NCERT solutions for class 9 science chapter 14 Natural Resources

Q1. How is our atmosphere different from the atmospheres on Venus and Mars?

Answer:

Earth's atmosphere is different from the atmosphere on Venus and Mars.

The major component of the atmosphere on Venus and Mars is found to be carbon dioxide constituting up to $95-97\%$ of the atmosphere.

Whereas, the atmosphere of Earth is made of 79% nitrogen and 20%oxygen, with only a small fraction of carbon dioxide.

Q 2. How does the atmosphere act as a blanket?

Answer:

The atmosphere is the thick blanket of air that covers the whole of the Earth. The atmosphere acts as a blanket in the following ways:

(i) It prevents the harmful UV rays from reaching the Earth's surface.

(ii) It helps in maintaining the surface temperature during day and night.

(iii) It protects Earth from celestial objects like asteroids.

Q 3. What causes winds?

Answer:

The uneven heating of the atmosphere in different regions of the Earth creates some regions of low pressure and some regions of high pressure.

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Air from the high-pressure region moves into the area of low pressure. This movement of air from one region to the other creates winds.

Q 4. How are clouds formed?

Answer:

The heating of the water bodies during the day leads to the evaporation of a large amount of water which then rises up with the hot air.

As the air rises, it expands and cools. This cooling causes the water vapour in the air to condense in the form of tiny droplets around dust particles.

These tiny droplets cluster themselves to form clouds. When these water-drops become heavy, they precipitate and fall down as rain.

In a nutshell, evaporation and condensation are the two main processes involved in the formation of clouds.

Q5. List any three human activities that you think would lead to air pollution.

Answer:

Three human activities that would lead to air pollution are:

i) Emission of harmful gases and dust particles from vehicles.

ii) Combustion of fossil fuels like coal, petroleum releasing oxides of nitrogen and sulphur.

iii) The smoke released from industries containing harmful gases like sulphur dioxide, oxides of nitrogen.

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Solutions for NCERT class 9 science chapter 14 Natural Resources

Topic 14.2 Water: A wonderful Liquid

Q1. Why do organisms need water?

Answer:

Organisms need water for the following activities:

(1) All chemical reaction at the cellular level occurs with water as the solvent.

(2) Water acts as a medium for the transportation of substances in our body.

(3) Terrestrial animals require fresh water for the intake of minerals

(4) Water is required to get rid of waste from the body in the form of sweat and urine.

(5) Water is essential for photosynthesis

CBSE NCERT solutions for class 9 science chapter 14 Natural Resources

Topic 14.3 Mineral Riches in the soil

Q1. How is soil formed?

Answer:

The breaking of rocks near the Earth's surface by various physical, chemical and biological processes over a long period of time leads to the formation of soil.

Factors that help in the formation of soil are:

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(i) Sun: Sun heats up rocks during the day causing them to expand. At night these rocks cool down and contract. This unequal expansion and contraction causes cracks in the rocks.

(ii) Water: Water during rainfall after enter these cracks, may freeze and cause the crack to widen. Also, Flowing water wears away rocks over long periods of time breaking it into smaller and smaller particles.

(iii) Wind: Strong winds erode rocks down, which rub with each other.

(iv) Living Organisms: Lichen growing on the surface of the rock, releases certain substances that cause the rock surface to powder down and form a thin layer of soil.

Q2. What is soil erosion?

Answer:

The removal of the top layer of fertile soil by air, wind, and water is called soil erosion .

Q 3. What are the methods of preventing or reducing soil erosion?

Answer:

The methods of preventing or reducing soil erosion are:

(i) Afforestation or planting of trees. The roots go deep into the ground and hold the soil thus preventing soil erosion.

(ii) Growth of vegetation. Vegetation ensures that the soil does not get carried away by rainwater or wind.

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Topic 14.5 Ozone Layer

Q1. What are the different states in which water is found during the water cycle?

Answer:

The different states in which water is found during the water cycle are:

In solid-state as ice/snow.

In a liquid state as rainwater.

In a gaseous state as water vapor in the atmosphere.

