Teacher Notes - Unit 3: Severe Weather

Air pressure: the pressure exerted by the weight of air above

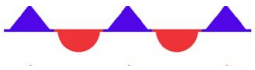
Measured in: millibars (mb)

Wind: Air flows from areas of **high** pressure to areas of **lower** pressure.

Isobars - lines on a map that connect places of equal air pressure

A pressure gradient - The spacing of isobars indicates the amount of pressure change over a given time

- Closer together = higher winds
- Farther apart = lower winds

	Symbol	Profile	What Happens
Cold Front	 (Blue)	Cold air mass moves into an area occupied by warmer air.	Thunderstorms
Warm Front	 (red)	Warm air glides up over a cold, dense air mass	Light to moderate rain
Stationary front	Red & Blue 	The surface position of the front does not move	Steady rain for days
Occluded Front	 Purple	when an active cold front overtakes a warm front	Severe weather

Thunderstorm

- A storm that generates thunder and lightning
- Frequently produces gusty winds, heavy rain, and hail
- Associated with **cumulonimbus clouds**

Occurrence of Thunderstorms - Mostly in the tropics

Development of Thunderstorms form when **warm, humid air rises** in an **unstable environment**

Three Stages

Cumulus: build-up of clouds and moisture

Mature: Heavy rain fall, most active time

Dissipating: light rain, storm is calming down

Tornadoes - violent low pressure windstorms that take the form of a rotating column of air
The vortex extends downward from a **cumulonimbus cloud** producing rain and hail
Move **counterclockwise**

Occurrence of Tornadoes

- 770 occur each year
- Tornado Season : April to June
- Associated with severe thunderstorms
  Intensity - Fujita Tornado scale (F0-F5): Based on the amount of damage

Tornado Watches: <u>Possibility</u> of a tornado to be developed in the area
Tornado Warning: Tornado **<u>has been seen</u>** by people or indicated by radar

<u>Hurricanes</u>

- Whirling tropical cyclones (low pressure system) producing winds of at least 119 km per hour (73 mph)
- US – Hurricanes
  Pacific – Typhoons
  Indian Ocean – Cyclones (Most powerful storm on Earth)

<u>Development of Hurricanes</u>
Hurricane develop most often in the late summer when water temperatures are warm enough to provide the necessary heat and moisture to the air
Low Pressure: Spins counterclockwise
Season: June 1 to November 30th
Categorized on the Saffir-Simpson Scale (based on wind speed)