CBSE Class 6 Science Notes Chapter 15 – Air Around Us PDF, Important Topics & Questions

*Physics Wallah's **CBSE Class 6 Science Notes Chapter 15**, "Air Around Us," serve as an invaluable resource for students seeking a thorough understanding of the subject matter!*

CBSE Class 6 Science Notes Chapter 15: The NCERT Solutions for Class 6 Science Chapter 15, titled "Air Around Us," offer students comprehensive insights into various concepts related to air. Crafted by subject-matter experts at Physics Wallah in accordance with the latest CBSE syllabus for the academic year 2024, these solutions serve as invaluable resources for students.

This chapter delves into the fundamental aspects of air, including its constituents, wind, the presence of air in soil, the significance of oxygen for living organisms, the importance of the atmosphere, and the vital role of plants in our survival.

CBSE Class 6 Science Notes Chapter 15 Overview

In the Air Around Us Class 6 Notes, students delve into the concept of air, which encompasses the atmosphere surrounding our planet. Air, as a mixture of gases, occupies physical space and pervades every corner of our environment.

The blend of gases facilitates various natural phenomena and human activities. For instance, air enables the movement of sailing yachts, gliders, parachutes, and airplanes, providing the necessary lift and resistance for flight.

Seeds from plants and pollen grains from flowers are carried by air currents, facilitating plant reproduction and biodiversity.

CBSE Class 6 Science Notes Chapter 15 – Air Around Us Notes

Here are CBSE Class 6 Science Notes Chapter 15 – Air Around Us detailed notes:

1) Introduction to Air:

- Air is a mixture of gases, primarily consisting of nitrogen (78%), oxygen (21%), carbon dioxide, water vapor, and trace amounts of other gases.

2) Composition of Air:

- Nitrogen: It is the most abundant gas in the atmosphere and is essential for the growth of plants.
- Oxygen: Vital for respiration in living organisms, oxygen supports combustion and is crucial for the survival of animals.

- Carbon dioxide: Absorbs heat from the Sun, contributes to the greenhouse effect, and is essential for photosynthesis in plants.
- Other gases: Includes noble gases like argon, helium, and neon, as well as trace amounts of pollutants and contaminants.

3) Importance of Air:

- Facilitates respiration: Oxygen in the air is vital for the process of respiration in animals and humans.
- Supports combustion: Air enables the burning of fuels and materials by providing oxygen.
- Sustains life: Air is necessary for the survival of plants, animals, and humans. It also regulates Earth's temperature and climate.
- Oxygen cycle: Air participates in the oxygen cycle, where oxygen is released by plants during photosynthesis and absorbed by animals during respiration.

4) Layers of the Atmosphere:

- Troposphere: The lowest layer where weather phenomena occur and where most of Earth's air mass is concentrated.
- Stratosphere: Contains the ozone layer, which absorbs harmful ultraviolet radiation from the Sun.
- Mesosphere: The middle layer where meteors burn up upon entering Earth's atmosphere.
- Thermosphere: The upper layer where auroras occur and where temperatures rise significantly due to absorption of solar radiation.

5) Wind and Air Movement:

- Wind is the movement of air from areas of high pressure to areas of low pressure.
- Factors influencing wind include temperature differences, atmospheric pressure, and Earth's rotation.

6) Air in Soil:

- Soil contains air spaces that are vital for the growth of plant roots and the survival of soil organisms.
- The presence of air in soil allows for the exchange of gases necessary for plant growth and microbial activity.

7) Air Pollution:

- Air pollution occurs when harmful substances, such as pollutants and contaminants, are released into the atmosphere.
- Sources of air pollution include industrial activities, vehicle emissions, agricultural practices, and natural events like volcanic eruptions.

- Pollutants like sulfur dioxide, nitrogen oxides, carbon monoxide, and particulate matter can have detrimental effects on human health, ecosystems, and the environment.
- Air pollution can lead to respiratory diseases, cardiovascular problems, acid rain, smog formation, and damage to vegetation and wildlife.