Q 2. Name two biologically important compounds that contain both oxygen and nitrogen.

Answer:

Two biologically important compounds that contain both oxygen and nitrogen are deoxyribonucleic acid (DNA) and ribonucleic acid (RNA).

Q 3. List any three human activities which would lead to an increase in the carbon dioxide content of the air.

Answer:

Three human activities which would lead to an increase in the carbon dioxide content of air are:

(i) Combustion of fossil fuels like coal and petroleum releases carbon dioxide in the atmosphere.

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(ii) Deforestation leads to an increase in carbon dioxide content in the atmosphere.

(iii) The smoke released from industries contains many harmful gases including carbon dioxide into the atmosphere.

Q 4. What is the greenhouse effect?

Answer:

The greenhouse effect is the phenomenon of warming of atmosphere by gases like carbon dioxide and methane.

These gases trap the heat during day time thus keeping the night warm.

Q 5. What are the two forms of oxygen found in the atmosphere?

Answer:

Two forms of oxygen found in the atmosphere are:

(i) diatomic oxygen O_2

(ii) triatomic Ozone O_3

NCERT Solutions for Class 9 Science Chapter 14 Natural Resources- Solved Exercise Questions

Q 1 Why is the atmosphere essential for life?

Answer:

The atmosphere is very essential for life in the following ways:

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(1) It maintains the temperature of Earth and prevents the heat from escaping during the night.

(2) The atmosphere contains nitrogen, oxygen, carbon dioxide which are required for various life processes.

(3) Oxygen in the atmosphere is required for burning, combustion and essential for respiration.

(4) The ozone layer in the stratosphere prevents UV rays from the sun to reach the Earth's surface.

(5) It protects Earth from celestial objects like asteroids and meteors.

Q2. Why is water essential for life?

Answer:

Water is essential for life for the following reasons:

(1) All chemical reaction at the cellular level occurs with water as the solvent.

(2) Water acts as a medium for the transportation of substances in our body.

(3) Terrestrial animals require fresh water for the intake of essential minerals.

(4) Water is required to get rid of waste from the body in the form of sweat and urine.

(5) Water is essential for photosynthesis by which plants make foo d.

Q3. How are living organisms dependent on the soil? Are organisms that live in water totally independent of soil as a resource?

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Answer:

Soil is a complex mixture, comprising of minerals, organic matter, water, and living organisms. It determines the diversity of life in any area.

Plants need soil for support and also get nutrients to prepare their own food. Herbivore obtains food from these plants. And, a carnivore is directly dependent on the herbivore.

Aquatic animals are also dependent on the soil as a resource. These animals depend on aquatic plants for food, which in turn, requires nutrients from the soil.

Hence, all living organisms directly or indirectly depend on the soil.

Q4. You have seen weather reports on television and in newspapers. How do you think we are able to predict the weather?

Answer:

The meteorological department predicts the weather. Various instruments are used to collect data like temperature, rainfall, humidity.

Rainfall is measured by a rain gauge. Satellites are used to monitor clouds and predict climate.

Q5. We know that many human activities lead to increasing levels of pollution of the air, water-bodies, and soil. Do you think that isolating these activities to specific and limited areas would help in reducing pollution?

Answer:

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Yes, isolating human activities which leads to increasing levels of pollution of the air, water-bodies, and soil to specific and limited areas would help in reducing pollution.

For example: Having heavy industries outside the main city will drastically decrease the effect of pollution on the population.

Q 6. Write a note on how forests influence the quality of our air, soil and water resources.

Answer:

(i) Influence of forests on quality of air:

-Forests maintain an oxygen level in the atmosphere. And also reduces the carbon dioxide level.

-Forests maintain the temperature of the environment.

(ii) Influence of forests on quality of soil:

-The roots of the trees bind the soil together thus reducing soil erosion.

-Forests help in maintaining the nutrient cycle.

(iii) Influence of forests on quality of water:

-Forests help in conserving water thus increasing its availability.

-Forests maintain the water cycle in the atmosphere.

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