis. Hence, they are called primary producers. Humans and animals depend on plants for their food.

A few plants do not produce their food and they depend on other plants. They are called parasitic plants.

Eg: cuscuta

Consumers

The living things that eat the food prepared by the producers are called consumers. Most of the living things depend directly or indirectly on producers for their food. Consumers can be divided into three types based on their food as herbivores (plant eating animal), carnivores (flesh eating animal), omnivores (both plant and flesh eating animal).

Decomposers

Organisms that feed on the wastes, dead plants and animals are called decomposers. They return the nutrients to the soil. Eg: bacteria, fungi. Mushroom is a type of fungus.

Fill in the blanks using the words given at the bottom.

1. The living things that can prepare their own food are called _____. Animals are usually called _____. Plant eating animals are called _____ consumers. Meat eating animals are called _____ consumers. Organisms that consume dead plant and animals are called _____.
producers consumers secondary
decomposers primary

1. _____ plants are dependent on other plants for their food.
 2. _____ flows between the biotic and abiotic factors.
 3. _____ ecosystem is important for the life cycle of all living things.
 4. _____ alone can prepare their own food.
 5. _____ , air, water are abiotic factors.
- Balanced Plants Sunlight Parasitic
Energy

Fill Up

1. Sparrows grow by eating _____ (insects, stone) and _____ (food grains, paper).
2. Plants and animals are _____ (living things, non-living things).
3. Plants utilize _____ (sunlight, moonlight) to prepare their food.

4. Birds build their nest using _____ (twigs, bricks).
 5. Papers, rock and bag are _____ (non-living, living) things.

True or False

1. Train can move from one place to another. So, train is a living thing.
 2. Plants cannot move from one place to another place by their own.
 3. Dead animals will decay in the soil and turn the soil fertile.
 4. Wooden chairs and tables are made from the trees. So, they are living things.
 5. Living things and non-living things depend upon each other in the environment.

Multiple Choice Questions

1. _____ are classified as decomposers.

a. Fungi
 b. Lotus
 c. Tomato
 d. Lentils

2. Human beings are _____.

a. omnivores
 b. carnivores
 c. herbivores

3. _____ are known as producers.

a. Human beings
 b. Insects
 c. Animals
 d. Plants

4. Choose a correct food chain sequence

a. Plant → Deer → Lion
 b. Lion → Bacteria → Human
 c. Human → plant → Tiger
 d. Fox → Fungi → Human

5. Mushroom is a type of _____.

a. micro organism
 b. bacteria
 c. fungus

6. Mushroom is a _____.

a. decomposer
 b. producer
 c. consumer

Classify the below food items as plant based or animal based.

Ice cream, Eggs, Milk, French fries, Lettuce, Popcorn, Cheese, Ketchup

Plant Based

Animal Based

Match the Following

Stone	Decomposer
Bacteria	Young plant
Plants	Consumer
Buffalo	Abiotic factor
Sapling	Producers

Wood	Wool
Wind Energy	Bag
Leather	Food
Sheep	Electricity
Farmer	Furniture

Introduction to Computer

Introduction to Computer

A computer is an advanced electronic device. There are different types of computers and it can be used at home, office, laboratory etc.

Uses of computer

At home we can use a computer to

1. type documents
2. draw pictures
3. browse the internet

4. send an e-mail
5. play games
7. watch videos
8. chat with a friend

And we can do many more things using a computer.

Below are some of the important characteristics of a computer.

Speed

A computer can do lot of tasks in few seconds.

Accuracy

Computers give correct output for every correct input. It doesn't make mistakes like humans.

Diligence

A computer works for hours without any break. It won't get tired quickly.

Versatility

A computer performs different types of work at the same time. It is commonly known as multi-tasking.

Storage

A computer can store lot of data.

Human vs Computer

Computers don't have feelings and cannot take any decision on its own. It can work only based on the input.

Read the sentence and identify who it represents.

1. I have feelings.
2. I can take my own decision.
3. I never make mistakes in calculation.
4. I can work without electricity or battery.
5. I can work for many hours without getting tired.
6. I can work on different tasks at the same time without getting confusion.
7. I can do lot of works within few seconds.
8. I can store billions of data.

