ATOMIC ENERGY CENTRAL SCHOOL-1, TARAPUR

MODULE NO.- 2/3

LESSON- 4

AIR

SOCIAL SCIENCE – GEOGRAPHY

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WEATHER AND CLIMATE

- **Weather –** It is an hour- to- hour, day to day condition of the atmosphere.

  Example- a hot or humid, cloudy or sunny, pleasant or breezy, rainy weather,

- Weather can change dramatically from day to day.

- **Climate –** The average weather condition of a place for a longer period of time represents the climate of a place.

TEMPERATURE

- The degree of hotness and coldness of the air is known as temperature.
- The temperature we feel everyday is the temperature of the atmosphere.
- It changes not only between day and night but also from season to season. Summers are hotter than winters.

Factor influencing the distribution of temperature

- **Insolation** influences the distribution of temperature.

  (**Insolation** is the incoming solar energy intercepted by the earth.)
- The amount of insolation decreases from the equator towards the poles. Therefore, the temperature decreases in the same manner.
- Temperature in cities is much higher than that of villages. The crowded high rise buildings of the cities trap the warm air and thus raise the temperature of the cities.

Do you know?

- The standard unit of measuring temperature is **degree Celsius.**
- It was invented by Anders Celsius.
- On the Celsius scale the water freezes at 0 °C and boils at 100 °C.

Anders Celsius

Born	27 November 1701 Uppsala, Sweden
Died	25 April 1744 (aged 42) Uppsala, Sweden
Nationality	Swedish
Alma mater	Uppsala University
Known for	Celsius
Scientific career	
Fields	Astronomy, Physics, Mathematics, Geology
Signature	

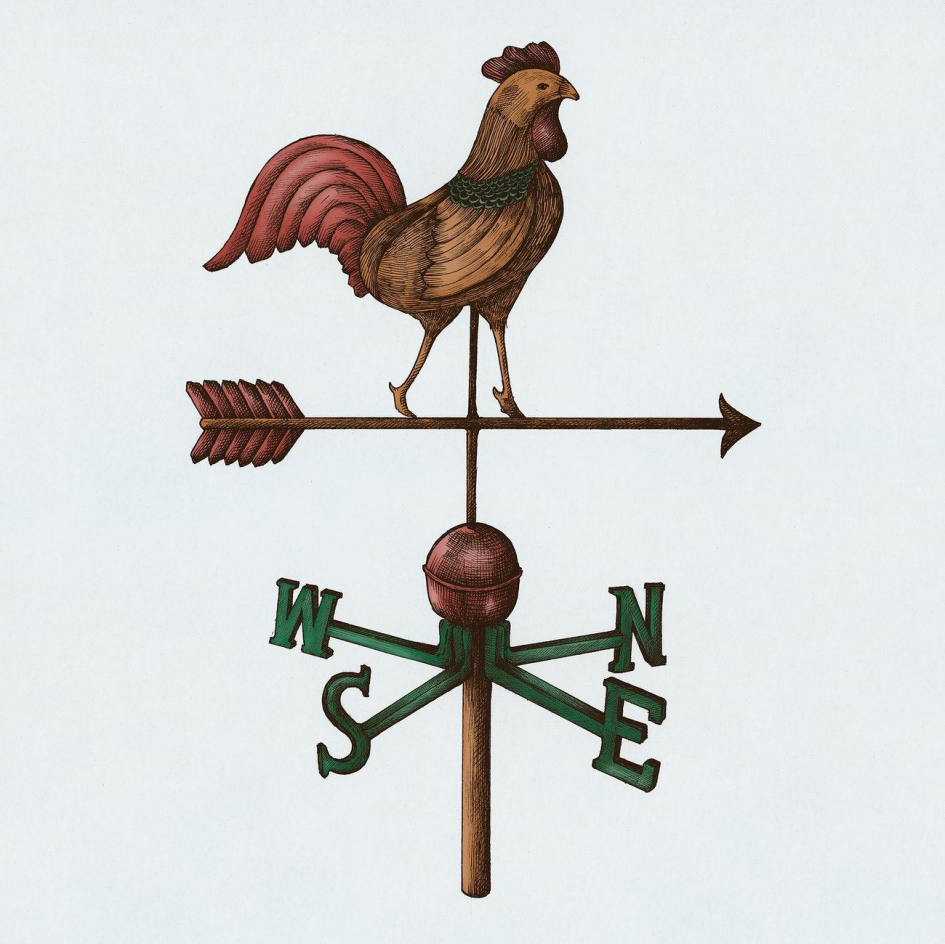
WEATHER INSTRUMENTS

Thermometer: It is an instrument that measures temperature.

