# CHRIST KING HR. SEC. SCHOOL, KOHIMA
# CLASS 7
# SUBJECT: SCIENCE
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## Chapter: 16
## Wind and Storm

**A. I. Multiple Choice Questions**

1. Which of the following natural phenomena is not a natural disaster?
**Ans: (a) Rain**

2. Which of the following does not takes place during the occurrence of rain?
**Ans: (a) Evaporation**

**3.** Thunder and lightning emerge due to the collision of-
**Ans: (d) Clouds**

4. When air pressure at a place is low, air-
**Ans: (a) Rushes in to fill the vacuum created**

5. Which of the following natural disaster is associated with heavy rainfall?
**Ans: (d) Flood**

**II. Fill in the blanks:**
**1. Rain**
**2. Phenomena**
**3. Vapour**
**4. Storms**
**6. Cyclones**

**III. State 'T' for True and 'F' for False against each statement:**
**1. True**
**2. False**
**3. False**
**4. True**
**5. True**

**B. Short type questions-I**
**1. Define natural phenomena?**
Ans: The change or event that occurs in nature is called natural phenomena.

**2. Name the two sub-processes of rain?**
Ans: Evaporation and Condensation are the two sub-processes of rain.

**3. Define evaporation?**
Ans: The transfer of water from land surface to the atmosphere in the form of water vapour is called evaporation.

**4. What is condensation?**
Ans: The change of water from its gaseous state into liquid water is called condensation.

**5. What is thunder?**
Ans: The sound that follows soon after a flash of lightning strikes the earth is called thunder.

**C. Short type question-II**

**1. State the role of Condensation in occurrence of rain?**

Ans: Condensation occurs in the atmosphere when warm air raises, cools and loose its capacity to hold water vapour. As a result, excess water vapour condenses to form cloud droplets. The upward motions that generate clouds can be produced by convection in unstable air, convergence associated with cyclones lifting of air by fronts and lifting over elevated topography such as mountains. Thus, the water that goes up as water vapour through evaporation comes down as rain through condensation.

**2. How do thunder and lightning originate in the sky?**

Ans: Lightning cause thunder. It is a form of electricity that originates in the strong up and down air currents inside tall cumulonimbus clouds as water droplets, hail and ice crystals collide with one another. Light and sound always travel at different speeds. Therefore, we always see a flash of lightning before hearing a thunder.

**3. What is air pressure? How it affects the blowing of air?**

Ans: The pressure exerted by air on its surrounding is called air pressure. Air puts pressure in all directions, like upwards, downwards and sideways. Since air present everywhere, we do not find much variation in the pressure that it puts on its surroundings.

Air does not blow when air pressure within its surroundings is balanced. But if the air pressure at a place falls, the air from the surrounding areas rushes to this place until the uniform air pressure is established again.

**4. How does flood occurs?**

Ans: Floods occurs due to incessant rainfall, which the earth cannot absorb and thus water stays on the top of the earth and runs off to the rivers and seas. The water fills up the rivers and then the rivers overflow their banks and the water comes onto the land and a flood devastates the land.

**5. What is a cyclone? How does it take place?**

Ans: A cyclone is a storm accompanied by high speed whistling and howling winds that arises from the sea. It brings torrential rains along with fast winds together with water currents. It is one of the most destructive of all natural disaster.

A cyclone takes place due to the formation of low pressure area over a large area of warm water. It originates in the ocean due to the effect of air pressure and ocean currents and gradually moves over land fed with large supply of energy from the ocean, in association with fast winds, storms and rain.

**6. How is a storm different from a cyclone?**

Ans: Storms occurs when a low-pressure zone is created at a place as an effect of different climatic factors, while cyclones occurs when a low-pressure area is created which forms over a large area of warm water in the ocean. Storms can be predicted nowadays before their occurrence, while cyclone is difficult to be predicted in advance. The destruction caused by storms are less than the destructions caused by cyclones.

**D. Long type questions**

**1. Describe the mechanism of the occurrence of rain?**

Ans: The occurrence of rain relates to two simple mechanisms: Evaporation and Condensation. In the case of evaporation water changes from liquid to gas and is transferred from the surface to the atmosphere. Most evaporated water exists as a gas outside cloud. Evaporation is also more in the warmer temperature. The process reverse to evaporation is condensation. In the process, water changes from its gaseous form into liquid.

Condensation generally occurs in the atmosphere when warm air raises, cools and loses its capacity to hold water vapour.

