

**Amazing
Science
Class - 4**

Class-4

1. The Food that We Eat

Check Knowledge

- A. 1. Nutrients 2. Carbohydrates
3. Proteins 4. Fat
5. Vitamins
- B. 1. Proteins 2. Diseases
3. Haemoglobin 4. Water
5. Deep freezing
- C. 1. Cereals 2. Proteins
3. Roughage 4. Pickling
5. Fats 6. Refrigerating
- D. 1. We need food to get energy. The energy helps us to grow and to do various functions.
2. Nutrients are the substances needed by our body for growth and health. Carbohydrates, proteins, fats, vitamins and minerals are various nutrient that our body require in proper proportion for good health.
3. Carbohydrates serve as the source of energy.
4. Proteins help us to grow. So they are called body-building substances.
5. Vitamins and minerals are protective food as they protect us from diseases. Vitamin A keeps our eyes healthy. Mineral calcium helps to keep our bones strong.
6. The edible part of the plant that cannot be digested by our body is called roughage. But it helps us to remove body waste.
7. Drying, refrigerating, pickling, canning and bottling, and deep freezing are various methods of food preservation.
8. Wrong postures will lead to pain in our legs, arms, back and joints.

2. Teeth and Digestion

Check Knowledge

- A. 1. 20 2. wisdom
3. Canines 4. Enamel
5. food pipe
- B. 1. True 2. False
3. False 4. True
5. False
- C. 1. 20 2. 4

3. Pulp 4. Dentine
5. Enamel 6. Large intestine
- D. 1. **Milk teeth**—It is the set of teeth by the time when a child is 3 years old. It has 20 teeth.
- Permanent teeth**—It is the set of teeth when a child is about 12 to 13 years old. It has 28 teeth.
2. **Incisors**—Each jaw has 4 incisors which are used to cut and bite the food. So they are also called biting teeth.
- Canines**—Each jaw has 2 canines, which are used to tear the food.
- Premolars**—Each jaw has 4 premolars. These teeth are used to crush and chew the food well.
- Molars**—Each jaw has 6 molars. They are broad teeth which grind the food well.
3. Each tooth has two major parts — the crown and the root. The crown is visible while the root is not visible as it lies inside the gum
4. We brush our teeth in little circles covering every surface of every teeth.
5. Dental floss is a special string used for cleaning our teeth. It helps to remove food and plaque that get stuck in between the teeth.
6. After the food is chewed, it is pushed into the throat by our tongue. The throat muscles force it down into the food pipe. The muscles of the food pipe push the food down into the stomach.
7. Digestion of food takes place in the small intestine.
8. (a) Washing hands before and after eating meals
(b) Chewing the food slowly and properly.

3. Clothes We Wear

Check Knowledge

- A. 1. Mothballs 2. Cotton
3. Rain 4. Natural
5. Synthetic
- B. 1. Correct 2. Wrong
3. Correct 4. Wrong
5. Correct
- C. 1. Cotton clothes protects us from the heat of the sun.

2. We wear **full** sleeves clothes to protect ourselves from insects.
 3. We wear **uniforms** when we go to school.
 4. A housewife wear a special **sari**.
 5. We should iron our clothes.
- D.
1. Clothes protect us from heat, cold, rain and dirt. They make us look smart.
 2. Raincoat and gumboots protect us from rain water as they do not allow water to reach our body.
 3. We can protect our body from insects by wearing full sleeve shirts and pants.
 4. We brush our teeth in little circles covering every surface of every teeth.
 5. We wear cotton clothes during the summer season as they keep our body cool. We wear woollen clothes during the winter season as they keep our body warm. Plastic clothes protect us from rain.
 6. We get natural fibres from plants and animals whereas synthetic fibres are made by man.
 7. (a) We should wash our clothes regularly with a good quality detergent.
(b) We should dry our clothes in the sun to remove bad odour from them.
 8. Mothballs keep the insects away from the clothes.

4. States of Matter

Check Knowledge

- A.
1. closely
 2. Solids
 3. gas
 4. Heat
 5. solvent
- B.
1. Melting
 2. Water vapour
 3. Heated
 4. Water
 5. Solute and solvent
- C.
1. The process of change of a liquid to its gaseous state is called evaporation.
 2. The process of change of a gas to its liquid state is called condensation.
 3. The process of change of a liquid to its solid state is called freezing.
- D.
1. Anything that has mass and occupies space is called matter.
 2. Solid state—ice; Liquid state—water; Gaseous state—vapour

3. Solids— Have definite shape and volume
Liquid— Have definite volume but not definite shape
Gases— Do not have a definite shape and volume
4. The temperature at which a solid starts melting is called its melting point. The melting point of ice is 0° .
5. When a liquid is heated, it changes to its gaseous state. When a liquid is cooled, it changes to its solid state.
6. Solute is a substance that dissolve into a solvent.
7. The liquid that we get after mixing solute and solvent is called solution.
8. Soluble substances are those that dissolve completely in water, for example table salt. Insoluble substance do not dissolve in water, for example sand.

