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CLASS – 7

SOCIAL SCIENCE

Exploring Society : India and Beyond

CH –2
Understanding the Weather

Part – 3

Atmospheric Pressure, Wind

Sukhdeep Kaur

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OVERVIEW

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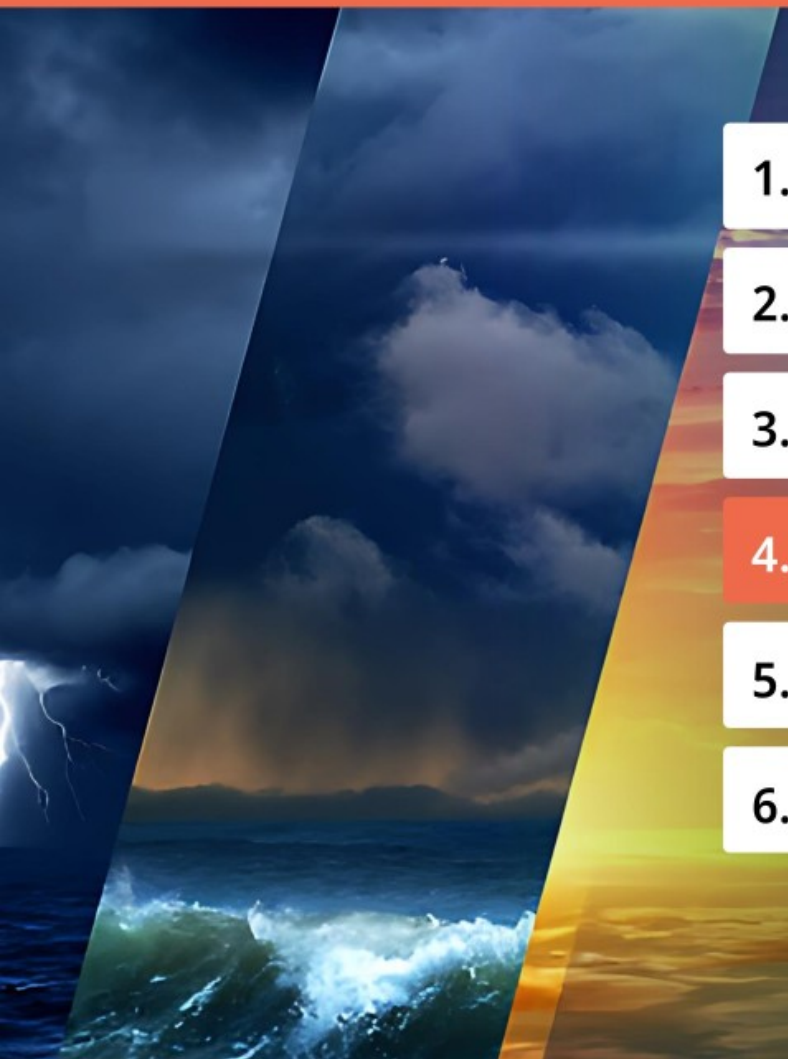

1. Weather and its element
2. Observing Nature's clues
3. Weather Instrument : Temperature, Precipitation
4. Weather Instrument : Atmospheric Pressure, Wind
5. Weather Instrument : Humidity
6. Weather Station