As a result, excess water vapour condenses to form cloud. It can be produced by convection in unstable air, convergence associated with cyclones, lifting of air by fronts and lifting over elevated topography such as mountains. Thus, water that goes up as water vapour through evaporations comes down as a rain through condensation.

**2. Describe the occurrence of Lightning and Thunder in detail.**

Ans: Thunder and Lightning occurs simultaneously. Actually, lightning follows thunder. The flash of a lightning strike and the resulting thunder occurs at roughly the same time. Light travels faster than sound. So the flash of lightning is seen before thunder is heard. Lightning produces electricity. It forms in the strong up-and-down air currents inside tall dark cumulonimbus clouds as water droplets, hail and ice crystals collide with one another. Lightning causes thunder because a strike of lightning is incredibly hot. A lightning strike can heat the air in a fraction of second. When air is heated that quickly, like an explosion that happens in the blink of an eye. It is that explosion of air that creates sound waves which we hear and call thunder.

**3. How cyclone originate?**

Ans: A cyclone forms in the tropic where the water and air are warm and moist. It originates due to various reasons.

I. One of the factors is low pressure area which forms over large area of warm water. The air being drawn into the central low pressure areas is curved due to the carioles effect.

II. Surface friction also causes the wind around the low areas to spiral towards the centre, which gives the cyclone a circular rotation. The incoming air must go somewhere and so its rises. The rising condenses to form clouds. The latest heat which gives off when the water condenses causes the upper air to warm and increase in pressure. This is therefore the beginning of the feedback mechanism which continues to intensify the cyclone as long as there is warm water from which to draw energy.

**4. How will you make a wind Vane?**

Ans: You will need:

I. Paper and pencil, scissors, cardboard, compass, plastic soft drink bottle, plastic drinking straw.

II. A rectangle piece of wood and a knitting needle.

Method:

I. With scissors, carefully cut an arrow with a tab from the tag board.

II. Bend the tab slightly so that the arrow turns easily when you put it in one end of the straw.

III. Put the other end of the straw in the bottle.

V. Pile the rocks back around the bottle so that it does not blow over.

VI. Now fix the knitting needle from below into the hole of the rectangular wooden base.

VII. Put the bottle on the wooden box.

**Follow the below steps carefully:**

I. A compass always points to the north. Use your compass to find north, and then mark the four sides of the bottle like E, W, N and S.

II. Set your wind vane at a high place such top of playhouse or a slide. Make sure it does not wobble or tilt, and it catches the slightest breeze.

Thus, you have made your Wind Vane.

# Chapter-17
# Light

**A. Multiple choice questions**

**I. Choose the correct answers and put a (√) mark in the box.**

1. The light rays after falling on a surface and going into all directions, are called-

**Ans: Divergent (C)**

2. When the object is between F and 2F, the image formed is-

**Ans: Beyond 2F (B)**

6. When the object is beyond 2F, the image formed is-

**Ans: Between F and 2F (C)**

7. The image formed by a plane mirror is-
**Ans: Virtual and same size (D)**

8. If the concave mirror forms a real image of the same size as the object, the object is-
**Ans: At the centre of curvature (D)**

**II. Fill in the blanks:**
1. Dimmer.
2. Concave.
3. Straight.
4. Translucent.
5. Opaque.
6. Eclipses.

**III. Match the following:**

| **Column A** | **-** | **Column B** |
|---|---|---|
| 1 | - | B |
| 2 | - | C |
| 3 | - | A |
| 4 | - | F |
| 5 | - | D |
| 6 | - | E |

**IV. Write 'T' for true and 'F' for false for the following:**

1. False.
2. False.
3. True.
4. False.
5. False.

**J. Short type questions-I**

**1. What is light?**
Ans: Light is a form of energy.

**2. What is reflection?**
Ans: if a light falls in a surface and is sent back or reflected, it is called reflection.

**3. Name the type of reflections shown by an uneven surface?**
Ans: The type of reflection shown by an uneven surface is called irregular or diffused reflection.

**JJ. Write any two characteristic of an image formed by a mirror.**
Ans: Two characteristic of an image formed by a mirror are:
It is laterally inverted.
It is virtual.

**KK. Give two examples of spherical mirror.**
A Concave.
B Convex

**JJ. Define the centre of curvature.**
Ans: The centre of curvature is the centre of the sphere of which the mirror is a small part.