8) Human Impact on Air Quality:

- Human activities, such as burning fossil fuels, deforestation, industrialization, and urbanization, have significantly contributed to air pollution.
- Efforts to improve air quality include the implementation of emission control measures, the promotion of renewable energy sources, the adoption of cleaner technologies, and the development of sustainable transportation systems.
- Public awareness campaigns, environmental regulations, and international agreements like the Paris Agreement also play a crucial role in addressing air pollution and mitigating its impacts.

9) Effects of Climate Change:

- Climate change refers to long-term shifts in temperature, precipitation patterns, sea levels, and weather phenomena due to human-induced greenhouse gas emissions.
- Elevated levels of greenhouse gases, such as carbon dioxide and methane, trap heat in the atmosphere, leading to global warming and changes in climate patterns.
- Climate change impacts air quality by influencing air circulation patterns, precipitation levels, and the frequency and intensity of extreme weather events like heatwaves, droughts, and storms.
- Mitigating climate change requires collective action to reduce greenhouse gas emissions, transition to renewable energy sources, promote energy efficiency, and adapt to the changing climate through sustainable practices and policies.

10) Different Layers of Atmosphere

The Earth's atmosphere is composed of several layers, each with distinct characteristics and properties. These layers vary in temperature, composition, and density, and play crucial roles in regulating climate, weather patterns, and the protection of life on Earth. Here are the different layers of the atmosphere:

Troposphere:

- The troposphere is the lowest layer of the Earth's atmosphere, extending from the Earth's surface up to an altitude of approximately 8 to 15 kilometers.
- It is the layer where most weather phenomena occur, including clouds, rain, and storms.

- Temperature decreases with altitude in this layer, making it colder at higher altitudes.

Stratosphere:

- The stratosphere lies above the troposphere, extending from approximately 15 to 50 kilometers above the Earth's surface.
- It contains the ozone layer, which absorbs and scatters ultraviolet (UV) radiation from the Sun, protecting life on Earth from harmful UV rays.
- Temperature generally increases with altitude in this layer due to the absorption of solar radiation by ozone molecules.

Mesosphere:

- The mesosphere is located above the stratosphere, extending from about 50 to 85 kilometers above the Earth's surface.
- It is the layer where meteors burn up upon entering the Earth's atmosphere, creating visible streaks of light known as shooting stars.
- Temperature decreases with altitude in this layer, reaching extremely low temperatures.

Thermosphere:

- The thermosphere is the layer above the mesosphere, extending from approximately 85 kilometers to the edge of space.
- It is characterized by extremely high temperatures due to the absorption of solar radiation, although the air density is very low.
- The International Space Station (ISS) orbits within the lower part of the thermosphere.

Exosphere:

- The exosphere is the outermost layer of the Earth's atmosphere, merging with outer space.
- It consists of extremely low-density gases, and the few molecules present are continuously escaping into space.
- Satellites and other spacecraft orbit within the exosphere.

These layers of the atmosphere interact dynamically, influencing weather patterns, climate, and the distribution of gases essential for life on Earth. Understanding their characteristics is crucial for studying atmospheric processes and their impacts on the environment.

CBSE Class 6 Science Notes Chapter 15 Important Topics

Here's a detailed overview of the important topics covered in CBSE Class 6 Science Notes Chapter 15 – Air Around Us:

1) Presence of Air Everywhere:

- Air is indeed present everywhere around us, occupying space and filling the Earth's atmosphere.
- This chapter delves into the concept of air as a mixture of gases that envelops the Earth, emphasizing its ubiquitous nature and importance for sustaining life.

2) Composition of Air:

- Air is primarily composed of gases, with the most abundant ones being nitrogen (approximately 78%) and oxygen (approximately 21%).
- Other gases present in smaller amounts include carbon dioxide, argon, and trace gases like neon, helium, methane, and ozone.

3) Availability of Oxygen:

- Oxygen is essential for the survival of animals and plants, playing a crucial role in respiration and photosynthesis, respectively.
- The chapter explores how oxygen becomes available to animals through the process of breathing and to plants through the exchange of gases in leaves during photosynthesis.

