

Ch-7-Weather, Climate and Adaptations of Animals to Climate

Weather

Climate

Climate and Adaptation

Adaptation of Polar Bear

Adaptation of penguin

The Tropical Rainforests

Adaptation of animals living in tropical rainforest

Weather

The day to- day condition of the atmosphere at a place with respect to the temperature, humidity, rainfall, wind-speed, etc is called the weather at that place. The temperature, humidity, and other factors are called the elements of the weather. The weather of a place changes day after day and week after week.



Elements of weather

Humidity is the amount of moisture present in the atmosphere. The **wind speed** can be measured with the help of an **anemometer**.

The **rainfall** is the quantity of water, expressed in inches, precipitated as rain, snow, hail, or sleet in a specified area and time interval. Rainfall can be measured by an instrument called **rain gauge** which consists of a measuring cylinder with a funnel at the top to collect rain water.

The hotness or coldness of an object or environment is called its **temperature**. The maximum temperature is recorded in the afternoon and the minimum temperature recorded in the early morning with the help of maximum and minimum thermometer. It signifies about the weather of that place.

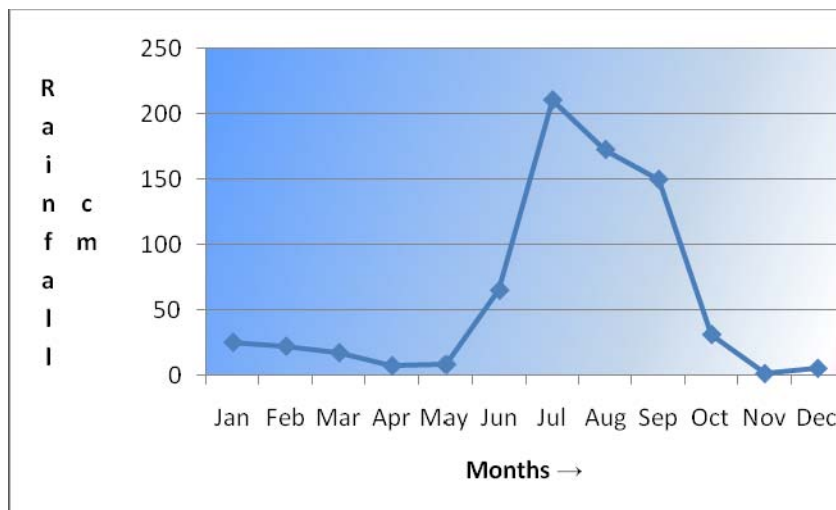
The **sun** is the ultimate source of energy on earth and causes changes in the weather. Energy absorbed and reflected by the earth's surface, oceans and the atmosphere play important roles in determining the weather at any place.



Climate

The average weather pattern taken over a long period of time is called the climate of the place. For example the climate of Rajasthan is hot and dry due to the high temperature most of the year whereas north eastern regions have a wet climate. The below given data interprets the maximum and minimum temperature and rainfall of Delhi. The graph shows the variation in the rainfall in Delhi throughout the year.

ANNUAL TEMPERATURE & RAINFALL CHART			
Months	Max	Min	Rainfall
January	21	07	25
February	24	10	22
March	30	15	17
April	36	21	07
May	41	27	08
June	40	29	65
July	35	27	211
August	34	26	173
September	34	25	150
October	35	19	31
November	29	12	01
December	23	08	05



Climate and Adaptation

The climate influences the plants and the animals also. The plants and animals adapt according to the climatic conditions prevailing in that region.

Features and habits that help plants and animals to adapt to their surroundings as a result of the process of evolution are called adaptation.

The effect of climate on the animals living in a particular region and the adaptation of these animals to that climate is described below.

The Polar region

Climate

Polar Regions are the ice-covered regions around the far south and north ends of the globe. These two freezing global terminal points are recognized as the North and South Pole.

The Polar Regions remain wrapped up in thick ice-blanket throughout the year. The weather is very cold, far below freezing temperatures, all year.

