



# Science & Society

A Dual Approach to  
Science and Social Science

GRADE  
**5**



## Section I : Science

# 1. The World of Plants

### Exercise

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- A.** 1. (d)      2. (c)      3. (b)      4. (d)      5. (c)  
6. (b)
- B.** 1. germination    2. Air                      3. wind                      4. stem cuttings
- C.** 1. ground nut    2. eyes                      3. erosion                      4. one  
5. rabi
- D.** 1. roots      4. stem      2. seeds      5. stem      3. leaf  
6. stem
- E.** 1. The outer covering of a seed called seed coat.  
2. Seeds of some plant have one seed leaf, they are called monocot seeds.  
3. Germination is the development of a seed into a seedling.  
4. The process by which seeds travel away are scattered away from the parent plant is called seed dispersal.  
5. Kharif crops are grown from June to October.  
6. Pesticides are chemicals that are sprayed to protect the crops from being harmed by pests.
- F.** 1. Plants are useful to us because they provide us food. Cereals, pulses, vegetables and fruits are obtained from plants. Sugar and oil too come from plants. Plants provide us with tea, coffee, rubber, wood, gum and fibre as well. Plants supply us with life-giving oxygen. They also help to reduce soil erosion.  
2. Seed coat, endosperm and embryo. Labelled diagram-Draw it yourself.  
3. Air, moisture (water) and warmth (sunlight) are the conditions necessary for germination.  
4. **Agents of Dispersal :** Dispersal is carried out by the wind, water, animals and by the explosion of fruits. The special structures of certain seeds and fruits help in their dispersal.  
**Wind :** Seeds of cotton, madar and hiptage are light and have hair or wings, thus enabling them to be easily carried by the wind.  
**Water :** The lotus fruit has a spongy part while the coconut has a fibrous outer covering which enable them to float on water.  
**Animals :** Human beings and animals eat fruits like mangoes and cherries and throw away their seeds. Some seeds have hooks or spines. They stick to the hairy skin of animals and are carried away. Some

seeds are swallowed by birds and come out unchanged in their droppings.

**Explosion :** Some fruits like peas in a pod, burst open or explode when dry. The force of explosion helps the seeds to scatter.

5. To feed the entire population of a country, plants need to be grown on a large scale. This practice of growing plants on a large scale is called agriculture.

**G.** Do it yourself.

**H.** Do it yourself.

**I.** Do it yourself.

**J.** Do it yourself.

**K.** Do it yourself.

**L.** Do it yourself.



## 2. Animal World

### Exercise

- A.** 1. (c)      2. (d)      3. (d)      4. (d)      5. (d)  
6. (a)
- B.** 1. Amoeba      2. gills      3. Birds      4. four limbs  
5. Turtles      6. The emu
- C.** 1. surroundings      2. heemoglobin  
3. Migration      4. Lungs      5. Insects
- D.** 1. Animals need oxygen to survive.  
2. Animals move to search for food, protect themselves and their babies from being hunted and build resting and breeding places.  
3. A baby frog or a tadpole breathes through its gills while an adult frog breathes through its lungs on land and through its moist skin in water.  
4. Herbivores like cows, buffaloes, goats and giraffes have sharp front teeth for biting and strong broad teeth for chewing.  
5. Animals migrate to escape harsh weather, to search for food and to reach their breeding grounds.
- E.** 1. Do it yourself.  
2. Insect breathe through small, paired holes called spiracles. The spiracles lead to air tubes which form a network that reaches every tissue of the body. Air enters the body through this network. The body tissues absorb oxygen and give out carbon dioxide which is expelled from the body. Whereas fish breathe through gills. These special organs are richly supplied with blood vessels. They absorb oxygen from the water and release carbon dioxide from the blood.

3. Fish have fins for swimming. The two paired fins are used to move forward, the unpaired fin maintains balance while the tail fin helps to change the direction of movement. Penguins use their two forelimbs as flippers to push water and swim. Turtles have four paddle-like limbs to push water back and swim. Frogs have webbed feet to swim.
  4. Insects are six-legged creatures who use their legs for movement. Ants and cockroaches crawl on their legs. A grasshopper uses its long hindlegs to hop and move. Water insects such as water boatmen use their legs as oars for swimming. Some insects have one or two pairs of wings to fly. These wings are made of tiny coloured scales. They move with the help of their chest muscles. Insects such as lice and bedbugs do not have wings. They cannot fly but move by crawling.
  5. Snakes are reptiles which do not have legs. They have scales or plates on the underside of their bodies. These plates are attached to their ribs. When snakes move, these plates act like feet and the ribs act like legs. Besides plates, they also have strong muscles and a flexible backbone used to move forward.
- F. Do it yourself. □

## 3. Food for Good Health

### Exercise

- A. 1. (c)      2. (b)      3. (a)      4. (c)      5. (c)
- B. 1. scurvy    2. iodine    3. vitamin B1      4. Rickets
- C. 1. Vitamin C scurvy bleeding gums  
 2. Vitamin A night blindness patient cannot see in dim light  
 3. Iodine goitre a gland in the neck region swells up  
 4. Vitamin D rickets bones become soft  
 5. Vitamin B1 beriberi affects the nervous system
- D. 1. a balanced diet, enough rest      2. roughage  
 3. outdoor      4. Typhoid, plague      5. HIV
- E. Do it yourself.
- F. 1. We should exercise regularly because regular exercise carries fresh blood to the heart, keeps muscles in good shape and improves posture.  
 2. Our food comprises of nutrients such as carbohydrates, proteins, fats, vitamins and minerals. It also has roughage and water. A balanced diet has the correct amounts of all these nutrients.  
 3. The diseases that can be spread from one person to another are called communicable diseases.