**J. Where will the image formed when the object is placed beyond C of a concave mirror?**
Ans: When the object is located at a location beyond the centre of curvature, the image will always be located somewhere in between the centre of curvature and the focal point.

**K. Write one use of concave mirror in our daily life.**
Ans: Concave mirrors are used by dentists to examine teeth.

**9. Write one use of convex mirror in our daily use.**
Ans: Convex mirror are used as rear-view mirrors in vehicles.

**JJ. Short type Questions-II 1.**
**What is earth light?**
Ans: Sunlight reflected by the surface of the earth.

**2. How does light travel? Explain in brief.**
Ans: Light travels in a straight line. Sunlight falls on the ground in a straight line. When we switch on a torch, we can see that the light from the torch focuses in a straight line. Again, we go to watch a movie in a theater, we can see the rays of light from the projector falling on the screen in a straight line.

**W. Mention the features that an ideal mirror should have.**
Ans: An ideal mirror should have the following features:
There should be little or no transmission.
It should reflect to the best and give maximum reflection.
It should not absorb light.

**X.What are the laws of reflections?**
The incident ray.
The point of incidence.
Normal at the point of incident.
Angle of incidence
Angle of reflection.

**JJ. What is lateral inversion?**
Ans: The phenomena of 'Left' appearing 'Right' and vice versa in a plane mirror is called lateral inversion.

**6. What do you understand by a virtual image?**
Ans: A virtual image is an image of an object that is formed only in a plane mirror. A virtual image cannot be formed on a screen placed behind the mirror.

**7. What are spherical mirrors?**
Ans: Spherical mirrors are parts of spherical surface that are capable of reflecting light. There are two kinds of spherical mirrors, concave and convex mirror.

When the reflecting surface is curved inwards, the mirror is called concave mirror, and, when the reflecting surface is curved outwardly, the mirror is called convex mirror.

**8. Define the terms**
**I. Centre of curvature:**
Ans: It is the centre of the sphere of which the mirror is a small part. It is represented by C.

**II. Radius of curvature:**
Ans: It is the radius of the sphere of which the mirror is called a small part. It is the line joining any point on the periphery with the centre of curvature of the mirror. It is represented by R.

**9. How is the image determined in spherical mirror?**
Ans: Spherical mirrors are have a focal point. The image determined in a spherical mirror according to its proportion as the image produced by it can be smaller and larger than the object, or of the same size as the object.

**10. Write the uses of convex and concave mirrors in our daily life.**
Ans: Convex mirror is used as rear-view mirror by different vehicles, like cars, scooters, buses, trucks, etc. while concave mirror is used by dentist to examine teeth and in optical instruments.

**11. Why do we need a shiny surface for reflection?**
Ans: We need shiny surface for reflection because shiny surface reduces transmission.

**D. Long type Questions.**
**1. How will you show that brightness diminishes with the increase in distance?**
Ans: The intensity or brightness of light as a function of the distance from the light source follows an inverse square relationship. Suppose you were to use a light meter to measure an initial intensity or brightness, a distance from a light source. Suppose that sometime later the brightness of the light is either greater or lesser; if the intensity diminished, you would know that the source was moving away from you and if it became brighter you would know that the source was moving towards you.

**2. How will you show that light travel in a straight line?**
Ans: We can state that light travel in a straight line with the help of these following examples. Sunlight falls on the ground in a straight line. When we switch on a torch, its focus travels straight to each to reach an object. The rays of light coming out of a projector travel in straight line and fall on the screen. Again a laser torch, used as a pointer, also throws its light in a straight line

# Chapter-18
# Water

**A. Multiple choice Questions**
**I. Choose the correct answer and put a tick (√) mark in the box.**

3. The percentage of water used for agriculture purpose-
**Ans: 70% (c)**

4. Which of the following is a kind of surface water found in the earth?
**Ans: All of the above (d)**

5. Which of the following is the main source of water?
**Ans: Rainwater (d)**

**8.** Which of the following is the main cause of the scarcity of water?
**Ans**: **All of the above (d)**

**II. Fill in the blanks:**
JJ. Ponds, Rivers and lakes.
KK. 60% to 70%.
LL. Nutrients.
MM. Two-third.

**6. Write 'T' for true and 'F' for false against each statement:**
**1. False.**
**2. True.**
**3. True.**
**4. False.**

**K. Short type Questions-I**

**1. What is rainwater?**

Ans: Rainwater is the main source and the purest form of natural water.