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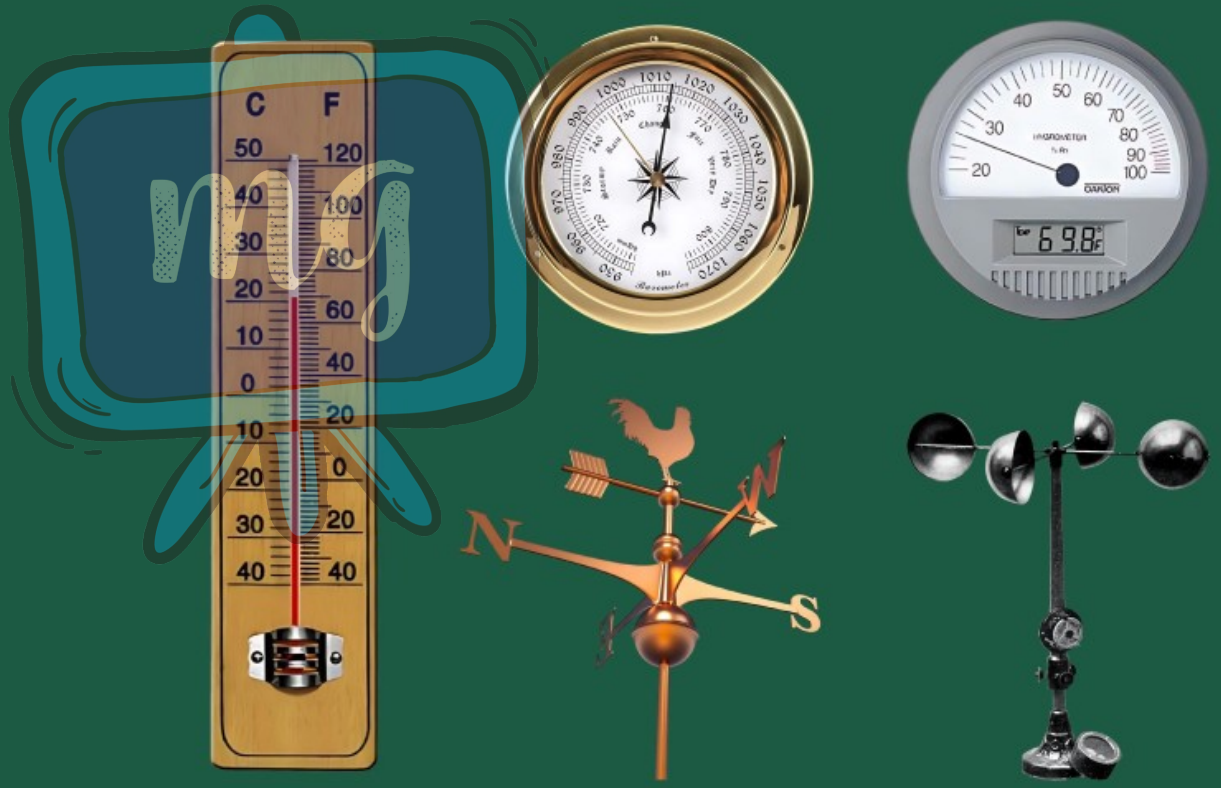
WEATHER INSTRUMENT