4. Diseases which are caused by deficiency of particular minerals or vitamins are called deficiency disease.
  5. Diseases like typhoid, cholera, diarrhoea, jaundice and polio are caused by eating contaminated food.
- G.**
1. Houseflies sit on garbage bins. They pick up germs from here. When they sit on food items, the germs get transferred to the food items. When we eat these food items, we get various diseases.
  2. Following precautions are necessary to check the spread of malaria :
    - (i) Apply mosquito repellent to exposed skin.
    - (ii) Drape mosquito netting over beds.
    - (iii) Put wire screens on windows and doors.
    - (iv) To stop the breeding of mosquitoes, water must not be allowed to collect in puddles and stagnate as mosquitoes lay eggs in such water. To destroy mosquito larvae, the surface of water in tanks and ponds must be sprayed with kerosene oil.
  3. Two ways of controlling communicable diseases are :
    - (i) We should make efforts to prevent the breeding of germs (personal and environmental cleanliness prevent the breeding of germs). Destruction of mosquitoes and their breeding grounds is the best solution for protection from these dreadful diseases.
    - (ii) Progress in the field of medicine and immunization have helped us to get rid of many diseases.
  4. Following are the ways to prevent the spread of germs from a sick person :
    - (i) Germs of some diseases stay on articles like clothes, towels, combs and toys used by a patient. All such articles, including the linen and clothing, must be boiled and disinfected to kill the germs.
    - (ii) The floor and the walls of the room must be cleaned with a disinfectant.
  5. Germs in milk are killed by pasteurization. In this process, the milk is heated at a high temperature for at least half an hour and then cooled down quickly. This kills the harmful bacteria.
- H.** Do it yourself.                      **I.** Do it yourself.  
**J.** Do it yourself.                      **K.** Do it yourself.  
**L.** Do it yourself.                      **M.** Do it yourself.  
**N.** Do it yourself.



## 4. Human Skeleton

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### Exercise

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- A.** 1. (d)      2. (c)      3. (d)      4. (b)
- B.** 1. organ system      2. 22      3. vertebrae
- C.** 1. internal   2. spinal   3. thigh   4. ligaments   5. involuntary
- D.** 1. (b)      2. (d)      3. (a)      4. (c)
- E.** 1. The meeting point of two bones is called a joint.  
2. Hinge joint, Ball and socket joint, Pivot joint, Gliding joint.  
3. There are 14 bones in the facial region and of these, only the lower jaw is movable. It enables us to eat and talk.  
4. The long bones of the skeleton are hollow and are filled with a soft, fatty substance called bone marrow.  
5. Muscles are attached to the bones by strong fibres are called tendons.
- F.** 1. Our skeleton helps to provide support, strength and shape to the body and encloses and protects all the internal organs.  
2. Muscles produce movement in the body by pulling on the bones. When a muscle contracts, the bones come close to each other. When the knee bends, one muscle contracts and gets shorter, while the other one relaxes. The reverse happens when the leg stretches. Well-developed muscles give a graceful appearance to the body.  
3. Some muscles like the ones attached to our skeleton are under our control, so they are called voluntary muscles.  
Muscles which are not under our control are called involuntary muscles. They control actions like the flow of blood, the movement of food in the alimentary canal and the movement of the eye muscles.  
4. To keep the muscles in good shape, we must exercise, maintain a good posture while we sit or stand or walk.
- G.** Do it yourself.      **H.** Do it yourself.
- I.** Do it yourself.



## 5. Nervous System

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### Exercise

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- A.** 1. (b)      2. (d)      3. (b)      4. (a)
- B.** 1. medulla   2. oxygen   3. reflex

