

Class 9 - Social Science

Understanding Society India and Beyond PART-I

Geography - Atmosphere and Climate

CBSE NOTES

Geography - Atmosphere and Climate - Practice Worksheet

Strengthen your foundation with key concepts and basic applications.



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Solve the following questions. Write your answers in the space provided.

1. What is the composition of the atmosphere?

Hint: Consider the pie chart representation of gas composition for clarity.

2. How do the different layers of the atmosphere affect Earth?

Hint: Creating a diagram of the atmosphere can help visualize the layers and their functions.



Solve the following questions. Write your answers in the space provided.

3. Explain the mechanism of monsoon winds in India.

Hint: Refer to the diagram illustrating the movement of monsoon winds.

4. How can we reduce our carbon footprint?

Hint: Consider reviewing your daily activities to identify areas for improvement in sustainability.



Solve the following questions. Write your answers in the space provided.

5. Distinguish between the troposphere and the stratosphere.

Hint: Making a table comparing the two layers could clarify their differences.

6. What factors influence temperature variations in the atmosphere?

Hint: Consider how these factors interact seasonally and over geographical distances.



Solve the following questions. Write your answers in the space provided.

7. How do local winds like sea breeze and land breeze work?

Hint: Visualizing a coastal diagram can help illustrate these local wind patterns.

8. Define climate and explain how it differs from weather.

Hint: Use examples to differentiate significant weather events from the overall climate trends.



Solve the following questions. Write your answers in the space provided.

9. Discuss the impact of climate change on weather patterns.

Hint: Research recent climate change reports for specific examples of affected regions.

10. What role does the ozone layer play in the atmosphere?

Hint: Explore the consequences of ozone depletion to understand its environmental significance.



Check your answers with the solutions below.

1. What is the composition of the atmosphere?

Solution: The atmosphere consists mainly of nitrogen (78%) and oxygen (21%), with trace amounts of argon (0.93%), carbon dioxide (0.04%), and other gases, including water vapor. Water vapor varies from 0.1% to 0.4%. Nitrogen is essential for plant growth, while oxygen is vital for respiration in animals. Diagrams can illustrate the proportions.

2. How do the different layers of the atmosphere affect Earth?

Solution: The atmosphere has five main layers: Troposphere, Stratosphere, Mesosphere, Thermosphere, and Exosphere. Each layer has distinct temperature gradients and functions. Weather occurs in the troposphere, while the stratosphere protects from UV radiation. The thermosphere aids in radio communications, and the exosphere is where gases escape into space.

3. Explain the mechanism of monsoon winds in India.

Solution: Monsoon winds are caused by the differential heating of land and sea. During summer, land heats up faster, creating low pressure over India, while the sea remains cooler. This leads to moist air from the ocean flowing inland, causing significant rainfall during the monsoon season between June and September.

4. How can we reduce our carbon footprint?

Solution: Reducing carbon footprints involves energy conservation, using public transport, recycling, and adopting renewable energy sources. Simple actions like turning off lights when not in use and using less water can contribute significantly. Individuals can measure their carbon footprint using online calculators.

5. Distinguish between the troposphere and the stratosphere.

Solution: The troposphere is the lowest layer, where weather occurs and temperature decreases with altitude. It contains most of the atmosphere's water vapor. In contrast, the stratosphere lies above it, is stable and contains the ozone layer, which absorbs UV radiation. The temperature in the stratosphere increases with altitude.



Check your answers with the solutions below.

6. What factors influence temperature variations in the atmosphere?

Solution: Temperature variations are influenced by insolation, elevation, latitude, and local weather conditions. Insolation decreases from the equator to the poles, while elevation allows cooler temperatures. Seasonal changes also affect temperature, with summers generally being hotter due to increased solar radiation.

7. How do local winds like sea breeze and land breeze work?

Solution: Sea breezes occur during the day when land heats up faster than the sea, creating a low-pressure area over land that draws air from the sea. Conversely, land breezes happen at night, as land cools quicker than the sea, causing high pressure over land and air flowing toward the sea.

8. Define climate and explain how it differs from weather.

Solution: Climate refers to the long-term average of weather conditions (usually over 30 years) in a specific area, including temperature and precipitation. Weather, however, describes the short-term atmospheric conditions at a given time. Understanding their differences is crucial in studying atmospheric phenomena.

9. Discuss the impact of climate change on weather patterns.

Solution: Climate change leads to alterations in traditional weather patterns, resulting in extreme weather events like floods, droughts, and hurricanes. It affects agricultural productivity, water availability, and biodiversity. Increased greenhouse gas emissions are a major driver of these changes.

10. What role does the ozone layer play in the atmosphere?

Solution: The ozone layer, located in the stratosphere, protects life on Earth by absorbing harmful ultraviolet (UV) radiation from the Sun. Reductions in ozone levels can lead to increased UV exposure and associated health risks, including skin cancer and cataracts.



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