Barometer: It measures atmospheric pressure.

Rain gauge: It measures the amount of rainfall.

Wind vane: It shows the direction of the wind.



AIR PRESSURE

- **Air pressure** is defined as the pressure exerted by the weight of air on the earth's surface.
- Air above us presses us with a great force on our bodies but we don't even feel it because the air presses us from all directions and our body exerts a counter pressure.
- As we go up the layers of atmosphere, the pressure falls rapidly.
- The air pressure is highest at sea level and decreases with height.
- Horizontally the distribution of air pressure is influenced by the temperature of the air at a given place.

LOW-PRESSURE AREA

- In areas where temperature is high the air gets heated and rises. This creates a low-pressure area.
- Low pressure is associated with cloudy skies and wet weather.

HIGH PRESSURE AREA

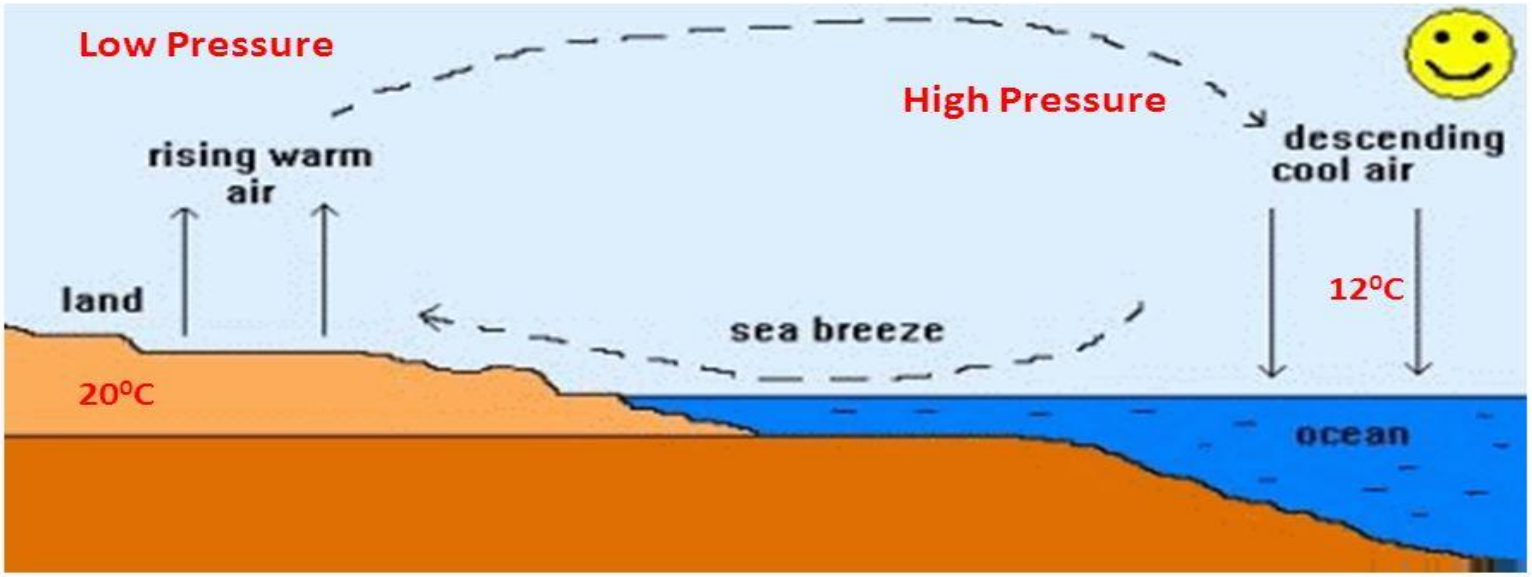
- In areas having low temperature, the air is cold. It is therefore heavy. Heavy air sinks and creates a high pressure area.
- High pressure is associated with clear and sunny skies.
- Very important thing to keep in mind-

The air always moves from high pressure areas to low pressure areas.

Air movement

Sea Breeze

In the day time the land heats faster than the water.
The rising warm air over the land creates a low pressure.



