



# Our Science

*Teacher's Manual*

Class I to V



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- B.** 1. water                      2. clean                      3. precious  
4. waste                      5. live
- C.** 1. T                      2. F                      3. T  
4. T                      5. T
- D.** 1. (ii)                      2. (iii)                      3. (iv)  
4. (v)                      5. (i)
- E.** 1. The main source of water is rain.  
2. No.  
3. Living things need water to live.  
4. Water is important for us because water is precious so don't waste water.  
5. Five uses of water are :  
a. It is used for drinking.  
b. It is used for cooking.  
c. It is use for bathing.  
d. It is used for washing clothes.  
e. It is used for washing utensils.
- F.** The purest form of water in nature are :  
Boiled and filtered water

#### **Lesson –14 : Weather and Season**

- A.** 1. (c)                      2. (a)                      3. (a)  
4. (c)                      5. (b)
- B.** 1. pleasant                      2. raincoat                      3. strongly  
4. Sun                      5. leaves
- C.** 1. T                      2. F                      3. F  
4. T                      5. T
- D.** 1. (iii)                      2. (iv)                      3. (v)  
4. (ii)                      5. (i)
- E.** 1. Weather is the condition of air at a particular place or time.  
2. There are 7 colours in the rainbow.  
3. When one type of weather stays for many days or month is called a season.

4. There are 5 seasons in a year :
  - a. Summer season
  - b. Winter season
  - c. Rainy season
  - d. Springs season
  - e. Autumn season
5. It is very hot during summer season. We wear cotton clothes to keep ourselves cool. We use fan, coolers, AC, etc.

### **Lesson –15 : The Sun, The Moon, The Stars**

- |           |  |          |         |
|-----------|--|----------|---------|
| <b>A.</b> | 1. (c)   | 2. (a)   | 3. (b)  |
|           | 4. (b)   | 5. (c)   |         |
| <b>B.</b> | 1. east  | 2. white | 3. ball |
|           | 4. night   | 5. shine |         |
| <b>C.</b> | 1. T   | 2. T     | 3. T    |
|           | 4. T   | 5. T     |         |
| <b>D.</b> | 1. (iv)  | 2. (iii) | 3. (v)  |
|           | 4. (ii)  | 5. (i)   |         |
| <b>E.</b> | 1. The Sun gives us heat and light.  |          |         |
|           | 2. We see the moon in the sky at night. It gives light at night. It looks like a white ball. It is round in shape on poornima. |          |         |
|           | 3. No  |          |         |
|           | 4. The Sun is a big ball of fire. It is very hot and bright.   |          |         |
|           | 5. a. It looks like a white ball.  |          |         |
|           | b. It is round in shape.   |          |         |
| <b>F.</b> | 1. Rakesh Sharma   |          |         |
|           | 2. Kalpana Chawla  |          |         |







- E.** 1. Plants give us many things like food, medicine, clothing, wood and oil.  
 2. Fibres are used to make clothes and so many things.  
 3. Wood log                      Table                      Bed  
     Firewood                      Chair  
 4. Tulsi                      Neem  
 5. Leaves of tea plants are used to make tea.

### **Unit III : The Animal World**

#### **Lesson – 5 : Domestic Animals And Their Uses**

- A.** 1. (a)                      2. (a)                      3. (b)  
 4. (a)                      5. (c)
- B.** 1. silk                      2. sheep                      3. milk  
 4. hens                      5. cat & dogs
- C.** 1. (ii)                      2. (v)                      3. (i)  
 4. (iii)                      5. (iv)
- D.** 1. T                      2. F                      3. F  
 4. T                      5. T
- E.** 1. Animals that live with us in our homes are called pets.  
 2. Animals that are kept at home or in the farms are called domestic animals.  
 3. Cow, buffalo and goat.  
 4. Camel is called the ship of desert.  
 5. Donkeys carry load of us.