4) Oxygen in Water and Soil:

- The notes discuss how oxygen dissolves in water, making it available to aquatic organisms like fish and other aquatic plants.
- In soil, oxygen is present in air pockets within the soil particles, facilitating the respiration of soil organisms and the roots of plants.

5) Replacement of Oxygen in the Atmosphere:

- The chapter explains the mechanisms through which oxygen in the atmosphere is replaced, primarily through the process of photosynthesis carried out by plants.
- During photosynthesis, plants absorb carbon dioxide and release oxygen, contributing to the replenishment of atmospheric oxygen levels.

6) Role of Air in Various Processes:

- Air serves multiple purposes, including facilitating the movements of wind-driven vehicles like sailing yachts and airplanes.
- It aids in the dispersal of seeds and pollen grains of plants and plays a significant role in the water cycle, influencing weather patterns and precipitation.

By comprehensively covering these topics, the Class 6 Science Notes on Air Around Us provide students with a thorough understanding of the composition, properties, and significance of air in the natural environment. Understanding these concepts lays the foundation for further exploration of atmospheric science and environmental studies.

CBSE Class 6 Science Notes Chapter 15 Important Questions

Here are some important questions from CBSE Class 6 Science Chapter 15 - Air Around Us:

1) What is air? Discuss its composition.
Air is the mixture of gases that envelops the Earth's surface. It consists mainly of nitrogen (about 78%), oxygen (about 21%), carbon dioxide, and traces of other gases such as argon, helium, and methane.

2) Explain how oxygen becomes available to aquatic organisms in water.
Oxygen becomes available to aquatic organisms in water through the process of diffusion. Oxygen dissolves in water from the atmosphere and is taken up by aquatic organisms through their respiratory organs or directly through their body surface.

3) Describe the role of oxygen in soil and its importance for plant growth.
In soil, oxygen is present in the air spaces between soil particles. It is crucial for the survival of soil organisms and the growth of plant roots. Oxygen in soil is replenished through the process of soil aeration, which occurs when air moves through the soil pores.

4) How is the process of photosynthesis related to the replenishment of oxygen in the atmosphere?
The process of photosynthesis carried out by green plants plays a crucial role in replenishing oxygen in the atmosphere. During photosynthesis, plants utilize carbon dioxide from the air and water from the soil to produce glucose and oxygen. This oxygen is released into the atmosphere as a byproduct.

5) Discuss the significance of air for the survival of living organisms on Earth.
Air is essential for the survival of living organisms on Earth as it provides oxygen for respiration, regulates temperature, and plays a vital role in various ecological processes such as the water cycle and pollination.

6) Explain the role of air in the movement of wind-driven vehicles like sailing yachts and airplanes.
Air enables the movement of wind-driven vehicles like sailing yachts and airplanes by providing the necessary medium for lift and propulsion. Sailing yachts utilize the force of

the wind to propel them forward, while airplanes generate lift using their wings to overcome the force of gravity.

7) How does air aid in the dispersal of seeds and pollen grains of plants?
Air aids in the dispersal of seeds and pollen grains of plants through the process of wind pollination and seed dispersal. Wind carries pollen grains from one flower to another, facilitating fertilization, while seeds are dispersed by wind to new locations for germination.

8) Describe the various layers of the Earth's atmosphere and their characteristics.
The Earth's atmosphere is divided into several layers based on temperature variations and composition. These layers include the troposphere, stratosphere, mesosphere, thermosphere, and exosphere. Each layer has distinct characteristics and plays a unique role in the Earth's atmosphere.

9) Discuss the importance of air in the water cycle and its influence on weather patterns.
Air plays a significant role in the water cycle by facilitating the evaporation of water from oceans, lakes, and rivers, which forms clouds. These clouds then release precipitation in the form of rain or snow, contributing to the replenishment of water sources on Earth.