**2. Write any method by which we can conserve water in your home.**

Ans: We can conserve water in our home by closing the tap while brushing our teeth or soaping our face.

**3. Why is sea water salty?**

Ans: Sea water is salty because of the presence of large amount of various salts.

**4. How much water is used for domestic purpose?**

Ans: For domestic purpose, an average of 260 liters of water is required by each person per day.

**C. Short type Questions-II**

**1. How can ground water be obtained? Write any one method.**

Ans: The water that runs off the surface forming streams and rivers, and also those that seeps into the soil and get stored in non-porous rocks beneath the ground is called ground or underground water. One way to obtain ground water is by sinking tube well to reach the water table.

**2. What does rainwater contains?**

Ans: Although the rainwater does not contain any solid soluble impurities, it contains dust particles, some dissolved gases present in air, like carbon dioxide. Moreover, in places where the air is polluted, it may also contain harmful substances like acid.

**3. What is meant by scarcity of water?**

Ans: By scarcity of water, we mean less or limited availability of water in a place or area. Water gets scarce when the amount of water withdrawn from lakes, rivers or groundwater is so great that water supplies are no longer adequate to satisfy all human or ecosystem requirements, bringing about increased competition among potential demands.

**4. How does water play an important role in plant life?**

Ans: Water plays an important role in plants life in the following ways:

Water helps in transportation of nutrients in the plant body. Plants have roots with the help of which they absorb water from the soil. This water is transported to the other parts of the plants.

Water helps in the preparation of food by green plants in their leaves with the help of water and carbon dioxide in the presence of sunlight.

Water helps in the transportation of carbohydrates from the leave to the other parts of the plants.

Water is required for germination of seeds and growth of plants.

**C. Long type Questions**

**1. How is water important for sustaining life on earth?**

Ans: Water is an important natural resource which helps us sustain life on earth. Water is the main component of body cell of all living beings. It helps the bodies of human and animals to dissolve minerals, gases and many products of digestion and carry them at the place. Moreover, water helps in maintaining proper temperature in animals, humans and plants by the process of sweating, evaporation and transpiration.

**5. What are the various sources of water?**
Ans: The various sources of water are:

1. Rainwater:
   It's the main source and the purest form of natural water.
2. Surface water:
   It is present on the earth's surface and consists of rainwater, river water, lake water and sea water.
3. Ground water:
   When rain falls, some water passes through the soil into the non-porous rocks beneath and get stored there, which is called groundwater.
4. Ocean and sea water:
   It contains large amount of various salt and is therefore salty. Ocean and sea water cannot be used to drink, wash clothed and irrigate agricultural lands.

**3. Write short notes on scarcity of water? Also state its main cause.**
Ans: Water scarcity is a problem for humans that occurs when the amount of water from water supplies are no longer adequate to satisfy all human or ecosystem requirements, bringing about increased competition among potential demands.

There are two main causes of water scarcity.

KK. Growth of population, agriculture and development of industry.

LL. Due to Deforestation, trees and their roots system are being removed which help to soak up and store water and replenish the supply of ground water and as a result the ground cannot absorb rain water.

# Chapter-19
# Forest

**A. Multiple choice Questions**
**I. Choose the correct answer and put a tick (√) mark in the box.**

1. Which of the following is not provided by plants for animals?
**Ans: Electricity (c)**

2. Which of the following plants processes helps to purify water in nature?
**Ans: Transpiration (c)**

3. Why are plants called producers?
**Ans: Because they produce food through photosynthesis (b)**

9. Which of the following are tertiary consumers?
**Ans: Man (d)**

**10.** Which of the following is not provided by man to plants?
**Ans: Protection against diseases (d)**

**NN. Fill in the blanks:**
1. Solar.
2. Animals.
3. Plant life.
4. First.
5. Transpiration.

**7. Write 'T' for true and 'F' for false against each statement:**

1. True.
2. False.
3. False.
4. True.
5. False

**L. Short type Questions-I**

**1. What are producers?**

Ans: Plants are called producers as they have the ability to use light energy from the sun to produce food from carbon dioxide and water.

**2. What are consumers?**

Ans: Animals are called consumers as they cannot make food on their own and get food from the plants and other animals.

**3. What is a food chain?**

Ans: A food chain is a system where each member of a community of organism is eaten in turn by another member.

