



Weather

Requirement 1

Explain how each of the following is formed:

Fog

- Fog = When water vapor condenses into tiny liquid water droplets that are suspended into the air.

Rain

- Rain = Droplets of water that fall from clouds

Dew

- Dew = Natural form of water, formed as water vapor condenses

Sleet

- Sleet = Rain or melted snow that freezes into ice pellets before hitting the ground

Hail

-Hail = Forms on condensation nuclei such as dust, insects, or ice crystals, when super cooled water freezes on contact

Frost

- Frost = When an outside surface cools past the dew point

Requirement 2

Identify either in the sky or from pictures the following types of clouds:



Cirrus



Associated with fair weather

Cumulus



During cool and rainy weather

Stratus



Usually bring precipitation, although if sufficiently low in altitude to become fog, drizzle or mist may result.

Nimbus



Found during rain storms

Requirement 3

What kind of weather is associated with each?

- Mercury or Spirit thermometer

Both have similar functions however unlike the mercury thermometer the contents of a spirit thermometer are less toxic and will evaporate quickly

- Mercury barometer

The simplest device to measure atmospheric pressure at a location. It consists of a glass tube closed at one end immersed in a container filled with mercury.

- Aneroid barometer

An instrument used for measuring pressure as a method that does not involve liquid

- Rain gauge

An instrument used by meteorologists and hydrologists to gather and measure the amount of liquid precipitation over an area in a predefined period of time

Requirement 4

Why is it possible to be rainy on one side of the mountain range and dry on the other?

Orographic lift - Occurs when an air mass is forced from a low elevation to a high elevation as it moves over rising terrain.

A) They receive more rainfall than low lying areas because the temperature on top of the mountains is lower than the temperature at sea level.

B) Most common winds are from the west or south-west, which arrive from the Atlantic Ocean and pick up moisture.

Requirement 5

Show with the help of a diagram how the earth's relationship to the sun produces the seasons

– The seasons are caused by the direction of the Earth's axis pointing relative to the Sun

– As the Earth orbits the Sun, the tilt of the Earth's axis stays lined up with the North Star

Requirement 6

What causes lightning and thunder?

- When the positive and negative charges grow large enough, a giant spark occurs between the two charges within the cloud.

- Thunder is caused by lightning

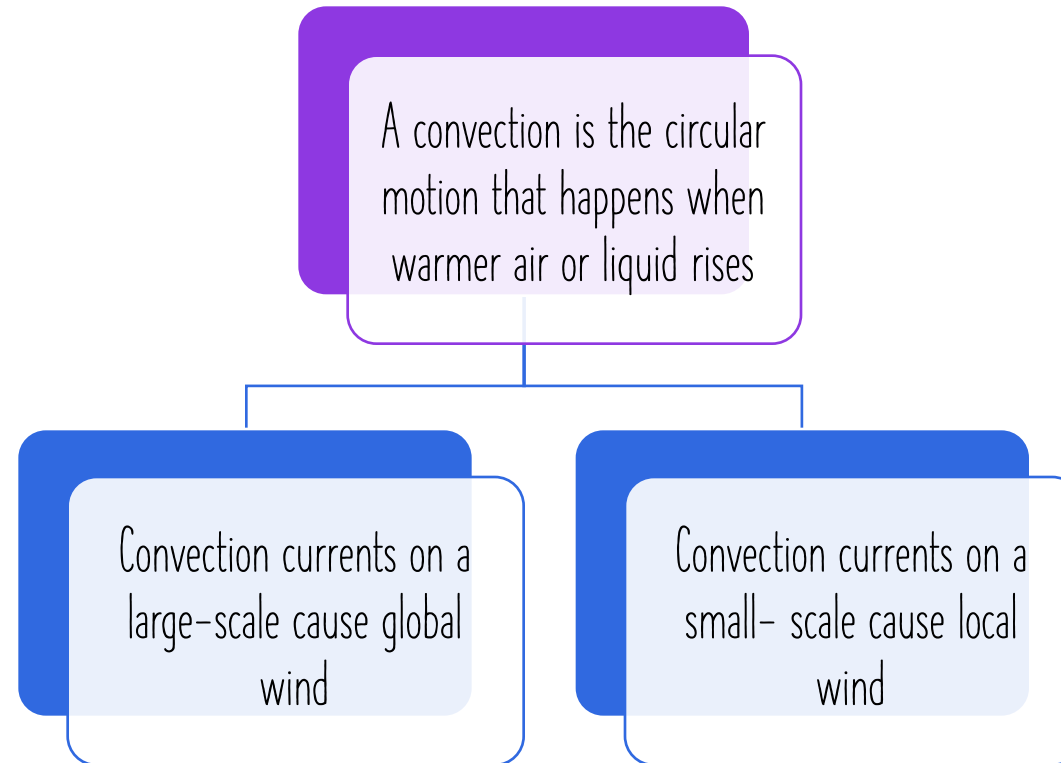
What are the different types of lightning?

- Intracloud lightning
- Cloud-to-ground lightning
- Cloud-to-cloud lightning
- Ground-to-cloud lightning
- Heat lightning or summer lightning
- Ball lightning



Requirement 7

Show with the help of a diagram what a convection is. What is its relation to winds?



Requirement 8

**Explain how radar,
satellite, and computers
are used
in weatherforecasting**

Radar - Measures the velocity of objects such as drops of precipitation

Satellites - Instruments such as radiometers scan the Earth to form images

Computers - Helps meteorologists predict the weather

Requirement 9

Tell how the following can affect weather

Jet stream : Slim strips of strong winds have a huge influence on climate, as they can push air masses around and affect weather patterns

Volcano eruption : The gases and dust particles thrown into the atmosphere during volcanic eruptions have influence on climate

Requirement 10

Make a drawing showing the water cycle in weather



Requirement 11

Make a simple wind vane or rain gauge

Rain Gauge

Equipment:

- 2 litre bottle
- Some stones or pebbles
- Tape
- Marker
- A ruler
- Water

Instructions:

1. Cut the top of the 2 litre bottle
2. Place some stones in the bottom of the bottle. Turn the top upside down and tape it to the bottle
3. Use a ruler and marker pen to make a scale on the bottle.
4. Pour water into the bottle until it reaches the bottom strip on the scale.



Requirement 12

Keep a weather chart for one week and record readings at 12-hour intervals.

Include the following:

- Temperature

- Moisture (dew, fog, rain, frost or snow)

- Cloud formation

- Wind direction