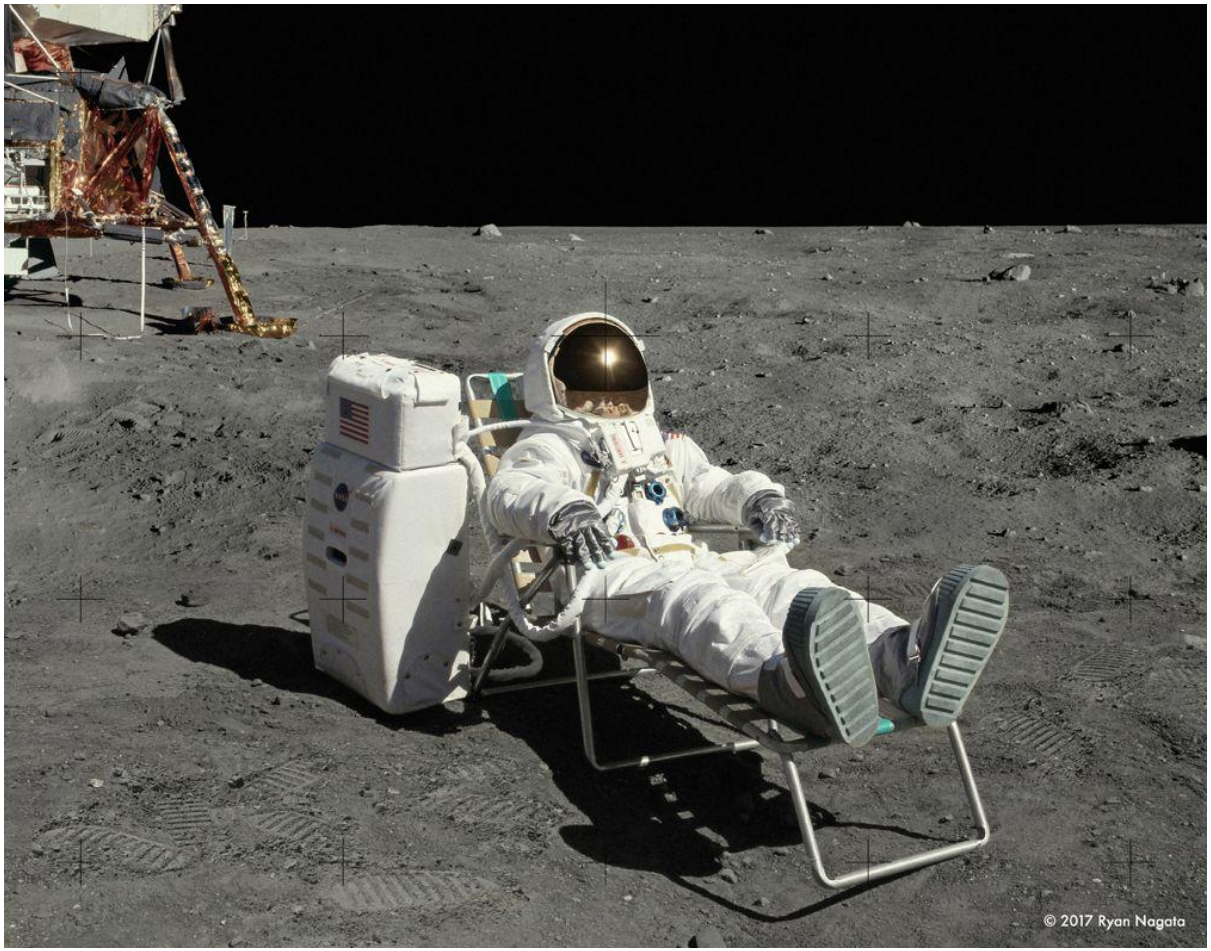
The water is cooler, the falling cool air creates a high pressure.

Sea Breeze – winds blow from the sea (high) to the land (low).

DO YOU KNOW?

- On the moon there is no air and hence no air pressure.
- Astronauts have to wear special protective space suits filled with air when they go to the moon.
- If they didn't wear these space suits, the counter pressure exerted by the body of the astronauts would make the blood vessels burst. The astronauts would bleed.