- C. 1. F      2. T      3. T      4. T      5. F  
6. T      7. T
- D. 1. sense organs      2. heart      3. tongue      4. feel
- E. 1. The brain requires a continuous supply of blood and oxygen. A person will faint if his heart does not send enough blood to his brain. We must get enough sleep to rest our brain.  
2. Sensory nerves are the nerves which carry messages from the sense organs to the brain or the spinal cord.  
3. Our brain is protected by a hard, bony skull. The space between the skull and the brain and also the inside of brain, is filled with a clear fluid. It serves as a cushion against jerks and injuries.  
4. If we clean our ears with a pointed object like a matchstick or a hairpin as it may injure the eardrum inside.  
5. Some of our actions are automatic as we do not think before doing them. These are called reflex actions.
- F. 1. The nervous system comprises of the brain, the spinal cord and the nerves.  
2. The different parts of the brain are cerebrum, cerebellum and medulla. Cerebrum is the largest part of the brain. Its dome-shaped surface is covered with deep ridges and grooves. It controls the working of our eyes, ears, nose and tongue. It also controls our voice. It is the centre of intelligence and helps us to think, learn, remember and recall. Cerebellum lies below the cerebrum. It coordinates the actions of the muscles to make them work together. It helps us to maintain the balance of our body and keeps us in an upright posture. Our body movements become jerky if the cerebellum does not function properly. The bulb-shaped medulla lies beneath the cerebellum. It connects the brain to the spinal cord. It controls involuntary actions like the movements of the lungs and the heart. It is active even when we are asleep.  
3. Nerves are long thread-like structures that carry messages between the brain and various body parts.  
Functions of Nerves functions of various nerves are :  
**Sensory Nerves** : Sensory nerves are the nerves which carry messages from the sense organs to the brain or the spinal cord.  
**Motor Nerves** : Motor nerves are the nerves which carry ‘orders’ from the brain or the spinal cord to the muscles or glands.  
**Mixed Nerves** : Mixed nerves are the nerves which carry messages to the brain as well as bring orders from the brain.  
4. When a cold blocks our nose, the food does not taste so good.

5. To take care of the skin, we should follow these rules :
- (i) Use soap and water to remove dirt and sweat from the skin.
  - (ii) Dry yourself thoroughly after bathing. Wear clean and comfortable clothes. Clothes should be loose enough for the passage of fresh air when the weather is warm.
  - (iii) A scratch or cut on the skin should be treated with an antiseptic lotion to prevent infection.

G. Do it yourself.

H. Do it yourself.



## 6. Solids, Liquids and Gases

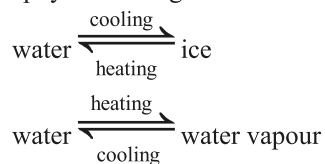
### Exercise

- A. 1. (c)      2. (c)      3. (a)      4. (c)      5. (d)
- B. 1. Matter   2. Atoms   3. gases    4. miscible
- C. 1. (f)      2. (e)      3. (d)      4. (c)      5. (b)
6. (a)
- D. 1. Anything that occupies space and has weight is called matter.
2. All matter is made up of tiny units that cannot be seen by the naked eye. These tiny units are called molecules.
3. A molecule is made up of still smaller units called atoms.
4. Solids : Salt, Sugar  
Liquids : Alcohol, Glycerine  
Gases : Oxygen, Nitrogen
- E. 1. In solids, the molecules are packed very closely to each other. They attract each other with great force. So, a solid is hard, rigid and has a definite shape and volume.
2. In liquids, the molecules are packed less closely. The attraction between the molecules in liquids is less as compared to that in solids and they can move around freely. That is why liquids can flow.
3. Difference between liquid and gas

S.N.	Liquid	Gas
(i)	Molecules are packed very closely to each other.	Molecules are packed less closely.
(ii)	Definite shape and volume.	Definite volume but no definite shape.

4. The two liquids mix together and appear as one liquid. So, we say that these two liquids have dissolved in each other. Hence, they are said to be miscible.

5. A physical change is a temporary change which can be reversed.  
Some examples of physical changes are as follows :



6. In a chemical change, heating or cooling leads to a permanent change in the state of matter. A new substance is formed and the old substance cannot be got back. For example, when a piece of paper is burnt, it changes into ash and rusting of iron.
7. The three characteristic of a chemical change are as follows :
- They are permanent.
  - They can not be reversed.
  - They result in the formation of new substances.

F. Do it yourself.

G. Do it yourself.

H. Do it yourself.

I. Do it yourself.

J. Do it yourself.



## 7. Force and Energy

### Exercise

- A. 1. (b)      2. (c)      3. (a)      4. (b)
- B. 1. first-class    2. pulley      3. direction
- C. 1. gravitational    2. direction    3. single applied  
4. slope      5. motion
- D. 1. elastic      2. easy      3. fixed      4. renewable  
5. frictional
- E. 1. Different types of forces are muscular force, gravitational force, frictional force, elastic force, mechanical force and buoyant force.  
2. Some tools which make our work easier and faster are called simple machines.  
3. Geothermal energy is a renewable energy source because the water is replenished by rainfall and the heat is continuously produced inside the earth.  
4. Most of the heat energy used by us comes from burning fuels like coal, kerosene and petrol.  
5. Mechanical energy, solar energy, geothermal energy and wind energy.