True or False

1. Computers can do lot of work without getting tired.
2. We can watch movies using a computer.
3. Computers are slow in doing calculation.
4. Computers are used only in laboratory.
5. We cannot listen to songs from a computer.

Parts of Computer

The working of a computer can be explained in three steps.

1. It takes input from an input device.
2. It does the work by processing the input.
3. It gives the output through the output device.

Input devices

Keyboard, Mouse, Web camera, Microphone, Scanner, Joystick

Output devices

Monitor, Printer, Speakers

Parts of CPU

CPU is a complex machine present inside the computer and not visible to our eyes.

Multiple Choice Questions

1. We give instructions to a computer through _____.
 - a. output devices
 - b. input devices
 - c. CPU
 - d. hard disk
2. Which of the following is not a character of a computer?
 - a. It can do lot of work without getting tired.
 - b. It can think on their own and correct our mistakes.
 - c. It can work on multiple tasks at the same time.
 - d. It can store lot of data.

3. Which of the following is not an input device?

- a. Speaker
- b. Microphone
- c. Keyboard
- d. Web Camera

4. What we cannot do using a computer?

- a. Cooking Food
- b. Taking Photo
- c. Playing Song
- d. Drawing Images

5. We can give text input to a computer through a _____.

- a. mouse
- b. printer
- c. keyboard
- d. scanner

Classify the below devices.

Microphone, Web camera, Scanner, Printer, Monitor, Speakers, Mouse, Keyboard

Input

Output

Types of Computer

There are many types of computers based on their size, shape and how they work.

Desktop

A desktop computer is big in size. It is kept at a fixed place. It works on electricity. Different parts like CPU, monitor, keyboard, mouse, speaker are connected through wires.

Laptop

It is a small computer and can be placed on one's lap, and hence got its name. It works on batteries and light to carry. So we can easily carry it anywhere. The CPU,

monitor, keyboard, and mouse are all in-built. The screen can be folded when not in use.

Smartphone

It is also a computer, also known by the name mobile phone. We can make phone calls, chat with others, take photo, play games, send email etc. It comes with a large display which also takes user input through touches.

Tablet

In terms of size and operation, it comes between smartphone and laptop. It has big screen but cannot be carried freely like smartphone. But it is very light weight when compared to laptop.

Classify the below sentences as true and false

1. Desktop computers work on batteries.
2. We can easily carry a laptop.
3. Smartphones work on batteries.
4. All data stored in computer are lost once we shutdown.
5. We can easily carry a desktop.

Rearrange the below from the smallest to the biggest.

- ☐ Desktop
- ☐ Laptop
- ☐ Smartphone
- ☐ Tablet

Input Devices

Input Devices

We give instructions to a computer through input devices.

Mouse

A mouse is an easy to use tool to point and select things. They are widely available with desktop computers. With laptops also, mouse can be connected through an USB port.

Touch Screen

Mouse is not available in smartphones and tablets because we can directly click on the screen and select things.

Keyboard

It is a widely used input device where we can type words and sentences. We use it to type documents, write emails and fill forms.

Apart from the letters and numbers, we can find lot of other keys in a keyboard. Backspace and Delete key are used to delete content.

Arrow Keys

It is used to move the cursor up, down, left and right. It is also widely used in playing games.

Caps lock

It is a toggleable key which can be turned 'on' or 'off'. If turned 'on', whatever we type, comes in capital letters.

Shift Key

Most of the keys in the keyboard is used to input two characters. For example, '?' and '/' are present in the same key. So to input the other character, we use the Shift key.

Print Screen

It is used to save the screen as an image, which can be stored or shared with others.