#### **Lesson – 6 : Wild Animals And Their Uses**

- A.** 1. (b)                      2. (a)                      3. (b)  
 4. (c)                      5. (a)
- B.** 1. grass                      2. den                      3. herbivores  
 4. scavengers                      5. omnivores
- C.** 1. F                      2. T                      3. T  
 4. T                      5. F
- D.** 1. (v)                      2. (i)                      3. (ii)  
 4. (iii)                      5. (iv)



- B.** 1. clean                      2. fixed                      3. sick  
 4. food                          5. chew
- C.** 1. F                              2. F                              3. T  
 4. T                              5. F
- D.** 1. (v)                          2. (i)                          3. (iv)  
 4. (ii)                          5. (iii)

**E.** 1. We need food to live and stay healthy.

2. Energy giving food :

Body Building Food

Protective Food

***Energy giving food*** : Food that give us energy to do work and play are called energy giving food. For example : potato, rice.

***Body Building Food*** : Food help us to grow and make our muscles and bones strong are called body building food. For example : milk and cheese.

***Protective Food*** : Food that protect us from falling ill is called protective food. For example : fruits and vegetables.

3. a. Always eat fresh and covered food  
 b. Avoid eating junk food  
 c. Always eat slowly and chew the food well.
4. It is the food that we eat and at a fixed time everyday. Breakfast, lunch, dinner.

### **Lesson – 9 : Housing And Clothing**

- A.** 1. (b)                          2. (b)                          3. (b)  
 4. (a)                          5. (c)
- B.** 1. moving                      2. gypsies                      3. sloping  
 4. canvas                      5. eskimos
- C.** 1. T                              2. T                              3. T  
 4. F                              5. T
- D.** 1. (iii)                          2. (iv)                          3. (v)  
 4. (ii)                          5. (i)



- B.** 1. zebra                      2. open                      3. push  
4. safety rules                5. careful
- C.** 1. F                              2. F                              3. T  
4. T                                5. F
- D.** 1. (ii)                         2. (iv)                         3. (i)  
4. (v)                             5. (iii)
- E.** 1. First aid is the help given to an injured person before the doctor arrives.  
2. a. We should not run at home  
   b. Do not play on the roof alone.  
3. a. Always play safe games.  
   b. Do not push each other  
4. We should walk to our left side.  
5. Use a rubber tube for swimming

## **Unit V : Our Natural Resources**

### **Lesson – 12 : We Need Water**

- A.** 1. (a)                              2. (a)                              3. (b)  
4. (a)                                5. (c)
- B.** 1. water                         2. living things                3. plants  
4. dirty                               5. drinking
- C.** 1. T                                 2. T                                 3. T  
4. F                                 5. T
- D.** 1. (iv)                             2. (iii)                             3. (i)  
4. (v)                                5. (ii)
- E.** 1. It is used for drinking.  
   It is used for cooking.  
   It is used for washing clothes.  
   It is used for bathing.  
2. Stream, river, lake.  
3. i. Get repaired the leak taps.  
   ii. Close the taps when not in use.  
4. Filtering and boiling.



- E.** 1. Weather is the day to day condition of the atmosphere.
2. When one type of weather stays for many days or months is called a season.
3. There are 5 seasons :
- a. Summer Season                      b. Winter Season
- c. Rainy Season                          d. Spring Season
- e. Autumn Season
4. I like Winter season most because this season is very cold and we see the snowfall and enjoy very much.
5. Autumn Season

### Lesson – 15 : Rocks And Minerals

- A.** 1. (a)                                      2. (b)                                      3. (b)
4. (c)
- B.** 1. rocks                                      2. sandstone                              3. slate
4. minerals                                      5. talc
- C.** 1. F    2. T    3. T
4. T    5. T
- D.** 1. (iv)    2. (i)    3. (ii)
4. (iii)
- E.** 1. The outside layer of the earth is made up of rocks and minerals.
2. The two hard rocks are : Granite and marble
- Granite** : It is very hard rock it does not break easily.
- Marble** : It is mostly white in colour. It is used to make buildings, houses, statues and floor.
3. All rocks are made up of substances from minerals.
4. Diamond
5. **Soft rock** : It is black in colour. It is burnt and used to run steam engine. It is also used to produce electricity.
- F.** No, because chalk is a soft rock. It is white in colour. It is used to make chalks to write on the blackboard in the classroom.



