- F.** 1. Levers are simple machines that make work easier.  
 Levers are classified according to the position of the fulcrum, the load and the effort.  
 When the fulcrum is in between the load and the effort, it is a first-class lever.  
 When the load is in between the fulcrum and the effort, it is a second-class lever.  
 When the effort is in between the fulcrum and the load, it is a third-class lever.
2. An inclined plane is a slope which makes work easier. When people have to load or unload a truck, they use a wooden plank as an inclined plane. In hospitals and other buildings, inclined planes called ramps are provided next to staircases. These help to push up wheelchairs.  
 In schools, young children love to ‘ride’ down a slide. It is also an inclined plane.
3. A screw is better than a nail because when we join things together with a screw, they are held together through a longer distance and thus cannot be forced apart easily. On the other hand, when we join things with a nail, they are held together only for a short distance, that is through the length of the nail.
4. Energy can neither be created nor destroyed. It can only be changed from one form to another. The total energy of an object never decreases or increases and remains the same.
5. Wind energy is a renewable source of energy produced from wind whereas heat energy is a non-renewable source of energy that is produced from burning of fossil fuels. So, wind energy is more environment friendly.
- G.** Do it yourself.  
**H.** Do it yourself.  
**I.** Do it yourself.



## 8. Air and Water

### Exercise

- A.** 1. (c)      2. (b)      3. (d)      4. (d)      5. (a)
- B.** 1. troposphere      2. Argon      3. Humidity      4. a higher  
 5. all directions
- C.** 1. gravity      2. soil      3. Neon      4. exhaled      5. humid  
 6. lesser      7. solution      8. Distilled

- D.** 1. Oxygen, Carbondioxide, Nitrogen and Argon.  
 2. Water vapour is formed because of the evaporation of water from the surface of water bodies like ponds, lakes, rivers and seas due to the sun's heat.  
 3. We should purify drinking water because for healthy life, clean water is necessary for drinking and cooking. Impure water contains many disease-causing germs like the ones of cholera, dysentery and jaundice.  
 4. Sedimentation, filtraton and chlorination are involved in the treatment of the town water supply.
- E.** 1. Air is the most important component for the survival of life on Earth. We breathe in air. The oxygen present in air is required for respiration of living beings.  
 2. Stratosphere is a very important layer of atmosphere because jet aircrafts fly in this layer. Ozone gas is present in this layer. It absorbs harmful and cancer-causing ultraviolet rays from the sun.  
 3. **Sedimentation and decantation :** To separate insoluble impurities, let the water stand for some time. Impurities heavier than water will settle at the bottom of the water leaving it clear. This is called sedimentation.  
 4. Distilled water is the purest form of water. It does not contain any germs or impurities. The impurities that were dissolved in the water are left behind in the heating flask. This water is mainly used in car batteries, scientific experiments and in medicines.
- F.** Do it yourself.                      **G.** Do it yourself.  
**H.** Do it yourself.                      **I.** Do it yourself.



## 9. Soil Erosion and Conservation

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### Exercise

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- A.** 1. (a)      2. (d)      3. (c)      4. (b)      5. (a)  
**B.** 1. soil      2. Bihar      3. floods  
**C.** 1. hill      2. Natural      3. roots      4. manure  
**D.** 1. Soil erosion is the condition of wearing off or carrying away of soil by the action of water or wind.  
 2. The protection of soil against erosion is called soil conservation.





3. Sputnik 1
  4. Rakesh Sharma
  5. Three lunar missions have been launched by India till now.
  6. Neil Armstrong
  7. The space telescope called hubble telescope.
- E.
1. Moon does not have any light of its own but shines because it reflects the light of the sun falling on it.
  2. The atmosphere of earth protects life on earth by creating pressure allowing for liquid water to exist on the earth's surface, absorbing ultraviolet solar radiation, warming the surface through heat retention and reducing temperature extremes between day and night.
  3. Although the moon's gravity is very weak, it has a noticeable effect on the earth. It pulls the water of the seas and oceans of the earth and cause tides.
  4. Just as the earth casts a shadow on the moon, the moon also casts a shadow on the earth. When people in the shadow of the moon cannot see the sun, it is called an eclipse of the sun or a solar eclipse.
  5. When the moon is only partly hidden by the dark shadow of earth, it is partial lunar eclipse.
  6. Man-made objects which revolve around the earth just as the moon does are called artificial satellites.

#### **Uses of Artificial Satellites**

A rocket is used to launch an artificial satellite into space. Initially, artificial satellites were designed for scientific research and to provide valuable information about the atmosphere surrounding the earth.

Weather satellites take pictures of the movements of clouds and help to forecast weather. They can give us early warnings of dangerous storms or cyclones building over the seas, forest fires, floods or moving glaciers. Satellites which send messages from one country to another are called communication satellites. They send signals of television programmes from one country to another. Astronomers use satellites to take special measurements of the solar system, stars and galaxies.

#### **7. Indian Lunar Missions**

Chandrayann-1, Chandrayaan-2 and Chandrayaan-3 are India's lunar exploration missions which were developed and launched by the Indian space Research Organisation (ISRO).

Chandrayaan-1, the first Indian lunar probe which included an orbiter and an impactor, was launched by ISRO in October 2008, and operated until August 2009. With this mission, India became the fifth country in the world to reach the lunar surface.

Chandrayaan-2, consisting of a lunar orbiter, the Vikram lander and the Pragyan rover, was launched in July 2019 but the lander crashed while attempting to land in September 2019.

Chandrayaan-3, consisting of Vikram lunar lander and Pragyan lunar rover, was launched on 14 July 2023. The lander touched down near the lunar South Pole on 23 August. With this, India became the fourth country to successfully land on the Moon, and the first to do so near the lunar South Pole.