Ctrl Key

It is used for giving special instruction to a computer. Some of the common instructions are

1. ctrl + S : Save a file
2. ctrl + C : Copy the selected text or file
3. ctrl + V : Paste the copied content
4. ctrl + X : Cut the selected text or file
5. ctrl + P : Print a file
6. ctrl + Z : Undo last action
7. ctrl + Y : Redo last action
8. ctrl + F : Search some text in a file
9. ctrl + A : Select all content
10. ctrl + N : Open a new file

Functional Keys

These are special purpose keys present at the top of the keyboard. Usually, there are 12 keys. (from F1 to F12)

1. F1 : Help
2. F2 : Rename

Match Shortcut keys

F1	Rename
Ctrl + A	Cut
Ctrl + X	Select All
Ctrl + C	Paste
Ctrl + V	Help
F2	Copy

Ctrl + N	Search
Ctrl + S	Undo Last
Ctrl + P	Redo Last
Ctrl + Y	Print
Ctrl + Z	Save
Ctrl + F	Open New

Fill in the blanks using the words given at the bottom.

1. If I get confused, I will use _____ .
2. If I have to rename a file, I will use _____ .
3. If I made a mistake, and want to remove the last few changes, I will use _____ .
4. I took printout using _____ , and then I saved the file using _____ .

F1 F2 Ctrl + Z Ctrl + P Ctrl + S

1. To move text from one place to another, first I need to select the text and use _____ , then place the cursor where I want to paste and use _____ .
2. To search for the occurrence of a particular text in a document, I use _____ .
3. To open a new document, I use _____ .
4. To select all text, I use _____ .

Ctrl + X Ctrl + V Ctrl + A Ctrl + F Ctrl + N

Multiple Choice Questions

1. Without input devices, we cannot _____.
 - a. see what is happening in a computer
 - b. use a computer
 - c. get an output
 - d. give instruction to a computer
2. Which of the keys are called special purpose keys?
 - a. Functional Keys
 - b. Shift and Control keys
 - c. Arrow Keys
3. Which key is used to rename a file?
 - a. Shift + R
 - b. F2
 - c. F6
 - d. Ctrl + R
4. If you want to type every character in capital letter, which key do you use?
 - a. Ctrl
 - b. Combination of Shift and particular character key
 - c. Caps Lock
 - d. Shift
5. To duplicate a text, which keys do you use?
 - a. Ctrl + C and Ctrl + P
 - b. Ctrl + C and Ctrl + V
 - c. Ctrl + X and Ctrl + V
 - d. Ctrl + X and Ctrl + P

Order the keys: First create a new document, type some text, duplicate the text, search for some text and remove them, save the file and finally take a printout.

- ☐ Ctrl + P
☐ Ctrl + F
☐ Ctrl + S
☐ Ctrl + V
☐ Ctrl + C
☐ Ctrl + N

Applications We Use

Applications are software programs we use in our computers and smartphones.

Internet Browsers

They allow us to connect with the internet. Google Chrome, Mozilla Firefox, Safari are the commonly used browsers.

Google

It is the most famous search engine that helps to search in the internet. For example, if you want to know more about a 'tiger', just google it. You will find lot of information about the tiger.

Online Meeting App

People can conduct online meeting using softwares like Zoom, Skype or Google Meet. Multiple people can connect at the same time. We can talk through a microphone. We can show our face through a web camera. We can also share our screen.

Social Media

It helps us to connect with our friends and also allow us to follow the activities of celebrities and other people. Facebook, Instagram, Twitter are the famous social media applications.

Messaging App

We can easily share photos, videos or text messages through a messaging app like Whatsapp or Telegram.

Match the following

Google	Messaging App
Whatsapp	Social Media
Facebook	Internet Browser
Zoom	Search Engine
Chrome	Online Meeting

Skype	Internet Browser
Instagram	Messaging App
Telegram	Online Meeting
Firefox	Online Shopping
Amazon	Social Media

Computer System

Computer System

A computer is made up of software and hardware.

Hardware

All physical parts of a computer that can be touched or connected to the computer is called hardware. Eg: monitor, keyboard, CPU, mouse, printer, and speaker

Hardware can be internal or external.

External Hardware:

They are visible components connected to a computer. Eg: mouse, keyboard, pendrive, printer.

Internal Hardware:

The parts present inside the CPU are called internal hardware. They include motherboard, microprocessor, RAM, Hard disk etc.

Motherboard

It is an electronic board that holds all other internal hardware like RAM, microprocessor etc.

Microprocessor

This is the most important part of a computer and called the brain of a computer. This is responsible for running a software in your computer.