## Lesson – 2 : Adaptation In Plants

- A.** 1. (a)                      2. (b)                      3. (c)  
4. (d)                      5. (b)
- B.** 1. cactus                      2. hydrilla                      3. marshy  
4. terrestrial                      5. stomata
- C.** 1. F                      2. T                      3. F  
4. F                      5. T
- D.** 1. (v)                      2. (vi)                      3. (iv)  
4. (iii)                      5. (ii)                      6. (i)
- E.** 1. Adaptation are special features that allow a plant or animal to live in a particular place or habitat plants show adaptations to survive in a different place.

### 2. Underwater plants :

- . Some plants like tape grass and hydrilla grow under water.
- . They are completely submerged in water and the stems and leaves are flexible and thin. This allows them to move with water currents.
- . They have narrow, thin leaves with no stomata on them. They simply breathe with their body surface.

### Plants in deserts :

- . Deserts are very hot and there is very little rainfall and even then, some plants grow there.
- . In most desert plants, roots grow just below the surface of the ground so that the roots can absorb most of the water that falls on the ground.
- . In some plants roots also go deep down into the soil in search of water.;
- . Cactus, prickly pear and palm grow in these areas.
- . Most desert plants have very few leaves with a waxy coating. In various other plants, the leaves are modified into spines. The spines prevent loss of water and also protect the plants from animals.





There is no growth during this stage. This adult continues the cycle and reproduces.

2. Animals which give birth to their babies are called mammals or viviparous where as those which lay eggs are called egg laying or oviparous.
3. All the birds reproduce by laying eggs with hard shells and most build nests to protect the eggs from weather and predators.

Adult birds mostly sit on the eggs to keep them warm (incubate) till they hatch. The baby birds hatch out of the eggs. It takes few weeks for their feathers to develop and for them to be big enough to fly.

4. Frogs lay eggs in the water and then the males release sperm to fertilize them. The eggs will hatch within 3-25 days. Young frogs are called tadpoles and they look like a little fish. Tadpoles survive mainly on algae.

The process of transformation from an egg to an adult in two or more distinct stages is called metamorphosis. In the metamorphosis of frog, the tadpole grows its hind limbs. After both the pairs of limbs are completed, and the animals has exchanged its gills for lungs, the young frog crawls out on land. Its tail disappears and the tadpole turns into an adult frog. Ducks, fish and insects are enemies for tadpoles. This is the reason, why many tadpoles do not reach the adult stage.

5. An animal that crawls or moves on its belly (such as snake) or on small short legs are reptiles.
6.
  - a. **Spawning** : Technically, the mass of small eggs laid by animals like fish, frogs is called spawn.
  - b. **Metamorphosis** : “A change in the form and after habits of an animal during normal development after the embryonic stage, metamorphosis includes, an inserts, the transformation of a maggot into an adult fly and a caterpillar into a butterfly and in amphibians

















**E.** 1. Factors affecting the rate of evaporation

**Wind** : Evaporation is faster on a windy day. Moving wind absorbs more water easily.

**Dry air** : Evaporation takes place faster when the air is dry because dry air can take up more water than moist air.

**Temperature** : Evaporation is faster if the temperature is higher.

**Surface area** : Evaporation is faster if the exposed surface area is more.

2. During the day, the land gets heated quickly. It heats the air above it. Hot air is light and rises up. The water in the sea does not get heated and the air above it is cool. The cool air above the sea rushes to take the place of the warm air. So cool air blows from the sea towards the land during the day. This is called sea breeze.

During the night, the land cools down quickly; the air above the land is also cool. Sea water is warm, the warm air above the sea rises, and the cool air over the land rushes to occupy the space of the warm air. So cool land breeze blows towards the sea during the night. This is called land breeze.