- F. Do it yourself.                      G. Do it yourself.  
H. Do it yourself.



## 11. Changes in the Environment

### Exercise

- A. 1. (b)      2. (b)      3. (c)      4. (d)
- B. 1. glasshouse      2. Water vapour      3. refrigerators
- C. 1. (a)      2. (c)      3. (d)      4. (e)      5. (b)
- D. 1. A greenhouse is a glasshouse where plants are grown especially during winter.
2. Carbon dioxide, nitrous oxide, methane and water vapour are the green-house gases.
3. Carbon dioxide, nitrous oxide, methane and water vapour trap energy from the sun. Since these gases do not let the heat to escape back into space, it warms up the earth. So these gases are called greenhouse gases.
4. Greenhouse gases in the atmosphere trap the heat of the sun and lead to a rise in temperature on the earth. It is called global warming.
- E. 1. Pollution is the mixing of harmful substances into land, air and water. Pollution can be reduced if :
- (i) tall chimneys, fitted with filters are used in factories to let out smoke and gases.
- (ii) waste is treated and made harmless before being dumped into water bodies.
2. Following steps should be taken by the government to prevent pollution :
- \* Awareness programs should be conducted in schools, offices, etc.
  - \* Discourage citizen to participate in waste management.
  - \* Citizens should be used to segregate waste.
3. Used tyres can be cut into shapes of climbing frames, swing seats and rubber slippers or *chappals*. Rubber tubes are also used to make jewellery items like beads, rings and bracelets. Old truck tyres are

recycled to make diary covers, pencil pouches and playground surfaces.

4. Metal objects thrown away by people can be reused. People buy pipes, rods and gates from scrap dealers from reuse as they are cheaper. Left over metal sheets with holes are used to make racks and cages.

People buy and melt scrap pieces to make frames, decoration pieces and jewellery. Every new car has some recycled part of an old car. Empty aluminium cans are cleaned, shredded, melted and reshaped into new cans for reuse.

- F. Do it yourself.                      G. Do it yourself.  
H. Do it yourself.                      I. Do it yourself.  
J. Do it yourself.                      K. Do it yourself.  
L. Do it yourself.



## Section II : Social Science

# 12. The World History

### Exercise

- A. 1. (b)      2. (b)      3. (d)      4. (c)      5. (b)
- B. 1. Archduke Franz Ferdinand  
2. U-boats  
3. Treaty of Versailles  
4. Germany
- C. 1. The assassination of Archduke Franz Ferdinand led to the First World War.  
2. The main terms of the Treaty of Versailles are as follows :  
(i) Germany was made to pay a heavy fine.  
(ii) It could not increase its military forces.  
(iii) Allied powers were to occupy some of its territories.  
3. Adolf Hitler was the Chancellor of Germany. His desires and ambitions to turn Germany into a superpower plunged the world into second world war.  
4. USA dropped atom bombs on two Japanese cities, Hiroshima and Nagasaki. This forces Japan to surrender.
- D. Do it yourself.                      E. Do it yourself.  
F. Do it yourself.                      G. Do it yourself.



# 13. India's Freedom Movements

## Exercise

- A.** 1. (b)                      2. (c)                      3. (c)                      4. (c)
- B.** 1. Radicals                      2. revolutionary                      3. satyagraha  
4. Jallianwala Bagh
- C.** 1. 1942                      2. 1905                      3. 1930                      4. 1919  
5. 1947                      6. 1920
- D.** 1. In its early years, the Indian National Congress achieved limited success. Its leaders of the time were known as the moderates. As time passed, there came up another group within the congress, called the Radicals. They wanted to oppose the British strongly and favoured boycotts and strikes.
2. In 1905, the British partitioned Bengal, where one part had a largely Hindu population, while the other part had a Muslim majority. This was done to prevent Hindus and Muslims from uniting against the British.
3. On 13 April 1919, a public meeting was held at Jallianwala Bagh in Amritsar. General Dyer arrived at the meeting place with his soldiers and ordered them to fire at the crowd. Hundreds of people were killed and many more were injured. The country was shocked by this incident. All national leaders protested strongly against this cruel act.
4. Some people set fire to a police station in Chauri Chaura (in Uttar Pradesh) and 22 policemen died. Gandhiji was against violence and so, he withdrew the movement immediately.
5. Subhas Chandra Bose's contribution to the Indian National Movement was that he raised the first Indian National Army, the Azad Hind Fauj and carried out an armed coup and inspired thousands of Indian youth to join the struggle for independence from the British rule. He also gave the slogan 'Jai Hind'.
- E.** Gandhiji encouraged Indians to boycott British goods and adopt khadi as a form of protest.
- F.** Do it yourself.
- G.** Do it yourself.
- H.** Do it yourself.