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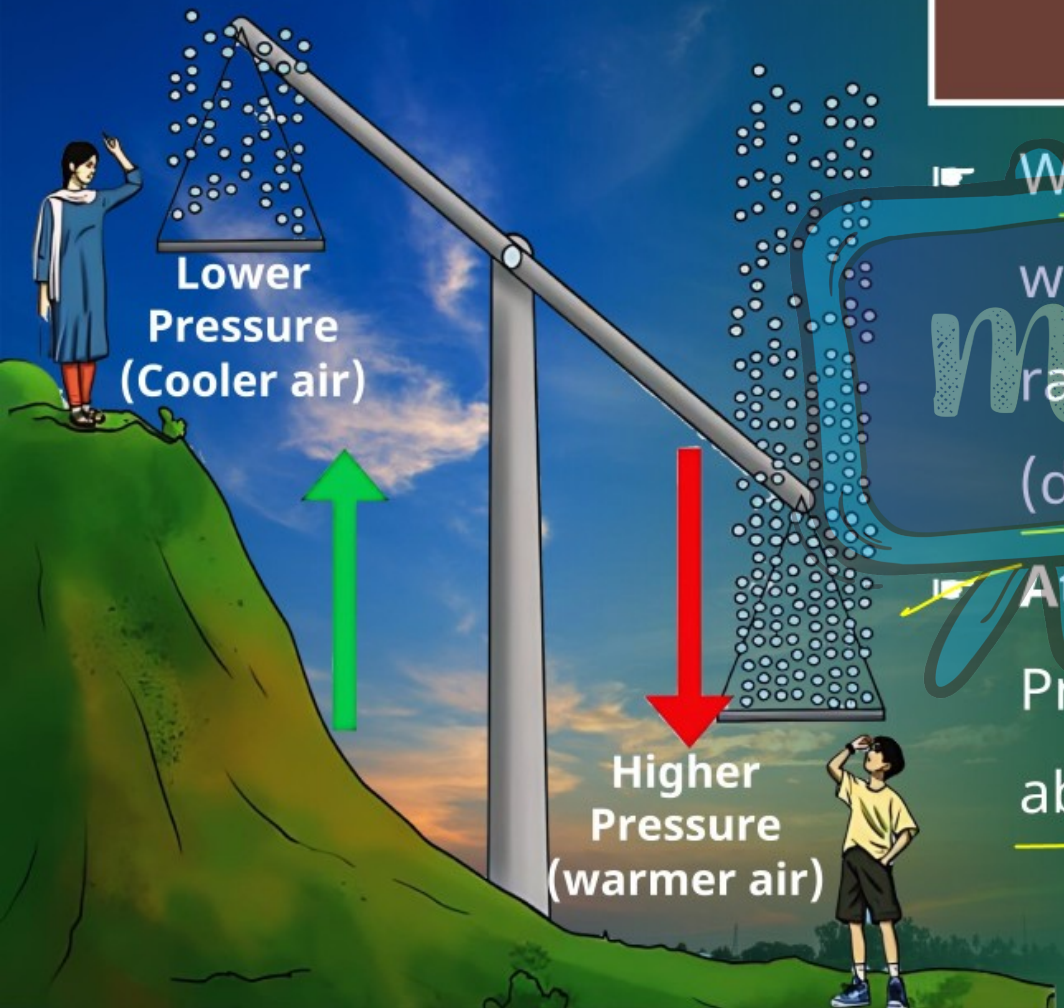
ATMOSPHERIC PRESSURE



- Weather Sensation : Body can feel weather changes like temperature, rainfall, and 'heaviness' before