**WEATHER**

* 1. **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.**

Elements of

weather

***Precipitation :***

In [meteorology](https://en.wikipedia.org/wiki/Meteorology), precipitation is any product of the [condensation](https://en.wikipedia.org/wiki/Condensation) of atmospheric [water vapor](https://en.wikipedia.org/wiki/Water_vapor) that falls under gravitational pull from clouds. The main forms of precipitation include [drizzling](https://en.wikipedia.org/wiki/Drizzling), [rain](https://en.wikipedia.org/wiki/Rain), [sleet](https://en.wikipedia.org/wiki/Rain_and_snow_mixed), [snow](https://en.wikipedia.org/wiki/Snow), [ice pellets](https://en.wikipedia.org/wiki/Ice_pellets), [graupel](https://en.wikipedia.org/wiki/Graupel) and [hail](https://en.wikipedia.org/wiki/Hail).

Pasted from <<https://en.wikipedia.org/wiki/Precipitation>>

***Meteorology*** is a branch of the atmospheric sciences (which include atmospheric chemistry and atmospheric physics), with a major focus on weather forecasting. The word meteorology is from the Ancient Greek **μετέωρος** metéōros (meteor) and -λογία -logia (-(o)logy), meaning "the study of things high in the air."

Pasted from <<https://en.wikipedia.org/wiki/Meteorology>>

***Humidity:***

Humidity is the concentration of water vapour present in the air. Water vapor, the gaseous state of water, is generally invisible to the human eye. Humidity indicates the likelihood for precipitation, dew, or fog to be present.

Pasted from <<https://en.wikipedia.org/wiki/Humidity>>

**INDIA METEOROLOGICAL DEPARTMENT**

The agency has gained in prominence due to the significance of the monsoon rains on Indian agriculture. It plays a vital role in preparing the annual monsoon forecast, as well as in tracking the progress of the monsoon across India every season

IMD also operates seismic monitoring centres at key locations for earthquake monitoring and measurements.

After a tropical cyclone hit Calcutta in 1864, and the subsequent famines in 1866 and 1871 due to the failure of the monsoons, it was decided to organise the collection and analysis of meteorological observations under one roof. As a result, the India Meteorology Department was established in 1875.

Pasted from <<https://en.wikipedia.org/wiki/India_Meteorological_Department>>

**Rain Gauge:**

The first standardized **rain gauge** was **invented** in 1441 in Korea. In 1662 the first tipping bucket **rain gauge** was **invented** in Britain by Christopher *Wren and Robert Hooke*.

**Maximum and minimum thermometer:**

**working :** <https://youtu.be/QHbqzhWKbwU>

*Weather* :

* can vary greatly over a day.
* Max temperature is generally in the afternoon and minimum is generally in the early morning.
* Sun is the main cause of the changes in the weather. Energy absorbed by the surface, ocean, atmosphere and that determines the weather at a place.

**CLIMATE**

**Climate:** the average weather *pattern*  of a place over a long period of time , say 25 years .

e.g.

hot

hot and wet

hot and dry ( desert)

cold

cold and dry

cold and wet

Tropical

Tropical wet - dry

Tropical wet

Desert

Arid :

Polar :

Tundra:

treeless polar desert found in the high latitudes in the polar regions, primarily in Alaska, Canada, Russia, Greenland, Iceland, and Scandinavia, as well as sub-Antarctic islands.

Mediterranean:

**Climate and adaptation ( of animals ) :**

**POLAR REGIONS :**

***POLAR BEARS*** in Arctic Region :

* + white fur - caomouflage ( defence and attack )
  + two thick layers of fur - protects from extreme cold
  + layer of fat under the skin - Insulator , *have to move slowly and rest often to avoid getting overheated*
  + Good swimmer - can close nostrils and remain underwater for long
  + large and wide paws
  + strong sense of smell like all bears

Crew surrounded by 13 Polar bears :

<https://youtu.be/Vi-33aj12xw>

**PENGUINS (Antarctica )**

**Antarctica map**

All about Penguins of the southern ocean :

<https://world.expeditions.com/expedition-stories/stories/meet-the-penguins-of-the-southern-ocean/>

Features of Penguin:

* + black and white - camouflage
  + thik skin and lots of fat - protection from cold
  + huddling for warmth
  + Good swimmers and great divers
  + streamlined body and webbed feet

**other animals in polar region :**

**Fishes**

**Musk Oxen**

**Reindeers**

**Foxes**

**Seals**

**Whales**

**Birds**

Bird migration

siberian crane - rajasthan

**TROPICAL RAINFORESTS :**

* Climate : Hot and humid
* plenty of animals and vegetation