# 14. Latitudes and Longitudes

## Exercise

- A.** 1. (a)      2. (a)      3. (b)      4. (c)      5. (c)
- B.** 1. South Pole      2.  $23\frac{1}{2}^{\circ}\text{S}$       3. Arctic Circle  
4. Meridian      5. Latitude
- C.** 1. T      2. F      3. F      4. T
- D.** 1. A set of circles running from east to west is drawn on the surface of the globe are called parallels.  
Three features of parallels are :  
(i) All parallels are located at an equal distance from each other.  
(ii) Parallels neither touch nor cross one another.  
(iii) Except for the North Pole and the South Pole which are points, all parallels complete circles.
2. For numbering the parallels, we start from the Equator and mark it as  $0^{\circ}$  latitude. The other parallels are marked from  $0^{\circ}$  to  $90^{\circ}$ . Apart from their value, the parallels are also marked N (North) or S (South), as per their location.
3. Meridians are imaginary lines running from north to south. These lines drawn are drawn from pole to pole.  
Three features of meridians are :  
(i) All meridians are of the same length.  
(ii) The maximum distance between any two meridians is at the Equator.  
(iii) Meridians cut the parallels at right angle ( $90^{\circ}$ ).
4. To locate a place, one must know the value of its parallel or latitude and its meridian or longitude. The point at which the parallel and the meridian intersect or cross each other is the location of that place.
- E.** The Earth is spherical. So, the length of parallel increase as we move away from the poles towards the equator.
- F.** **Across (→)**  
3. PARALLELS      5. MERIDIANS  
7. SCALE      8. EQUATOR
- Down (↓)**  
1. GREENWICH      2. PLAIN  
4. GLOBE      6. ROTATION
- G.**
- | Equator | Tropic of Cancer | Tropic of Capricorn | Arctic Circle |
|---------|------------------|---------------------|---------------|
| Kenya   | Mexico           | Australia           | Russia        |
| Ecuador | Saudi Arabia     | Paraguay            | Canada        |

H. Do it yourself.

I. Do it yourself.

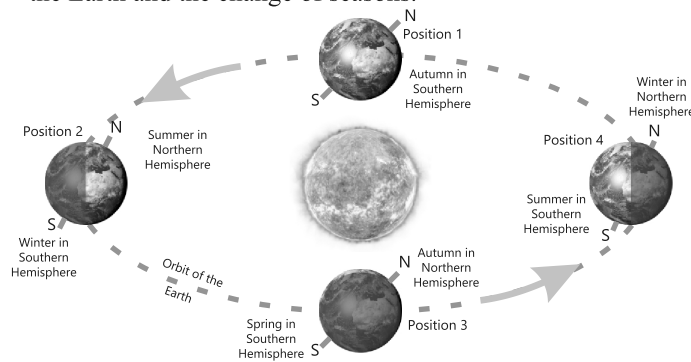
J. Do yourself.



## 15. The Earth Movements

### Exercise

- A. 1. (d)    2. (b)    3. (d)    4. (a)
- B. 1. Sun    2. Rotation    3. 24 hours    4. pole
- C. 1. east    2. oval    3. Earth    4. rotation    5. spring
- D. 1. The rotation is the movement of the Earth on its axis. The Earth takes about 24 hours or one day to complete one rotation.
2. The rotation of the Earth causes days and nights. Since the Earth has a spherical shape, only half of it receives light from the Sun at a particular time and has 'day'. The other half, which is facing opposite to the Sun, is in darkness and has 'night'.
3. The revolution is the movement of the Earth around the Sun. It takes the Earth about 365 days or one year to complete one revolution.
4. The revolution of the Earth causes four distinct seasons—summer, autumn, winter and spring. The given figure shows the revolution of the Earth and the change of seasons.



Revolution of the Earth and change of seasons

- E. The people of Australia celebrate Christmas in the summer season due to the inclination of the Earth's axis.
- F. 1. Neptune    2. Earth  
3. Saturn    4. Uranus  
5. Mercury    6. Venus  
7. Mars    8. Jupiter
- G. Do it yourself.



## 16. Major Landforms of the Earth

### Exercise

- A.** 1. (a)      2. (c)      3. (d)      4. (c)      5. (a)
- B.** 1. (c)      2. (d)      3. (b)      4. (e)      5. (a)
- C.** 1. Mountain      2. Plateau      3. Plains
- D.** 1. Mountains are very useful to us due to the following reasons :
- (i) Rivers flowing down from mountains provide water for irrigation.
  - (ii) The slopes of mountains have rich pasture lands and valuable forests.
  - (iii) Some mountains are rich in minerals.
  - (iv) Mountains act as a barrier against cold and hot winds.
2. Importance of Plateaus
- (i) Some plateaus are rich in mineral deposits.
  - (ii) Plateaus have grasslands on which cattle and sheep are reared.
3. Plains are thickly populated due to following reason :
- (i) Plains have fertile soil which is suitable for cultivation crops.
  - (ii) It is easier to construct canals roads, railways and acrodromes in the plains.
4. The main features of a desert are as follows :
- (i) little vegetation due to less rainfall.
  - (ii) hills of sand called sand dunes.
  - (iii) very hot days and cold nights.
  - (iv) frequent dust storms.
5. The river deposits the silt it carries near the mouth, forming a triangular shaped land called delta.
- E.** Jammu and Kashmir is thinly populated as its most of the area is occupied by himalayan ranges and only a very few area is suitable for settlement.
- F.** 1. Polar Plateau      2. Dadu Plateau  
3. Iberian Plateau      4. Colorado Plateau  
5. East African Plateau      6. Atacama Plateau
- G.** Do yourself.
- H.** Do yourself.