storms (due to air pressure).
- **Atmospheric Pressure**

  Pressure exerted by the weight of air above us.

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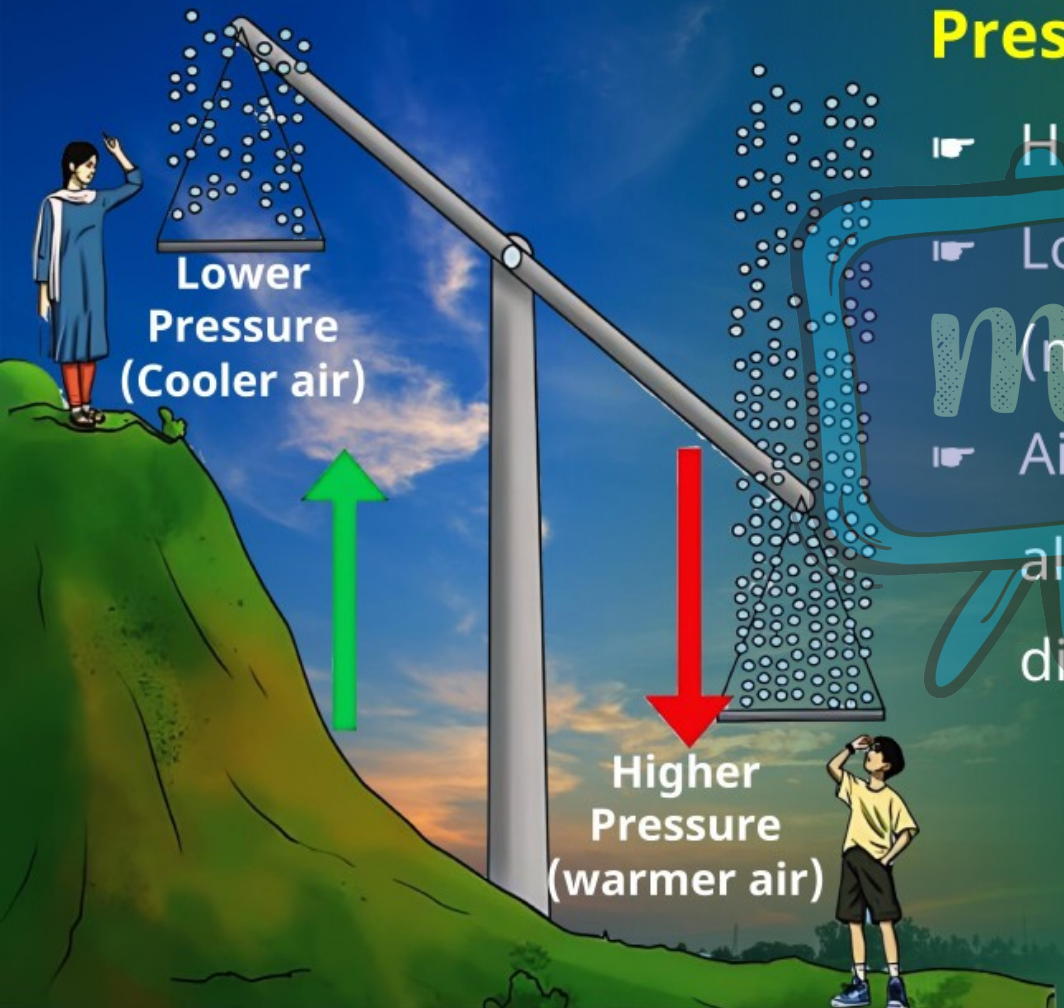