5. Soil

Check Knowledge

- A.
1. long
 2. B horizon
 3. loam
 4. Loam
 5. erosion
- B.
1. Rocks
 2. Loam
 3. Clay
 4. O-Horizon
 5. Fertile soil
- C.
1. humus, sand, silt and clay
 2. weathering
 3. loam
 4. Top soil
 5. rock
 6. more trees
- D.
1. Soil is a mixture of rock particles, and humus.
 2. The action of water, wind and heat of the sun breaks down the rocks into smaller pieces. These pieces collide with each other and further breaks down into very smaller particles. The soil so formed is called silt. It gets mixed with humus and minerals to become fertile.
 3. The process of breaking down of rocks into smaller pieces to form soil is called weathering.
 4. The clay increases water-holding capacity of the soil.
 5. Loam is a mixture of clay and sand, which can hold enough air and water. So it is the

best soil for raising crops.

6. Horizon O — Very thin horizon containing humus
Horizon A — Contains minerals and humus
Horizon B — Contains less minerals and humus
Horizon C — Contains parent materials
Horizon D — Contains bedrocks
7. The removal of fertile soil by the action of wind and water is called soil erosion.
8. Soil erosion can be checked by growing more and more grass, shrubs and trees. The roots of plants hold the soil firmly thus preventing it from flowing.

6. Plant Adaptation

Check Knowledge

- A. 1. Terrestrial 2. Plains
3. Deserts 4. Heavy
5. Non-green
- B. 1. Plants in plains 2. Plants in mountains
3. Marshy
4. Floating aquatic plants
5. Pitcher plant
- C. 1. Land 2. Plains
3. Spruce 4. Stems
5. Insects
6. Dead plants and animals
- D. 1. The plants that grow on land are called terrestrial plants. They grow in plains, deserts, hills, valleys and mountains.
2. The plants that have lush green branches on the treetops grow in plains. These plants grow well both in hot and cold climate.
 - They have thin and light-weight leaves.
 - They shed their leaves during autumn and new leaves grow in spring
3. The plants in the mountain region are usually tall. They are cone-shaped. They have needle-like leaves. They bear cones instead of flowers.
4. Plants growing in the desert need less water. They have well-developed features that help them to survive with less water. They have less leaves or some of the desert plants do not have leaves at all.
5. The areas that have clayey wet soil which

does not allow water to drain from it are called marshy areas.

Mangrove grow well in marshy areas.

6. The plants that grow in water are called aquatic plants. There are three types of aquatic plants
Fixed aquatic plants — Their roots are fixed to the soil under water. They have broad leaves.
Examples — water lily and lotus.
Floating aquatic plants — They float on the surface of water because of light and spongy stems.
Examples — duckweed and water hyacinth.
Underwater aquatic plants — They grow underwater.
Examples — Tape grass, and pond weed.
7. Insectivores plants eat insects to meet their protein requirement. Their parts are modified to catch or trap insects. For example, the leaves of Venus flytrap have long hair-like structure along the edge. When an insect touches the edges, the leaf traps the insect.
8. Yes, mushrooms do not have green leaves. So they cannot make their own food. They eat their food from the decayed plant and animal matter.

Model Test Paper-I

- A. 1. (a) Nutrients 2. (b) Canines
3. (a) Cotton 4. (a) Liquids
5. (b) Loam 6. (a) Heavy
- B. 1. Roughage 2. Proteins
3. Rain coat and gum boots
4. Solid, liquid and gas
5. Solid —ice; Liquid — water; Gaseous — water vapour
6. Horizon A
7. Insects
8. In stems and thorns
- C. 1. Pickling, freezing, deep freezing, canning and bottling
2. Dental floss is a special string used for cleaning our teeth. It helps to remove food and plaque that get stuck in between the teeth.
3. (a) Washing hands before and after eating meals

(b) Chewing the food slowly and properly.

