NCERT Class 7 Science Chapter 7 Weather, Climate and Adaptations of Animals to Climate Summary and Notes Pdf

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NCERT Class 7 Science Chapter 7 Weather, Climate and Adaptations of Animals to Climate Introduction

Different ways the weather affects us. In the summer, we turn on fans to remain calm and wear light-colored clothing to reflect the sun's rays. To protect ourselves from the chilly environment during the winter, we dress in dark colors and cover up warmly. As it may rain any time, we wear an umbrella or raincoat throughout the rainy season. A place's weather can shift from day to day and week to week. It is a complicated phenomenon that may change in seconds (like an hour to an hour).

As a result, the weather forecast for each day is used to arrange our daily schedule. In addition, a daily weather report is presented on radio, television, and even in newspapers.

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The assessment of a location's daily atmospheric conditions, such as humidity, temperature, lightning strikes, and rainfall, is known as its weather. Snow, storms, and so on.

Different weather components include:

Rainfall

Temperature

Humidity

Snowfall

Storms

Winds etc.

A weather report often includes details on the current day's weather. The Meteorological Department of the government is a unique division that forecasts local weather and creates weather reports. The weather report is often broadcast on radio, TV, and newspapers. People should pay attention to weather prediction since it affects many daily activities. For instance, we may check whether it would rain on a specific day and pack an umbrella appropriately. A location's weather never stays the same. Every day, or even every hour, it might change. For instance, it may appear sunny where you are in the morning yet really be nighttime.

A minimum-maximum thermometer is used to record the minimum and highest daytime temperatures, which are always included in the weather report for a location. While the greatest temperature is experienced in the afternoon, the minimum temperature may be felt in the morning. A device known as a rain gauge is used to gauge rainfall in a particular area. The rain gauge features a measuring scale that establishes the amount of rainfall in that location and gathers the original precipitation.

How come the days are shorter during winter?

We are aware that the Earth revolves around the sun on an axis. As a result, owing to the Earth's rotation, a location receives different amounts of sunshine throughout the year depending on its position concerning the sun. Additionally, it causes a location's seasons to alter. For example, in the summer, a location benefits from long hours of sunshine because of its closer position to the sun. Still, in the winter, a location benefits from fewer hours of sunlight because of its further position from the sun.

Climate: The typical weather patterns over a lengthy period of time, like 25 years, are referred to as a region's climate. As an illustration, Rajasthan is a hot and dry region since its average annual temperature is high and it receives little precipitation.

Adaptation and ClimateThe living things in a region can be impacted by its climate. The creatures that inhabit a given area have adapted to the local climate in order to live. According to the local environment, animals begin to modify their characteristics and behaviors.

Polar Region: The Polar Region is the region of the planet between the North and South Poles.The arctic area experiences intense cold and significant snowfall all year round. In the arctic zone, the sun doesn't rise for six months of the year before staying up for another six. The arctic area can experience temperatures as low as -37°C. Polar bears and penguins are the two most prevalent creatures in these areas. Fish, birds, oxen, musk, reindeer, fox, whales, and seals are among the other species that live in polar regions. They have modified themselves to make it easier for them to survive in these environments.

Bird Migration in the Polar Regions

The birds frequently migrate away from the arctic regions to warmer climates in order to defend themselves from the harsh winters there. After the winter season, they come back. For instance, during the winter in Siberia, the Siberian crane migrates to India in Rajasthan, Haryana, and several North Eastern districts. "migratory birds" refers to birds that move to new locations when the weather changes. To defend themselves from the bitter cold, they might frequently travel up to 15000 miles. Every year, these birds migrate to the exact locations.

Tropical Rainforests: The Earth's tropical areas are closest to the equator and receive the most sunshine annually. These regions, therefore, have a warmer environment. In tropical areas, temperatures rise as high as 40 C and fall as low as 15 C.In some areas, the length of the day and night is about equal. However, this area is home to tropical rainforests due to the high rainfall. Many different types of plants and animals may be found in tropical rainforests. However, the animals in these areas frequently fight for food due to the dense human population.

Numerous animals have evolved to allow them to live in trees and get food quickly. As a result, these animals' skin tones tend to blend in with their environment, making it easier for them to catch prey and defend themselves from predators. Additionally, a lot of these creatures have sharper hearing and better eyesight.

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Weather is the regular state of the atmosphere in relation to the temperature, humidity, amount of precipitation, wind speed, etc.

Weather Elements

The components of the weather are defined as the following: temperature, humidity, precipitation, wind speed, and other characteristics.