Pressure & Altitude

- High pressure at sea coast.
- Low pressure at high altitudes (mountains).
- Air is thinner with less oxygen at higher altitudes → causes breathless, dizziness, fatigue.

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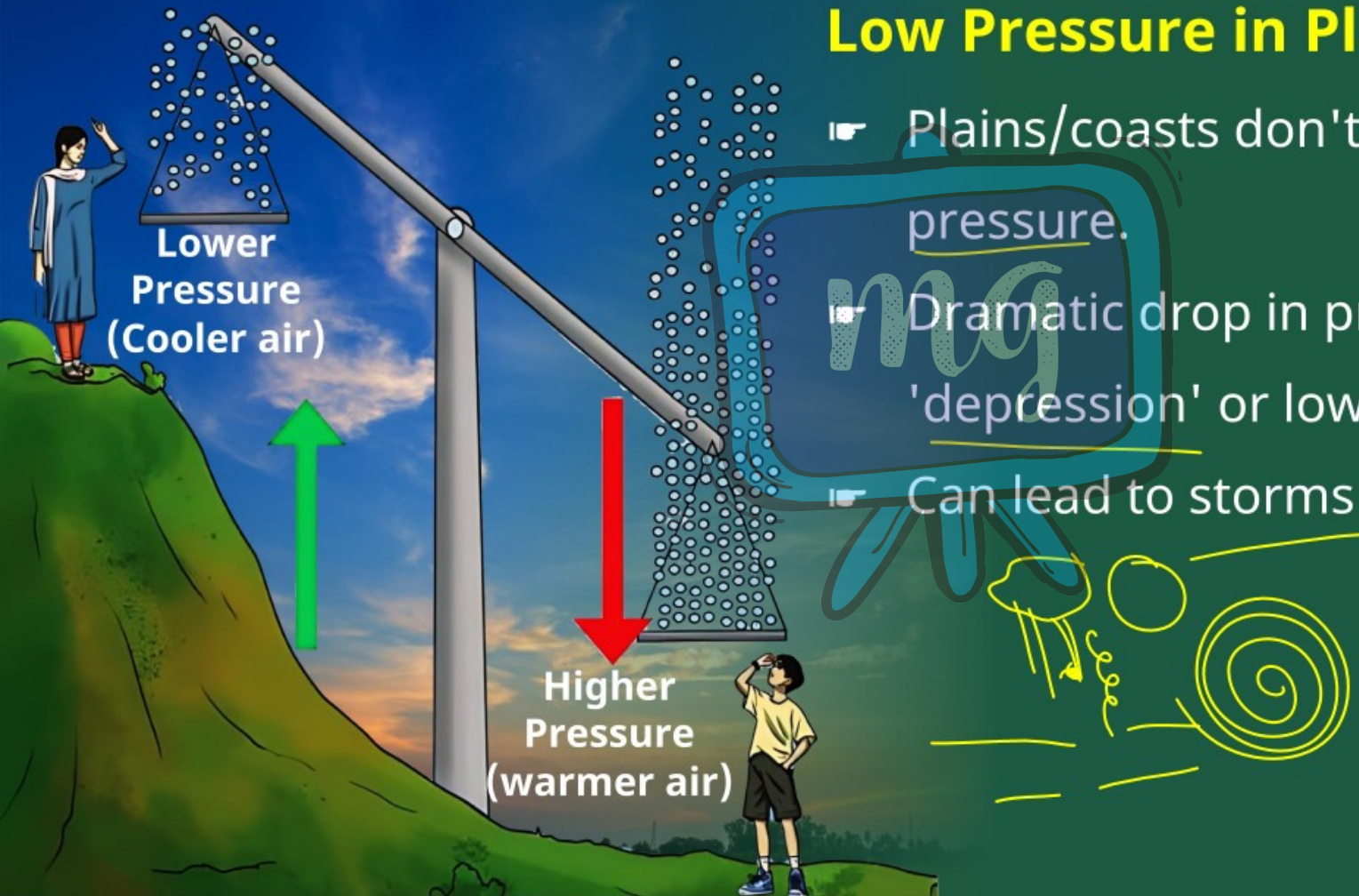