Weather plays a wild game in the Polar Regions. During the winter, the sun never rises for six months at a stretch and in the summer the sunshine, no matter how much gleam, refuses to put off for next half of the year.

Animals

Polar bears, penguins, seals, whales, and walrus, many types of fishes, musk oxen, reindeers, foxes and birds are a few of the wildlife that live in these very cold regions.



Adaptation of Polar Bear

Many of the adaptation seen in polar bear help to regulate body temperature, make hunting easier and increase the efficiency of movement both in and out of the water.

- A polar bear has a layer of fat under its skin which helps it stay warm. It also has a thick layer of fur.
- The wide, large paws help a polar bear to walk in the snow and the thick claws are frequently used to tear away the flesh of preyed upon organisms and to navigate through the carcasses of the dead animals.
- When a polar bear swims under water it closes its nostrils so no water can get in. Their distinct swimming abilities probably source from their joined toes (webbed feet).
- They have a strong sense of smell so that it can catch its prey for food.
- The white fur helps them blend in with the snow and makes it difficult for its predator and prey to recognize them.



Adaptation of penguin

- The penguins are white and merge well with the white background.
- They huddle together which keeps them warm.
- They have thick skin and a lot of fat to protect it from cold.
- Their bodies are streamlined and their feet have webs, making them good swimmers.
- Penguins have almond shaped glands beneath their skin above the eyes that enable them to filter excess salt from the ocean.



The migratory birds like the Siberian cranes fly almost 15000 km every year to escape extreme cold conditions. The cold conditions allow them to disperse the heat generated by their flight muscles.

The Tropical Rainforests

Climate

In an average year in a tropical rain forest, the climate is very humid because of all the rainfall, which amounts between 150 cm to 250 cm per year.

The rain forest has lots of rain because it is very hot and wet. This climate is found near the equator. There is no dry season.

The relative humidity is always high. This type of climate in the tropical rain forest is known as equatorial climate.



The temperature during the day is around 30°C - 35°C. At night it drops to between 20°C - 25°C.

Tropical rainforests are found in Western Ghats and Assam in India, Southeast Asia, Central America and Central Africa.

Plants and Animals

About half of the world's plant species can be found in the rain forest. Since it is warm and rains the whole year, forests stay green.

Trees lose their leaves and immediately grow new ones. The rain forest is the home of many plants: lianas, ferns, orchids and many kinds of tropical trees.

Fish, reptiles, birds and insects also live in the rain forest and its rivers. Plants and animals need each other to survive.

Since a wide range of animals inhabit the rainforest there is a severe competition for the resources.

Adaptation of animals living in tropical rainforest

The animals have sensitive hearing, sharp eyesight and thick skin. Their skin colour helps them to camouflage by blending with the surroundings.

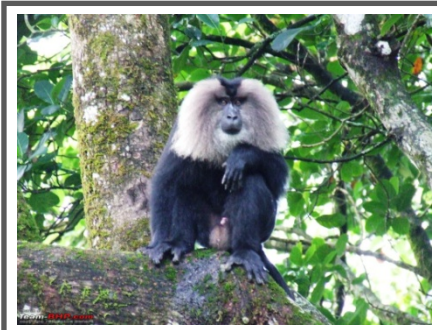
Red-eyed frog

- Red-eyed frog has developed sticky pads on its feet to help it climb trees on which it lives.
- They have long tails for grasping branches.
- Their hands and feet are such that they can easily hold on to the branches.



The bird Toucan possesses a long, large beak that helps it to reach the fruits on branches which are otherwise too weak to support its weight.

The lion-tailed macaque



- Its silver-white mane surrounds the head from the cheeks down to its chin.
- It is a good climber and spends a major part of its life on the tree.
- This animal also searches for insects under the bark of the trees.

Elephant

- It uses its trunk as a nose because of which it has a strong sense of smell.
- The trunk is also used by it for picking up food.
- Its tusks are modified teeth which can even tear the bark of trees.
- Large ears of the elephant help it to hear even very soft sounds.