3. The air gets heated up by the heat of the sun. The warm air is lighter than the cold air, so it rises up and cools air which is at the ground level rushes in and takes its place. This sets off an air current, causing wind.
4. When we talk about the weather, we actually talk about how hot, cold, dry or moist the air is. The sun causes all the changes in weather.

The sun causes all the weather because it heats the earth unevenly. The heat of the sun also helps the moisture to rise and form clouds, bringing rain, snow or thunderstorm. So, all the changes in weather is indirectly related to the sun. When a particular type of weather stays for a long time, seasons are caused. The sun also influences the seasons on earth.









3. Paper should be recycled because recycling can stop the mass cutting of trees.
4. Causes of soil pollution :
  - a. Domestic waste is a major cause of soil pollution.
  - b. Solid waste from the industries pollutes the soil.
  - c. Chemicals used as fertilizers and insecticides also cause soil pollution.

***Effects :***

Soil pollution causes loss of nutrients and reduces the fertility of the soil. It also cause soil erosion. Harmful chemicals which pollute the soil, are absorbed by plants. When these plants are eaten by us, we can get a number of diseases.

5. Water pollution refer to the presence of harmful substances or pollutants in water bodies. It happens when untreated wastes and pollutants are discharged into water bodies. As a result, the water of sea, river, lakes, ponds, reservoir and ground water get polluted.
- F.** You can do to help save the earth by these tasks :
- ✍ Pay attention to how you use water
  - ✍ Leave your car at home
  - ✍ Walk or ride your bike to work, schools anywhere you can.
  - ✍ Recycling





**Kharif Crops** : Crops that grow in summer from June to October are called kharif crops. Example : rice, jowar and bajra.

5. This is important because if the seeds are not dispersed, many germinating seedlings will grow very close to the parent plant. This result is competition between everyone of the seedlings as well as with the parents plant. The competition is for light, space, water and nutrients.

### Lesson – 2 : Animals Everywhere

- A.** 1. (a)                      2. (a)                      3. (c)  
4. (a)                      5. (b)
- B.** 1. lungs, moist            2. mammals            3. penguins  
4. migration            5. trachea
- C.** 1. F                      2. F                      3. F  
4. T                      5. F
- D.** 1. (v)                      2. (ii)                      3. (i)  
4. (iii)                      5. (iv)
- E.** 1. The Natural surroundings in which an animal lives called Habitat.  
2. Herbivores : Plant eating animals, e.g. cow, buffalo, goat, etc.  
Omnivores : Plant and flesh eating animals, e.g. humans, dogs, etc.  
3. “Fish have adapted to their environment through the evolution of gills, swim bladders and fins. Gills allow fish to absorb oxygen from the water, swim bladders allow fish to maintain an appropriate level of buoyancy and fins allow the fish to move through the water.  
4. Mammals have four well developed limbs, cows, camels and dogs use all their four limbs for walking and running. Human beings use only two limbs for walking, they are called hind limbs. They use their hands or forelimbs for holding or catching things.



Your cranium (skull) protects your brain and eyes, the ribs protect your heart and lungs and your vertebrae (spine, backbones) protect your spinal cord.

3. Different parts of the skeletal system are :

Skull                  Ribcage                  Spine                  Limbs

**Skull** : The skull is the bony framework of our head. It is the hardest part of the body that protects the brain.

**Ribcage** : The ribcage is made of 12 pairs of thin curved bones. The first seven pairs of ribs are connected directly to the breastbone. Eight, ninth and tenth pairs are connected to the sternum by a cartilage band. Ribs protect our heart, lungs and some parts of stomach and kidneys also.

**Spine/Backbone** : Our backbone is also known as the vertebral column or the spine. Our spine is made up of 33 small bones called vertebrae. The spine of a human is curved and S-shaped. The vertebrae protect the delicate spinal cord.

**Limbs** : We have two pairs of limbs :

- \* Forelimbs
- \* Hindlimbs

4. Joints are places where two or more joined together in our body.

5. Two types of muscles are

**Involuntary muscle** called smooth muscle, is located with in blood vessels digestive system and internal organs with the exception of the Heart.