Low Pressure in Plains

- Plains/coasts don't always have high pressure.
- Dramatic drop in pressure can cause a 'depression' or low-pressure system.
- Can lead to storms or cyclones.

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Measuring Atmospheric Pressure

- Instrument : Barometer
- Types : Different kinds, like thermometers
- Unit of Measurement : Millibar (mb)
- Normal Pressure at Sea coast : ~1013 mb
- Depression Indicator : Pressure below 1000 mb signals a low-pressure system or depression.

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Acclimatise

- Adjust to a new climateor new condition.
- High Altitude Acclimatisation People going to high altitudes should take pauses to let the body acclimatise.
- Example : Army Soldiers serve in places like Khardung La, Ladakh (5600+ m above sea level).

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- Challenge : Very low oxygen and low atmospheric pressure.
- Pressure at High Altitude : Around 650 millibars at Khardung La.



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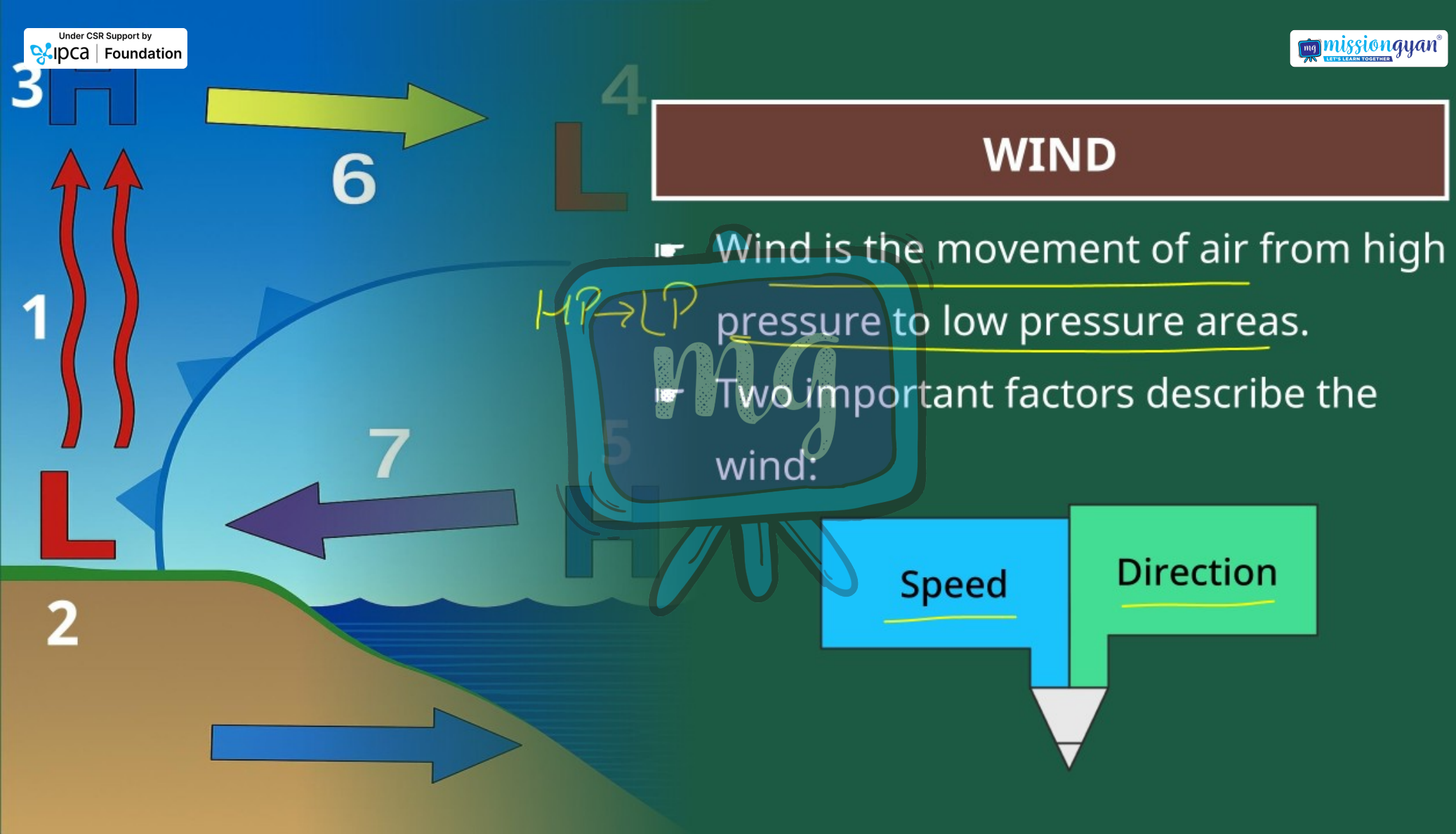

WIND

- Wind is the movement of air from high pressure to low pressure areas.
- Two important factors describe the wind:

Speed

Direction

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Importance

- Crucial for weather forecasting.
- Used by –
  - Pilots
  - Sailors
  - Farmers
- Helps predict rain and affects soil drying.





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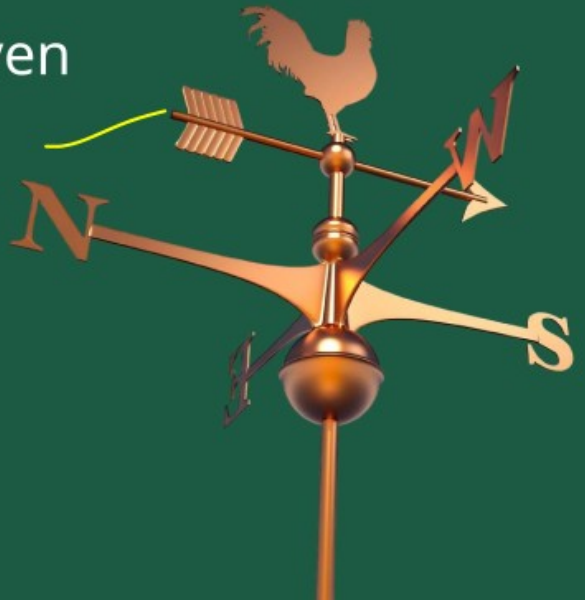
Measurement Tool