Astronaut testing the space suit on the Moon



WIND

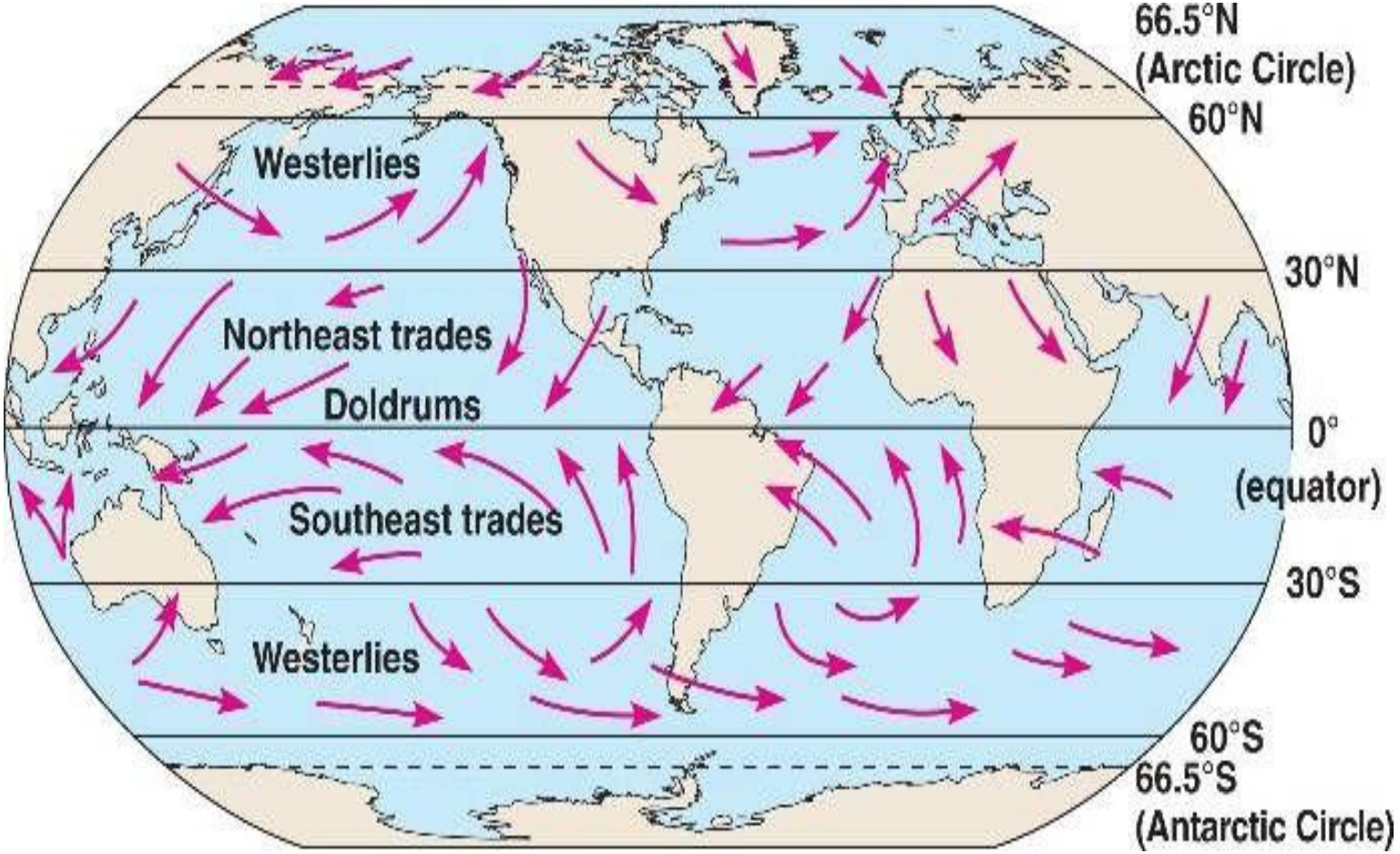
- The movement of air from high-pressure areas to the low-pressure areas is called Wind.
- We can see wind at work as it blows dry leaves or uproots trees during a storm.
- At times wind can be strong that it is difficult to walk against it or to hold an umbrella on a windy day.

The wind blows because of differences in air pressure.

DO YOU KNOW?

- A wind is named after the direction from which it blows, e.g. the wind blowing from the west is called westerly.

Westerlies


66.5°N
(Arctic Circle)
60°N
Westerlies
30°N
Northeast trades
Doldrums
0°
(equator)
Southeast trades
30°S
Westerlies
60°S
66.5°S
(Antarctic Circle)

CONT. TO MODULE NO.-3/3