**Voluntary muscles** are also called skeletal muscles. These are the muscles attached to the bones, and movement is caused through contraction of these muscles.

#### Lesson – 4 : Our Nervous System

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







- B.** 1. medicine                      2. water                      3. footpath  
4. burning                      5. first aid
- C.** 1. T                      2. F                      3. F  
4. T                      5. T
- D.** 1. (ii)                      2. (iv)                      3. (v)  
4. (i)                      5. (iii)
- E.** 1. Accident can happen any where and at any time, if we are not careful. Accidents may harm our body and even our lives. The injuries may be from road accidents, fire, shock animal bites and other reasons. Most accidents take place either on roads, at home or from fire. We can avoid accidents by being careful.
2. Safety on the roads :
- Always walk on the footpath.
  - Never play on the road.
  - Cross the road at zebra crossing or a subway.
  - Always ride slowly.
3. The poison injected by the snake travels through the blood and affects the heart and nervous system.
4.
  - Never leave your toys on the floor.
  - Never play with sharp objects like knife, blade etc.
  - Do not take any medicine on your own.
  - Do not play with fire.
5. Stop where you are – moving or running feeds air to the flames and worsens the fire.  
Roll slowly on the floor or ground, in a rug or blanket if you can.  
Cool off as soon as possible with water for first and second degree burns.
6. A break or a crack in bone is called fracture.
- Don't let the patient move.
  - Tie a splint above and below the fracture. Splint is a temporary support to broken bone.
  - Call hospital ambulance if patient is unconscious.











- E. 1. **Atmosphere** : Thick layer of air that surrounds the earth.

Different layers of the atmosphere :

- a. Troposphere
  - b. Stratosphere
  - c. Ionosphere
  - d. Exosphere
2. Most electricity comes from fuel plants and refineries, which operate by burning coal and other fuels. The toxic smoke produced during these processes contributes significantly to air pollution levels and releases harmful chemicals such as nitrogen oxide, sodium dioxide and carbon dioxide into the surrounding air.
3. The three major global uses of fresh water are agriculture industry and domestic use. Among those, agriculture accounts for 70 percent of all the fresh water used globally. Industries around the world use 20% of the fresh water and only 10% is used for domestic activities, including drinking.
4. The impurities found in water are of two kinds :
- a. **Soluble impurities** : There are soluble in water. Eg. salt etc.
  - b. **Insoluble impurities** : These are insoluble in water. Eg. mud, chalk, powder etc.
5. Separation of insoluble impurities with the help of a filter paper is called filtration.

The process of filtration uses a filter paper. A circular piece of filter paper is folded twice to make a cone. This paper cone is kept below the funnel and the mixture with insoluble impurities like sand, chalk etc. is poured into the beaker through the funnel. The impurity is retained in the filter paper and clean water is poured in the beaker.

- F. All life on earth needs water to grow and water conservation ensure there is enough to go around. Fresh water is used faster than it can naturally be replenished. So in order to provide enough clean water for people it must also be recycle at treatment plants.







- B.** 1. drought                      2. floods                      3. richter scale  
 4. Japanese                      5. extinct
- C.** 1. F                                  2. T                                  3. T  
 4. T                                  5. F
- D.** 1. (e)                              2. (c)                              3. (d)  
 4. (a)                              5. (b)

**E.** 1. *Natural disasters* : A natural event such as a flood, earthquake or hurricane that cause great damage or loss of life.

*Tsunami* ,                      *Earthquakes*,                      *Tornadoes*,  
*Hurricanes*,                      *Heats drought*,                      *Avalanches*,  
*Snows & hail*,                      *Landslides*,                      *Global Warming*,  
 storms, are all natural disasters.

2. There are three types of volcanoes : Active volcanoes, Dormant volcanoes and Extinct volcanoes.

*Active volcanoes* : Active volcanoes may erupt any time as they erupt regularly in short intervals. Pacific area has maximum number of active volcanoes in the basin of pacific ocean. It has 452 active volcanoes.