4. We get natural fibres from plants and animals whereas synthetic fibres are made by man.
5. (a) We should wash our clothes regularly with a good quality detergent.
(b) We should dry our clothes in the sun to remove bad odour from them.
6. Soluble substances are those that dissolve completely in water, for example table salt. Insoluble substance do not dissolve in water, for example sand.
7. The removal of fertile soil by the action of wind and water is called soil erosion.
8. There are three types of aquatic plants.

Fixed aquatic plants— Their roots are fixed to the soil under water. They have broad leaves.

Floating aquatic plants— They float on the surface of water because of light and spongy stems.

Underwater aquatic plants— They grow underwater.

7. Animal Adaptation

Check Knowledge

- A. 1. Amphibians 2. Hollow
3. Mammals 4. Sparrow
- B. 1. True 2. True
3. False 4. True
5. False
- C. 1. Birds and some insects
2. Six 3. Cow
4. Winter 5. Fish
6. Dead and decayed animals
- D. 1. Vertebrates have a backbone whereas invertebrates do not have a backbone.
2. Most water animals have gills to breathe. The fins and paddles help the animals to swim.
3. Birds have streamlined bodies that help to cut the air to fly. Their hollow bones make the body light for flying in the air. The most important characteristic of birds is their wings. The Birds fly with the help of their wings.
4. Arboreal—These animals spend most of their time on trees. Their sharp claws and strong limbs help them to climb and to hold

onto the trees.

Aerials—Most birds and some insects are aerials. They spend most of their time in the air. Birds have hollow bones that help the birds fly. They have wings to fly.

5. Camouflage means to change colour according to the surrounding. This is done to deceive the enemy.

8. Reproduction in Animals

Check Knowledge

- A. 1. birds 2. a tiny fish
3. caterpillar 4. whale
5. yolk
- B. 1. reproduce 2. gills
3. fly 4. eggs
5. leaves
- C. 1. Hen 2. Gills
3. Embryo 4. Pupa
5. Tadpole 6. Yes
- D. 1. The process by which animals produce their own kind is called reproduction.
2. The process of a bird to sit on eggs in order to keep them warm and bring them to hatching is called incubation.
3. An unborn or unhatched offspring in the process of development is called embryo.
4. Insects undergo many changes to grow into adults. The process of change from an immature form to an adult form in two or more distinct stages is called metamorphosis.
5. An insect in its inactive stage between larva and adult is called pupa.
6. Various stages of development of a young one to an adult is called life cycle. The butterfly lays eggs on leaves, which hatch into caterpillar or larvae. Each larva grows into a pupa, which grows into an adult butterfly.
7. Mammals such as dogs, cats, goats, cows, deer, sheep, wolves, etc., give birth to their young ones.

9. Force, Work and Energy

Check Knowledge

- A. 1. force 2. Friction
3. smooth 4. Energy

5. wedge
- B. 1. True 2. False
3. True 4. True
5. False
- C. 1. Lever — forceps
2. Inclined plane— ramp
3. Wheel and axle — car roller
4. Screw — Car jack
5. Wedge — knife
6. Pulley — Flag pole
- D. 1. A push or a pull acting on a body is called force.
2. Gravity and friction are two types of forces. Gravity is the force from which the earth pulls everything towards its centre. Friction is the force that tends to stop a moving object.
3. The force of gravity is the force with which the earth, moon, or other massively large object attracts another object towards itself. By definition, this is the weight of the object. All objects upon earth experience a force of gravity that is directed downward towards the centre of the earth.
4. Work is said to be done when a force is applied on a body and the body moves in the direction of the force. If you push a box and the box moves in the direction of force, then you have done work.
5. A machine is device which make the work easier and reduces our effort.
6. The energy due to the position of a body is called potential energy. A stretched spring has potential energy.
7. The energy due to the motion of an object is called kinetic energy. A running fan has kinetic energy.
8. Heat energy, light energy, chemical energy, mechanical energy, and electric energy are various forms of energy.

10. Air, Water and Weather

Check Knowledge

- A. 1. day time 2. storm
3. evaporation 4. revolution
- B. 1. wind 2. condensation
3. longer and hotter 4. insoluble impurities

