What is wind?
Wind is MOVING AIR!

Why does air move??
Wind moves because of differences in air pressure. The greater the pressure difference, the faster the wind moves.

Remember….wind moves from high to low pressure (COLD --→ WARM AREAS)
Why does the air pressure change?

- Because of the unequal heating of the Earth. The air at the equator is warmer, and less dense so...it rises! This creates an area of low pressure.

- Air at the poles is colder and more dense so...it sinks. This creates an area of high pressure.
Local Winds

- Influenced by the geography of an area such as mountains and shoreline.
- Land heats and cools faster than water.
- Sea breezes are formed during the day while land breezes are formed during the night.
Why is it windy at the seaside?

The land is warmer than the sea. This land warms the air above it, and it rises.

The cold air from above the sea moves in to take the place of warm air that has risen.
What are convection cells?

- The circular patterns caused by the rising and sinking of air.
- Surface winds blow from polar high pressure areas to equatorial low pressure areas.
What is the Coriolis Effect?

- The curving of moving objects, such as wind, by the Earth’s rotation is called the Coriolis Effect.
- The Earth’s rotation changes the directions of winds.
- Winds in the Northern hemisphere curve to the right.
- Winds in the Southern Hemisphere curve to the left.
Global Wind Systems...

- Global Winds are part of a pattern of air circulation that moves across the Earth. They travel long distances and in a specific direction.
- Three main types of winds are trade winds, westerlies, and easterlies.
- Area near the equator is called the doldrums.
The Doldrums is the area of low pressure around the Equator. There is very little wind due to the rising warm air. The English word “Doldrum” means foolish! The sailors who sailed in this area where there is little or no wind were foolish!
Trade Winds

In both hemispheres, the winds that blow from 30° latitude to the equator is called the trade winds. These winds curve due to the Coriolis Effect. Traders used these winds to travel from Europe to the Americas.
Prevailing Westerlies

- The Westerlies are wind belts found in both the Northern and Southern Hemispheres between 30 and 60 latitude.
- They flow toward the poles in opposite directions than the Trade Winds.
- Helped early traders return to Europe.
Polar Easterlies

- Wind belts that extend from the poles to 60 latitude in both hemispheres.
- They are formed from cold, sinking air moving from the poles toward 60 North and 60 South latitude.
The Global Picture: Air Currents