- Wind Vane (Weather Vane)
- Has a pointer and tail
- Rotates to show wind direction
- Responds to even light breezes



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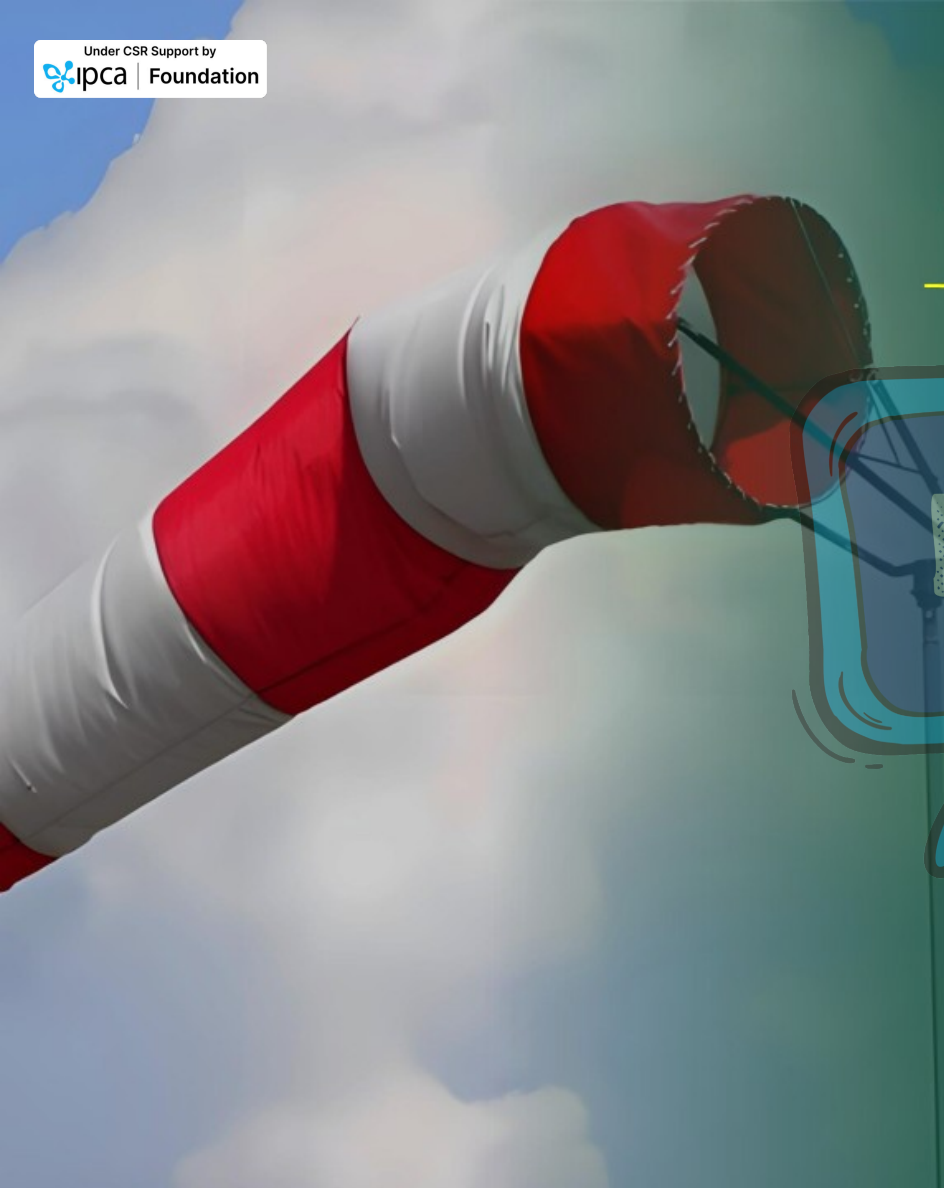

Wind Sock

- Type of Wind Vane : Called a wind sock.
- Location: Found on airport tarmacs.
- **Purpose**
  - Shows wind direction.
  - Helps pilots during take-off and landing.