1. Temperature

The sun's ability to generate heat and boost temperatures significantly impacts the weather. On Earth, the sun radiates heat and light. Therefore, the generation of energy depends on it. In addition, the Earth's surface, seas, and atmosphere absorb the sun's heat, which significantly influences the weather wherever it is.

2. Rainfall

Rainfall is the quantity of water droplets that return to the ground after condensing from water vapor. These cloud droplets freeze into ice crystals at too low a temperature, which then fall as snow on the ground. In the winter, water vapor condenses close to the ground as the temperature drops after nightfall. To create fog, these droplets linger in the atmosphere.

3. Humidity

It is described as "the quantity of airborne water vapor that results in the wetness of air." Water vapor may be held in the air to a certain extent. The ability of air to store water rises with temperature and declines during periods of heavy precipitation.

4. Wind Direction

The variation in air pressure brings it on. For example, in India, the wind comes from the Indian Ocean and the Bay of Bengal in the summer, bringing rain. In contrast, in the winter, it comes from the north Indian mountain range, bringing chilly temperatures (winter season).

Weather Forecast

Scientists who research weather changes and are called meteorologists make weather predictions. The weather may be forecast by researching weather patterns and the variables that influence them. Meteorology is the name of the science that deals with studying weather.

different sunrise and sunset times

The timing of dawn varies between the summer and the winter. For example, in June, the sun rises earlier in the morning and sets later in the evening than in December, which has an earlier sunrise and later sunset.

As a result, whereas in the summer the days are longer and the nights are shorter, the opposite is true in the winter.

Climate

"The climate of that area is the average weather pattern recorded over a long time." Different climates may be found in different parts of the world. Climate charts are annual records of long-term average temperatures and rainfall at a specific location.

Climate-Determining Elements

The several elements that affect a location's climate include

separation from the ocean A location's climate changes depending on how close the water is. In coastal areas like Mumbai and Chennai, the climate is temperate (neither too hot nor too cold). The climate is harsh in regions far from the sea, such as Delhi, with very scorching summers and bitterly cold winters.

Climate also affects altitude or height above sea level.

Adaptation and Climate

An organism's capacity to acquire traits that increase its chances of surviving in the environment in which it lives is referred to as adaptation. Animals have developed adaptations to help them exist in their environments. In other terms, an adaptation is a trait of an organism that has been favored through natural selection.

Polar Regions

Extreme cold weather is seen in the polar regions.

These regions are icy and blanketed with snow most of the year.

After setting, the sun stays down for six months until rising again.

Wintertime lows of 37 C are not uncommon.

The Arctic area is the north polar region, while Antarctica is the south polar region.

Animals that inhabit these poles have adapted to the extreme weather.

The Tropical Rainforests

The tropical region frequently encounters sweltering temperatures due to its proximity to the equator.

The temperature is above 15 degrees Celsius in winter and may reach 40 degrees Celsius in the summer.

The climate of rainforests is very suited to sustaining a massive array of different animals and plants.

The Temperate Grasslands

Tropical grasslands may be found south of the Tropic of Capricorn and north of the Tropic of Cancer (23.5 degrees North) (23.5 degrees South).

Africa's veldts, South America's pampas, Eurasia's steppes, and North America's plains are among the world's most extensive temperate grasslands.

animal Adaptation

Animals develop or adapt based on various environmental circumstances to live.

For instance, in the polar areas, where polar bears have white fur, it is difficult to see them against the pristine white backdrop.

It protects them from their natural predators.

Additionally helpful to them in capturing their prey.

They naturally have two thick coats of fur covering them to protect them from the harsh cold.

Under their epidermis, they have a layer of fat as well.

NCERT Class 7 Science Chapter 7 Weather, Climate and Adaptations of Animals to Climate Conclusion

Weather is a transient atmospheric condition that might change from time to time. 2. The climate is the long-term monitoring of atmospheric conditions in any location, such as humidity, temperature, sunlight, wind, etc.

Faq :

Q1. What kinds of creatures inhabit the polar regions?

Answer.1. Polar Bear No.

2. Whale.

3. Arctic Fox

4. Arctic Wolf

5. Pacific salmon.

6. Brown Bear

Q2. How can we reverse the effects of climate change?

Answer. 1. Reduce excessive use of natural resources

2. Avoid using or purchasing products produced by animals

3. Reduce pollution and use of plastics

Q3. Do natural factors contribute to climate change?

Answer. Yes, the following natural factors contribute to climate change:

1. Changes in the sun

2. Tsunamis and volcanic eruption

3. variations in Earth's orbit