RAM

It stands for Random Access Memory. It is often called the main memory of the computer. It holds the data and instructions on which computer is currently working. Once we turn off the computer, the data stored in RAM will be lost.

Hard Disk

It is used to store data permanently. Even if we turn off the computer, the data stored in a hard disk is retained. Usually harddisk have hundreds of times more capacity than RAM.

Software

It is a set of instructions or programs on which the computer works. Eg: Operating System (OS), Anti Virus, Internet Browser, Search Engine

Operating System (OS)

It is the most important software in your computer. It is the first software that runs when you start a computer. It manages all the activities of a computer. It is responsible of running other softwares. The three famous OS on laptops and desktops are Windows, MacOS and Linux. The two famous OS on smartphones are Android and iOS.

Classify the below devices as internal or external hardware.

scanner, RAM, mouse, hard disk, monitor, motherboard, speaker, microprocessor

External

Internal

Classify the below sentences as true and false

1. The monitor is an input device.
2. A computer is an electronic device.
3. A pen drive is a storage device.
4. Printed data is called soft copy.
5. Output device displays result.
6. Input is the processed data.

Match the following

Monitor

Keyboard

Processing

Storage

Linux

CPU

Hard Disk

Operating System

Input Device

Output Device

Windows	Permanent Memory
Keyboard	Operating System
Motherboard	Temporary Memory
Hard Disk	External Hardware
RAM	Internal Hardware

macOS	Mouse
Android	Printer
Image to Paper	Scanner
Paper to Image	Mobile OS
Smartphone	Desktop OS
Desktop	Touch

Multiple Choice Questions

1. CPU has a _____.
 - a. Microprocessor
 - b. Microphone
 - c. Microcontrolller
2. Which is not a storage device?
 - a. DVD
 - b. Scanner
 - c. Hard disk
3. Which is not an operating system?
 - a. MS word
 - b. Linux
 - c. Windows
4. What is the software that manages other softwares?
 - a. Operating System
 - b. Anti Virus
 - c. CPU
 - d. Micro Processor
5. Which is not a part of our computer?
 - a. Server
 - b. Hardware
 - c. Software

Click the blanks and fill it with the right word.

1. _____ (Software, Hardware) is a set of instructions on which computer works.
2. CPU is the _____ (brain, heart) of the computer.
3. _____ (Windows, MS Word) is an example of operating system.
4. _____ (Motherboard, RAM) helps in keeping all the internal hardwares together.
5. _____ (Hard Disk, RAM) is used to store data permanently.
6. Hardware components that are visible to our eyes are called _____ (external, internal) hardware.
7. To get hard copy of a computer output, we use _____ (printer, scanner).

Form the word using the letters.

1. An input device used to select items on the computer screen.
S U E O M
2. An output device that gives output on paper.
I N T P R R E
3. A device that helps to listen music.
K E A P E R S
4. A device to view images and videos.
N M R O O I T
5. A device to convert the content of paper into soft copy.
E A S R C N N

Light

Light

Light

Light helps us to see things around us. Sun is the natural source of light. It emits its own light. All stars are natural sources of light. When natural light is not available, we use candles, torch, bulbs, etc. These are man-made sources of light. There are many objects around us which do not emit light at all such as tables, chairs, paper and clothes. Objects that emit their own light are called luminous objects while those that do not emit their own light are called non-luminous objects. As the moon reflects the light of the sun, it is a non-luminous object.

We can see any objects only when light falls on it and bounces off and the light is reflected back into our eyes. We cannot see anything in a dark room because there is no light.

When light falls on objects, some objects allow light to pass through them while some do not. These are called transparent and opaque objects. Glass is transparent whereas wood is opaque.

Shadows

A shadow is always formed on the opposite side of the source of light. The colour of the shadow is always black.

A shadow is formed when light cannot pass through an object. That is, the object blocks the path of light. Shadows also tell us that light travels in a straight line. Light cannot bend its path.

Sometimes, shadows are long and sometimes they are short. It depends on the position of the source of light. Outdoor shadows are longer in the morning and evening and shortest at noon.