## 17. Weather and Climate

### Exercise

- A. 1. (c) 2. (b) 3. (c) 4. (c)
- B. 1. climate 2. seven 3. slanting 4. mild 5. frigid
- C. 1. T 2. F 3. T 4. F
- D. 1. Due to the spherical shape of the Earth, sunlight falls on different parts at different angles. Direct and focused sun rays falls on the equator and hence, the regions here are hotter. The polar region receives diffused sun rays, which is why the areas there are colder.
2. (a) Weather is the condition of the atmosphere of a place at a particular time.  
Cimate is the average weather over a long period of time.
- (b) Moderate climate is neither too hot nor too cold while extreme climate very hot in summers and very cold in winter.
3. Visakhapatnam have moderate climate because it is located in coastal areas.
4. Wind direction affects the climate of a place. Winds blowing from hot areas increase the temperature of that place while winds blowing from cold areas reduce it.
5. The climatic conditions of each heat zone are as follows :
- Torrid Zone** : The climate is hot and humid throughout the year as direct rays of the Sun fall over it.
- Temperate Zone** : It is neither very hot nor very cold here as these zones are away from the equator and also from the poles.
- Frigid Zone** : This zone receives slanting rays of the Sun and as a result, it remains very cold throughout the year.
- E. Do yourself. F. Do yourself.
- G. Do yourself. H. Do yourself.

## 18. The Land of Ice and Snow

### Exercise

- A. 1. (a) 2. (d) 3. (a) 4. (a) 5. (c)
- B. 1. T 2. F 3. F 4. F 5. T
- C. 1. Eskimos 2. Arctic Circle 3. Iceberg 4. Huskies
- D. 1. Greenland lies to the north-east of North America. More than two-thirds of it is located to the north of Arctic Circle. The Davis Strait



and the Baffin Bay separate Greenland from the northern islands of Canada. The island is an autonomous territory of Denmark.

Greenland is covered with ice, snow and glaciers. Snow gives it white appearance.

2. Greenland has an arctic type of climate. The winters are long and cold and the Sun does not rise for several weeks. As a result, the temperature drops below the freezing point, it snows heavily and extremely cold and chilly winds blow. Summer is short and cool. The weather is bright and sunny, especially in the coastal areas.
3. The climate of Greenland is Arctic, which means freezing cold. This is because Greenland lies near the North Pole where the sun's rays fall in slanting position and give very little heat. Such a cold climate does not allow any vegetation to thrive. Plants can grow only in few parts of the island.
4. Animals have thick furry coats to withstand extreme cold are live in Greenland.
5. An igloo is a type of house built from ice blocks, mainly by inuits.

E. Do yourself.

F. Do yourself.

G. Do yourself.

H. Do yourself.

I. Do yourself.



## 19. The Grasslands

### Exercise

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- A. 1. (d)                      2. (b)                      3. (a)                      4. (b)
- B. 1. T                              2. F                              3. T                              4. T
- C. 1. **BISON** and **COYOTE**  
2. **GOLD** and **POTASH**  
3. **VELDS** and **DOWNS**  
4. **CANADA** and **MEXICO**  
5. **BARLEY** and **CORN**
- D. 1. Grasslands are large plain regions which are full of grass.  
The climate is warm and dry. Rainfall is moderate and occurs mostly in the summer season.
2. Bison, Prairie dog, Prairie chicken and coyote are some animals found in the Prairies.
3. Farmers produce enough wheat for the whole country and also for export. What is why the Prairies are called the Wheat Basket of the World.

4. The land towards the west of the prairie is hilly. The soil is coarse and less fertile. So, this region is used for cattle rearing.
5. In the prairies, the entire farm work of ploughing, sowing, harvesting, threshing, winnowing and storing of food grains is done by machines. Cultivation of thousands of hectares of farmland needs very few workers. Big dairy farms also use machines. Machines have almost replaced manual labour prairies.

E. Do yourself.

F. Do yourself.

G. Do yourself.

H. Do yourself.



## 20.

## Pollution

### Exercise

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

B. 1. humans      2. air            3. water

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

D. 1. Humans have carried out various activities as per their needs and have caused changes in the environment. This way they have become the greatest threat to the environment.

2. The natural causes of air pollution are sandstorms, forest fires, volcanic eruptions and pollen from plants and flowers.

But the main causes of air pollution are human-made factors. Smoke from vehicles, factories, and burning of fuels pollute the air around us.

It is very harmful and causes breathing problems. It looks like a cloud and makes the air hazy.

Air pollution also harms plants as they do not get enough nutrients due to the presence of pollutants in the air. Their growth slows down, they become weak and eventually they die.

3. Water pollution is contamination of water bodies, usually as a result of human activities, so that it negatively affects its uses.