5. chlorine
- C. 1. 21% 2. Breeze
3. Evaporation
4. Sedimentation and decantation
5. Fog
- D. 1. Air is a mixture of gases such as nitrogen, oxygen, carbon dioxide, water vapour and argon.
2. Water from natural resources contains impurities and germs. Impure water is not fit for drinking. So it should be purified before drinking. Boiling, sedimentation and decantation, filtration and chlorine are some of the methods for purifying water.
3. Water is a substance which occur on the earth in three forms viz ice, water and water vapour. About three-fourths of earth's surface is covered with water. Water is essential for the life to exist.
4. The process of change of water to water vapour is called evaporation. The heat of the sun causes the water in lakes, pond, rivers and seas and oceans to evaporate.
5. The process of change of water vapour to water is called condensation. The formation of clouds is because of condensation.
6. Adding chlorine to impure water to kill germs is called chlorination.
7. Filtration is the process of removing insoluble impurities from water through a filter paper is called filtration.
8. We are surrounded by a layer of air, which is called atmosphere. The state of the atmosphere at a particular place and time as regards heat, cloudiness, dryness, sunshine, wind and rain is called weather.
9. Our Earth is a planet. It keeps on moving around the sun in a fixed path called orbit. This movement of Earth is called revolution of Earth. This is the revolution of Earth that causes changes in seasons.

11. Solar System

Check Knowledge

- A. 1. Mercury 2. Earth's
3. Jupiter 4. Saturn

5. Mars
- B.
1. Saturn—sixth
 2. Venus—second
 3. Jupiter—fifth
 4. Neptune—eighth
 5. Uranus—seventh
 6. Earth—third
 7. Mercury—first
 8. Mars—fourth
- C.
1. Mercury— It is the smallest planet of the solar system.
 2. Venus— It is called the evening star as it can be seen from the in the evening with naked eyes.
 3. Earth— It is the only planet that supports life.
 4. Mars— Because of the presence of red rocks on its surface, Mars is called the red planet.
 5. Jupiter—It is the largest planet of our solar system.
 6. Saturn— It is called the planet of rings as it has a set of rings.
 7. Uranus—It is the only that rotates on its side.
 8. Neptune— It is the farthest planet of the solar system.
- D.
1. Solar system is the family of the Sun consisting of planets, satellites and other bodies that revolve around the Sun.
 2. It is the path on which a planet moves around a star or a satellite moves around a planet.
 3. The planets of the solar system according to their increasing distance from the sun are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
 4. Because of the presence of red rocks Mars is called the red planet.
 5. The presence of air, water and suitable distance from the Sun makes the life possible on Earth.
 6. The movement of Earth on its axis is called the rotation of Earth.
 7. The movement of Earth around the Sun is called revolution of Earth.

12. Save Our Environment

Check Knowledge

- A.
1. Air
 2. Afforestation
 3. Ozone layer
 4. bad
- B.
1. We breathe oxygen from the air.
 2. We should encourage afforestation.

3. We should use a bucket to wash the vehicles and floors.
 4. Increase in carbon dioxide in atmosphere causes global warming.
- C. At school
1. I will throw waste into recycle bin.
 3. I will use less paper.
 4. I will not pluck flowers.
- At home
1. I will throw garbage into the dustbin
 2. I will not waste water.
 3. Give my toys to the needy.
- D.
1. The things around us make our environment. They include plants, animals, water, land, air humans.
 2. Fresh air, clean water, food, shelter and clothes are our basic needs.
 3. (a) We get air and water from our environment.
(b) We get our food from our environment.
 4. We can save trees by preventing them from cutting. We must cut a tree when it is necessary and grow two trees at its place.
 5. Paper, iron, aluminium and other metals can be recycled.
 6. Contamination of air, water, land and sound is called pollution. This is caused by the addition of unwanted substances into air, water and land.
 7. A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide and other pollutants is called global warming.
 8. Ozone layer protects the harmful rays of the sun from entering the earth thus protecting us from many diseases.

Model Test Paper-II

- A.
1. (a) Amphibians
 2. (a) Humans
 3. (b) Force
 4. (c) Storm
 5. (a) Saturn
 6. (b) recycle
- B.
1. An insect has six legs.
 2. A scavenger eats dead and decayed animal bodies.
 3. The young frog is called a tadpole.

4. Electric energy is one of the various types of energies.
 5. Oxygen has no smell and colour.
 6. Formation of clouds is because of condensation of water.
 7. Jupiter is the largest planet of the solar system.
 8. Yes, the global warming is bad for our environment.
- C.
1. Vertebrates have backbone whereas invertebrates lack backbone.
 2. Some animals blend themselves with the environment in which they live to protect from enemies is called camouflage.
 3. The stages of growth in the life of an insect to be adult is called metamorphosis.
4. The energy of a body due to its motion is called kinetic energy.
 5. The energy of a body due to its position is called potential energy.
 6. Filtration is a process of removing insoluble properties from water with the help of a filter paper.
 7. The presence of air, water and suitable distance from the sun makes life possible on Earth.
 8. The addition of unwanted substances into air, water and land is called pollution. It lowers the quality of air, water and land.