10) Explain the concept of air pollution and its impact on human health and the environment.
Air pollution refers to the presence of harmful substances or pollutants in the air, such as particulate matter, sulfur dioxide, nitrogen oxides, and carbon monoxide. It can have adverse effects on human health, causing respiratory problems, cardiovascular diseases, and even premature death. Air pollution also impacts the environment by contributing to climate change, acid rain, and ozone depletion.

11) How does air help in the process of respiration in humans and other animals?
Air contains oxygen, which is essential for the process of respiration. During respiration, organisms inhale air containing oxygen, which is then transported to cells in the body via the bloodstream. Oxygen is utilized by cells to generate energy through the process of cellular respiration, while carbon dioxide, a waste product, is expelled from the body during exhalation.

12) Explain the role of air in maintaining atmospheric pressure.
Air exerts pressure on the Earth's surface due to the weight of the air molecules above it. This pressure, known as atmospheric pressure, varies with altitude and weather conditions. Atmospheric pressure is crucial for maintaining the equilibrium of gases in the atmosphere and supporting life on Earth. It also influences weather patterns and helps in the distribution of heat across the planet.

13) How does air play a role in the dispersal of seeds and pollen grains?
Air aids in the dispersal of seeds and pollen grains through various mechanisms such as wind dispersal, animal dispersal, and water dispersal. Wind dispersal involves the release of lightweight seeds or pollen grains into the air, where they are carried away by the wind to new locations for germination. Similarly, pollen grains are transported by wind to fertilize flowers of the same or different plant species, facilitating pollination and reproduction.

14) Discuss the significance of air in weather and climate.
Air plays a crucial role in determining weather and climate patterns on Earth. The movement of air masses, temperature variations, humidity levels, and atmospheric pressure influence weather conditions such as temperature, precipitation, and wind speed. Climate, on the other hand, refers to long-term weather patterns observed over a specific region or area. Factors such as air circulation patterns, ocean currents, and geographical features interact to shape the climate of a region.

15) How does air pollution impact human health and the environment?
Air pollution, caused by the release of pollutants into the atmosphere from human activities such as industrial emissions, vehicular exhaust, and burning of fossil fuels, can have detrimental effects on human health and the environment.
Inhalation of pollutants such as particulate matter, sulfur dioxide, nitrogen oxides, and ozone can lead to respiratory problems, cardiovascular diseases, and other health issues. Additionally, air pollution can damage ecosystems, soil quality, water bodies, and contribute to climate change, posing significant threats to biodiversity and environmental sustainability.

CBSE Class 6 Science Notes Chapter 15 PDF

Download the PDF of CBSE Class 6 Science Chapter 15 - Air Around Us Notes and Solutions from Physics Wallah, your trusted source for high-quality study materials.
Our comprehensive notes cover all the essential topics, including the composition of air, the importance of air, different layers of the atmosphere, and more.

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CBSE Class 6 Science Notes Chapter 15 FAQs

1) What is air?

Air is a mixture of gases that surrounds the Earth. It consists mainly of nitrogen (about 78%) and oxygen (about 21%), along with small amounts of other gases such as carbon dioxide, argon, and water vapor.

2) Why is air important?
Air is essential for life on Earth. It is necessary for respiration in humans, animals, and plants, and plays a vital role in various natural processes such as photosynthesis, weather patterns, and the water cycle.

3) How is air different from oxygen?
Air is a mixture of gases, including oxygen, while oxygen is a single gas present in the air. Oxygen makes up about 21% of the air we breathe and is crucial for sustaining life.

4) What is the role of air in the water cycle?
Air plays a significant role in the water cycle by transporting water vapor from the Earth's surface into the atmosphere through processes such as evaporation and transpiration. This water vapor eventually condenses to form clouds and falls back to the Earth's surface as precipitation.

5) How does air help in the dispersal of seeds and pollen grains?
Air aids in the dispersal of seeds and pollen grains by carrying them over long distances through wind dispersal. Seeds and pollen grains are released into the air and carried away by the wind to new locations for germination and pollination.