**Causes of Water Pollution :** Sometimes natural factors causes water pollution. For example, storms often make soil and other particles dissolve in water. This pollutes the water which becomes unfit for drinking and cooking.

Water pollution is also caused by human activities such as :

1. Dumping household wastes and untreated sewage in water bodies.
2. Bathing and washing clothes in rivers and lakes.
3. Dumping chemical wastes from factories in water bodies.
4. Leakage from oil tankers.

4. **Land or Soil Pollution** : When harmful substances are released into land or soil, it gets polluted. It may also get polluted when harmful substances accumulate on it.

**Causes of Soil Pollution**

1. Solid wastes such as garbage
2. Refuse from forests and agriculture
3. Refuse from mines

Pollution makes soil infertile. It also harms the organisms living in the soil.

5. **Causes of Noise Pollution**

1. Home appliances such as juicer-mixer-grinders, vacuum cleaners, washing machines and air conditioners.
2. Car and bus horns.
3. Loudspeakers and loud music.

Damage to the environment affects us directly.

- E. Do it yourself.                      F. Do it yourself.  
G. Do it yourself.                      H. Do it yourself.  
I. Do it yourself.

## 21. Natural Disasters

### Exercise

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- A. 1. (d)      2. (c)      3. (d)      4. (c)      5. (c)
- B. 1. F      2. T      3. T
- C. 1. Landslide      2. Avalanche      3. Wildfires      4. Tornados  
5. Tsunami
- D. 1. The main causes of floods are very heavy rainfall, sudden melting of snow on mountains during the summer season, collapse of dams, blocking of rivers due to landslides, cyclones and tsunamis.  
The two ways for flood control are as follows :  
(i) More and more trees should be planted as they prevent flood water from spreading fast.  
(ii) Special dams can also be built to check the flow of water.
2. When there is little or no rain for a long period of time in a region leading to extreme scarcity of water, it is called drought.  
To prevent droughts, we can do the following :  
1. Grow more trees.  
2. Develop rainwater harvesting systems.

3. Grow drought-resistant crops such as sorghum, millets and maize.
  4. Spray water directly on the base of plants so that less water is used.
3. When the ground shakes violently due to sudden movement under the Earth's surface it is known as earthquake.  
The magnitude or intensity of an earthquake is measured on the Richter Scale.
  4. Cyclones are violent storms which form over seas and oceans and cause large-scale destruction when they hit the shore. Cyclones are always accompanied by high speed winds and heavy showers. Odisha, West Bengal, Andhra Pradesh, Tamil Nadu, Maharashtra and Gujarat are prone to cyclones.
- E. Do it yourself.                      F. Do it yourself.  
G. Do it yourself.                      H. Do it yourself.  
I. Do it yourself.                      J. Do it yourself.



## 22. The Governing System

### Exercise

- A. 1. (a)      2. (a)      3. (c)      4. (a)      5. (d)
- B. 1. Parliament    2. Lok Sabha    3. Five      4. vice president  
5. High Court
- C. 1. T              2. F              3. F              4. T
- D. 1. India is union of 28 States and eight Union Territories. The Indian Constitution provides for a government at the centre and one in each state. This has been done to govern and administer the country properly.
2. The difference between the Lok Sabha and Rajya Sabha :

	Lok Sabha	Rajya Sabha
(i)	The Lok Sabha is the Lower house of the Parliament.	The Rajya Sabha is the Upper house of the Parliament.
(ii)	The Lok Sabha can have a maximum of 550 members.	The Rajya Sabha can have a maximum of 250 members.
(iii)	The members of Lok Sabha are elected for a term of five years.	The members of Rajya Sabha are elected for a term of six years.

3. There are a number of political parties in our country. Such a multiparty system is a very important part of our democracy. In a general election, these parties field their candidates. People vote for the candidates of their choice. The party that gets the maximum seats in the Lok Sabha forms the government at the Centre. The leader of this party is appointed by the President as the Prime Minister. She/He then forms the council of ministers comprising of cabinet ministers, ministers of state and deputy ministers. These ministers must be Members of the Parliament.
4. In India, the lower house or the only house of the State Legislatures are called Legislative Assemblies.

**Formation of the Legislative Assembly**

- (i) The members of the Legislative Assembly (MLAs) are elected by people who are more than 18 years of age.
  - (ii) Every state is divided into constituencies on the basis of population.
  - (iii) Every constituency elects only one member.
  - (iv) Voters are exercised secretly.
5. The Constitution of India has the provision for an independent judiciary. The Supreme Court in New Delhi is the highest judicial body in our country. The highest judicial position is that of the Chief Justice. There can be a maximum of 34 judges in the Supreme Court. All the judges are appointed by the President of India. It gives the final judgement in any legal case.

The High Court is the highest judicial body in a state. It also has lower courts. Each district, in a state, has its own court.

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|---------------------------|---------------------------|
| <b>E.</b> Do it yourself. | <b>F.</b> Do it yourself. |
| <b>G.</b> Do it yourself. | <b>H.</b> Do it yourself. |
| <b>I.</b> Do it yourself. |                           |