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☛ Industrial Use

- ✧ Used in factories or industries.
- ✧ Indicates direction of ash or gas release.



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Anemometer

☛ **Purpose :** Measures wind speed and direction

☛ **Structure**

- ✧ Has 3 or 4 metal cups on a Vertical shaft
- ✧ Cups rotate when wind blows
- ✧ Stronger wind = faster rotation

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☛ Work

- ✧ A meter counts rotations over time
- ✧ Calculates wind speed in km/h



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LEARNING OUTCOMES

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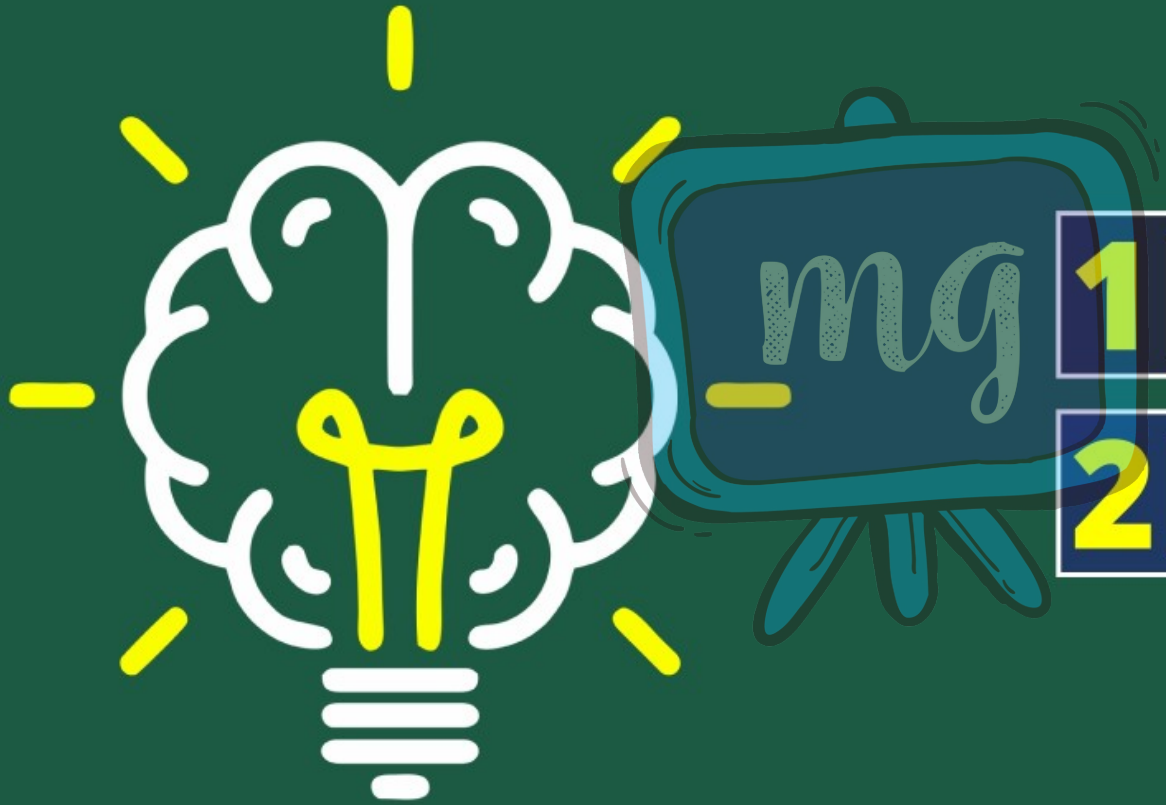

1. Atmospheric Pressure
2. Wind



1 What is the atmospheric pressure at sea level approximately?

A 1013 mm

B 1013 mb

C 1000 cm

D 980 mb



2 Which instrument is used to measure atmospheric pressure?

A Thermometer

B Wind vane

C Anemometer

D Barometer



3 Wind moves from:

A Low pressure to high pressure

B High pressure to low pressure

C East to West

D South to North