Classify the objects based on their ability to emit light.

candle, book, stars, sun, table, moon, fire, bulb, pencil, chair

Luminous

Non- luminous

Classify the objects based on their ability to allow light to pass through them.

wood, glass, book, brick, water, air

Transparent

Opaque

Select the right ones

- Which of the following is a natural luminous object?
 - candle
 - bulb
 - moon
 - sun
- Which of the following objects allow light to pass through them?
 - opaque objects
 - transparent objects
 - non-luminous objects
 - luminous objects
- When does the length of the shadow formed by the sun is the shortest?
 - at noon
 - in evening
 - at night
 - in morning
- Which of the following objects does not form a shadow when light falls on it?
 - umbrella
 - glass
 - our body
 - tree

Fill in the blanks using the words given at the bottom.

- A _____ is formed when an object blocks the path of light.
- Transparent objects do not form shadows because light _____ through them.
- The shadow formed due to the sun is _____ at noon.
- The moon shines due to the light of the _____ .

5. In the evening, shadows are _____ .

shadow long pass short sun

1. The _____ is an example for luminous object.

2. A _____ is an example for a non-luminous object.

3. A wall is an example for _____ object.

4. Clean water is an example for _____ object.

5. Light travels in a _____ line.

opaque table transparent straight sun

1. The sun is a _____ source of light.

2. Objects that emit light of their own are called _____ objects.

3. Objects that allow light to pass through them are called _____ objects.

4. Dark patch formed when an object blocks the path of the light is called _____ .

5. Objects that doesn't allow light to pass through them are called _____ objects.

natural shadow luminous transparent
opaque

True or False

1. Light travels in a straight line.

2. The moon is a luminous object.

3. A table is a transparent object.

4. Moon is a non-luminous object.

5. We cannot see through opaque objects.

1. The colour of the shadow is always black.

2. Shadow is the longest at noon.

3. Moon has light on its own.

4. We cannot see non-luminous objects.

5. We cannot see things around us in dark.

Select with word with correct spelling.

1. opaque, opack, opa

2. transperent, transperant, transparent

3. lominous, luminous, loominous

4. reflect, reflect, reflect

5. bounce, baunce, bounse

Sound

Sound

We hear various types of sounds such as music, voices of people talking, honking of horns and many more. Sounds may or may not be pleasant to our ears. Sounds such as chirping of birds and various musical instruments such as a flute, a guitar or drums are pleasant to our ears. On the other hand, sounds such as horns, loud music and cutting of stones are unpleasant to hear. These sounds irritate us. They are called noises.

How is sound produced?

Sound is produced when an object vibrates on being struck. For example, the sheet of the drum or strings of guitar vibrate when we strike them and they produce sound. When we speak, the air inside our mouth strikes the voice box present in our throat. The voice box vibrates and produces sound. We hear this sound through our ears.

Too much of sounds can create noise pollution. If our ears get exposed to heavy sounds for a long time, then it loses its hearing ability.

Multiple Choice Questions

1. Which of the following vibrates in our body to produce sound?

- a. stomach
- b. lungs
- c. voice box
- d. tongue

2. Sound is a form of _____.

- a. matter
- b. energy
- c. air

3. Sound is produced by _____.

- a. animals
- b. birds
- c. machine
- d. vibration

4. Unpleasant sounds are called _____.

- a. irritation
- b. headache
- c. pollution
- d. noise

True or False

- 1. Sound is a form of energy.
- 2.
- 3. We cannot hear any sound in the dark.
- 4. All sounds are not pleasant to ears.
- 5. The sound of the loudspeaker is a soft sound.
- 6. Sound is produced by vibration.

Fill in the blanks using the words given at the bottom.

- 1. Unpleasant sound is called _____ and it _____
us.
- 2. Too much of sound can cause noise _____ .
- 3. Sound is a form of _____ and it is caused by
_____ .

pollution noise vibration energy
irritates

Select with word with correct spelling.

- 1. polution, pollusion, pollution
- 2. nois, noice, noise
- 3. vibration, viberation, vaibration
- 4. pleasant, plesent, pleasent
- 5. chiriping, cherping, chirping