



4. Weather and Climate



Can you tell?

The weather conditions of a few places in India are as follows on 10th June. Use the table to answer the questions.

Sr. No.	Place	State	Time	Weather
1	Kochi	Kerala	12.30 pm	Cloudy
2	Bhopal	M. P.	12.30 pm	Hot and Sunny
3	Mussoorie	Uttarakhand	12.30 pm	Cold weather, mild sun

- In which place will the clothes on a clothesline dry quickly? Why?
- In which place will they dry slowly? Why?
- Will the atmospheric conditions at these places always remain the same or will they change?

Explanation

The weather conditions at each of the places given above are different on 10th June. Kochi has cloudy weather. It means there is little sunlight. The rainy season has started and moisture in the air will be high. Hence, it will take a long time for the clothes to dry. You may have observed a similar situation at your place during the rainy season.

At Bhopal, there is hot sun. The water in the wet clothes gets converted into vapour quickly and the clothes will dry within a short time.

Mussoorie is located to the north of the Tropic of Cancer, hence it receives less solar heat. The air there is cool too due to its location on a mountain. Clothes take longer to dry here because of the medium heat and cool air. Factors like heat, moisture, and wind influence the time taken by the clothes to dry. However, these conditions keep on changing. We always experience such changes.



Can you tell?

Which of the following statements are applicable to the conditions that you have experienced today or yesterday at the place where you live?



Figure 4.1 : Boys warming themselves.

- It was cold in the morning.
- In the afternoon it became sultry.
- It rained suddenly in the afternoon.
- Cool breeze was blowing at dawn.
- Clouds gathered in the evening.
- The night sky was full of stars and a pleasant breeze was blowing.

* Weather

We all always experience atmospheric conditions prevailing at a place and at a given time. We often talk about it. But these conditions are short lived. This is what we call **weather**. For example, we say the weather is hot, cool, dry, sultry, etc.



Can you tell?

Since childhood you have experienced summers, rainy seasons and winters. On the basis of your experience answer the following questions.

- In which months do summer, the rainy season and winter occur in a year from January to December? Show it in a chart.
- Which special clothes do we use if it is raining?
- When do we use woollen clothes?
- In which season do we mainly use thin cotton clothes?

Explanation

* Climate

You must have noticed that each season lasts for a particular period and each season occurs at a particular time of the year. The scientists observe the weather in a region for many years. With the help of such studies, they define the mean weather conditions. The average weather condition of a place observed over a long period of time is the 'climate' of that region. Climate is generally expressed as 'cool and dry' or 'hot and humid' or 'hot and dry', etc.

The weather changes quite often due to changes in temperature, winds, and humidity, etc. We always experience these changes. A sum total of all these elements define 'weather'. These affect our day to day activities and life style. Elements of weather are taken into consideration while describing the climate.

* Elements of Weather

- **Temperature:** The earth's surface gets heat from the sun. As a result, the surface gets heated up. The air close to the surface starts becoming hot and later, one by one, different layers of air at higher elevation receive heat. Therefore, as we move upward from sea-level, the temperature of air decreases. The temperature also goes on decreasing from the equator towards both the poles.

- **Air pressure:** Air has weight. As a result, it creates pressure. It is called air pressure. The lowermost layers of air get subjected to the pressure of the upper layers. Hence, the density of the lower layers of air increases. There is greater air pressure near the surface of the earth and it decreases with increasing height. This is vertical air pressure. These changes also occur in a horizontal manner. This gives rise to winds.

- **Winds:** Air starts moving from high pressure towards low pressure areas in a horizontal direction. This moving air is called wind. Wind blows from high to low pressure areas and its speed depends on the amount of difference in air pressure.

- **Moisture:** The atmosphere contains vapour. The air that has greater amount of vapour is called humid air. The humidity in the atmosphere is called moisture. The proportion of moisture in the atmosphere depends on temperature. Air with higher temperature holds a greater amount of moisture.

- **Precipitation:** Vapour in the atmosphere condenses into water droplets or snow particles. Their showering on the earth is called precipitation. Rainfall, snowfall, hailstorm, etc. are forms of precipitation.

Weather is described on the basis of the conditions prevailing at the given time while climate is described on the basis of conditions prevailing over a longer period of time. Weather keeps changing frequently and we can experience the changes easily. Changes in the climate take place over a long period of time. These are not perceived easily.

Latitudinal position, height above sea level, nearness to ocean, oceanic currents, etc. are the factors that influence climate. Besides these, mountain ranges, types of land, local winds are other factors that influence the climate of a region.



Use your brain power!

1. Which occupations will you practise in cold regions?
2. Which occupations will you practise in hot regions?



In the next chapter, we shall seek more information about temperature.



Always remember.

The weather at a place keeps changing frequently but the climate does not change that often. The climate is different at different locations. Within our country – India – it is cool at some places and hot at some other places. It may be humid in some areas and dry in others.



I can do this!

- Describe the weather of surrounding areas.
- Understand the changes taking place in the weather from time to time.
- Discuss the changes in climate considering the elements of weather.
- Explain the difference between weather and climate.



Do you know?

The climate affects the entire living world in different ways. Life mostly thrives in regions which have a conducive climate. The climate also influences the diet, shelter, etc. of living things. The distribution of water on the earth is also a controlling factor of the climate.



Exercises

(A) Who am I?

- I keep on changing.
- I am not the same at all places.
- I am the solid state of water droplets.
- I am present in the atmosphere in the form of vapour.

(B) Answer the following:

- Why is the climate of Mahabaleshwar cool?
- Why is the climate near the sea humid?
- What is the difference between weather and climate?
- What are the elements of weather?
- What effects do nearness to the sea and height above mean sea level have on the climate?

(C) For the climatic conditions mentioned in the table, name the representative places known to you. (Use an atlas.)

Hot	
Hot and humid	
Cold	
Hot and dry	
Cold and dry	

(D) Complete the following table.

Weather	Climate
Short-lived condition of atmosphere	
	Does not change quickly
Expressed with respect to a specific place	
	Elements of climate: Temperature, pressure, winds, humidity and precipitation

* Activity

Understand the climate of your place with the help of your teacher.





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