**4. What is transpiration?**

Ans: Transpiration is the process through which large volumes of water is evaporated in the atmosphere.

**5. What is a semi-permeable membrane?**

Ans: The semi-permeable membrane is a kind of tissue present of the root hair, which are extremely pure and are helpful in the filtration of the transpired water.

**C. Short type Questions-II**

**1. What is a food chain? Explain with the help of an example.**

Ans: A food chain is a process in which member in community of organisms is eaten in turn by another member. A food chain always starts with plants life and end with animal.

Let us take an example: A small fishes in the sea eat aquatic plants, which are eaten by big fishes for survival, again this big fishes are eaten by sharks and whales for their living. Hence, in a food chain, one animal always eats another and proves the survival of the fittest.

**2. What is a food-web? What does it explains?**

Ans: When we look at the ecosystem, we find a number of food chain working simultaneously.

Therefore, the complex network of food chains prevailing in the ecosystem is called food web.

It explains that various animals are dependent on plants as well as animals. The herbivores which eat other carnivores are called tertiary consumers. Again, omnivores are dependent on both plants and animals. There are also decomposers, like bacteria and fungi, which feed on decaying matter. These decomposers then release the minerals salts back into the food chain for absorption by the plants as nutrients. Hence, it is a complex process and therefore forms the food-web.

**3. How do plants help in the purification of water for animals?**

Ans: Through the process of aspiration, plants help in the purification of water for animals.

**4. How does animal helps plants to grow well?**

Ans: Animals helps plants to grow well in many ways. Animals supply carbon Dioxide to plants which is needed for photosynthesis. When animal die, their body tissues are broken in simpler forms and mixed with soil, form where these minerals reach the plants bodies which use them as manure to grow well. Animals also help plants to pollinate and disperse their seeds.

**C. Long type Questions**

**1. How do animals depends on plants for their survival and development? Discuss.**

Ans: Animals are dependent on each other for meeting the requirements of their food. But only plants meet the food requirement of all the animals directly or indirectly. The process of food chain shows that each animal gets its food from other animals, which actually starts from herbivores or the animals that eats plants. E.g: Grass $\rightarrow$Deer $\rightarrow$Tigers and Lions. Therefore we can say that animals depend on the plants for their survival and development.

**2. State the dependence of plants on animals in detail.**

Ans: The dependence of plants on animals can be discussed below:

Plants need carbon dioxide to make their food. It is a major input resource for photosynthesis in green plants that animals release as a respiratory waste substance.

Animals consume large amount of energy and nutrients which are stored in their body tissues. When they die, their body tissues are broken down into simpler forms and get mixed in soil. From there, these minerals reach the plants bodies which use them as manure and grow well.

In many parts of the world, green lands are protected and prepared and prepared with human's patronage, care and protection. Irrigation, manuring, pest control, etc. have become the essential conditions for survival of the plants and these substance are provided by animals and human's

Animals also keep plants to perform a numbers of their essential life process, like pollination and contribute in the dispersal of seed of plants.

**6. Is it possible for any of the plants and animals to survive without others? Give reasons to support your answer.**

Ans: No, it is not possible for any plants and animals to survive without each other.

Both plants and animals are dependent on each other to meet their food requirements. Animals eat plants to grow and live while plants depend on animal to supply carbon dioxide with the help of which green plants manufacture their food chain also reveals the interdependence of plants and animals. During their lifetime, animals consume large amount of energy and nutrients which are stored in their tissues. When these animals die, their body tissues are broken into simpler forms and mixed in soil. The minerals from this soil reach the plants bodies as source of manure thereby helping them grow well. Moreover animals can move but plants cannot. Therefore, an animal helps plants to reproduce by means of pollination and dispersal of seeds.

**7. Why are forests important to us?**

Ans: Forests are important to us because they produce large amount of oxygen and also absorb large amount of carbon dioxide, thereby helping to regulate the gases in the earth's atmosphere. Forests cool the earth by giving shades and recycling water. By cooling the air and ground, the shades from the trees help to cool the earth's atmosphere. Forests are rich communities of interrelated organism that depends on each other for survival. They offer food water shelter and protection for an incredible array of wildlife. Moreover the biodiversity found in the forests is greater than any ecosystem. Forest also acts as a storehouse of food. Different fruits and vegetable are obtained from the tree in the forest. Beside food, forests provide us with medicine, timber and fuel and also other products like rubber, perfume, resins etc.

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