There are 1500 active volcanoes on the earth. Some famous volcanoes are Kauna Loa, Mount Fuji, Mount Etna, Mount St. Helens etc.

*Dormant volcanoes* : Dormant volcanoes are those volcanoes that have not erupted in a long time but may erupt in the future. Etite and sitick are some examples of dormant volcanoes.

*Extinct volcanoes* : Extinct volcanoes have stopped erupting. They are unlikely to erupt again. Four peaked volcano Alaska has not erupted for over 10,000 years.

3. An earthquake (or quakes tremors) is shaking of the surface of earth, caused by sudden movement in the earth's crust. A foreshock is an earthquake called the main shock. An after shock is an earthquake that occurs after a previous earthquake the main shock.



4. Seismograph is an instrument used to record the intensity of earthquake.
  5. Flood is an overflow of water that submerges dry land. It occurs when water bodies such as river or lake breaks their boundaries and flow rate exceeds and rainwater accumulates on ground. Flood can wash away people, residential colonies, villages, town etc. It may spread communicable diseases like cholera etc.
  6. Read below.
- F.** A natural disaster is a major adverse event resulting from natural processes of the earth; eg. include flood, tornadoes, volcanic eruptions, earthquakes, tsunamis and other geologic process. A natural disaster can cause loss of life or property damage :
- a. and typically leave some economic damage in its wake, the severity of which depends on the affected population's resilience or ability to recover and also on the infrastructure available.
  - b. An adverse event will not rise to the level of a disaster if it occurs in an area without vulnerable population.
  - c. In a vulnerable area, however, such as Nepal during the 2015 earthquakes, an earthquake can have disastrous consequences and leave lasting damage require years to repair.

### **Lesson – 14 : Environment And Natural Resources**

- |           |                |               |                   |
|-----------|----------------|---------------|-------------------|
| <b>A.</b> | 1. (a)         | 2. (a)        | 3. (d)            |
|           | 4. (d)         | 5. (a)        |                   |
| <b>B.</b> | 1. herbivores  | 2. abiotic    | 3. photosynthesis |
|           | 4. decomposers | 5. carnivores |                   |
| <b>C.</b> | 1. T           | 2. F          | 3. F              |
|           | 4. T           | 5. T          |                   |
| <b>D.</b> | 1. (iii)       | 2. (iv)       | 3. (v)            |
|           | 4. (ii)        | 5. (i)        |                   |

- E. 1. The physical constituent of environment includes soil, water, air, climate, temperature, light etc.  
“These are called abiotic factors. Besides the abiotic factors, the environment is very much influenced by biotic factors which includes all forms of life like plants, animals micro organisms etc.
2. Air Pollution : The mixing of harmful gases with air, that makes it harmful for humans, plants and animals is called air pollution.

***Causes of air pollution***

- Smoke from industries.
- Smoke from vehicles.
- Burning of fossil fuels.
- Forests fires.

***Effects of air pollution***

- Breathing problem to mankind.
  - Causes harm to the plants.
  - Growth of plants slows down and over a time they become weak and slowly die.
  - Asthma and various lung diseases in humans.
3. Effects of soil pollution
- Makes soil infertile.
  - Badly affects the organisms living in the soil.
  - Adversely affect the growth of plants.
4. “Massive deforestation, burning of fossil fuels, industrial emissions, etc. have resulted to an increase in green house gases around earth’s atmosphere. The green houses – gases trap sun rays in the earth’s atmosphere causing the temperature to rise resulting in what is known as global warming.
5. Renewable energy sources include solar, wind, geothermal energy. Non renewable energy sources include coal, oil and natural gas. We have limited supply of these sources and we are running out of

them. They produce gas emission that harm our planet.

6.
  - a. Make sure to use your clothes washer and dryer when you have full load.
  - b. Water your lawn during the evening when it is cooler and dryer.
  - c. Pick up some earth – bags at your local grocery store.
  - d. Replace your old light bulbs with energy saving fluorescent bulbs.
- F. The earth will be doomed with scarcity of resources. Always use the three is not read, write, think bright but recycle, reduce and reuse.

