

Wind and Forecasting Weather

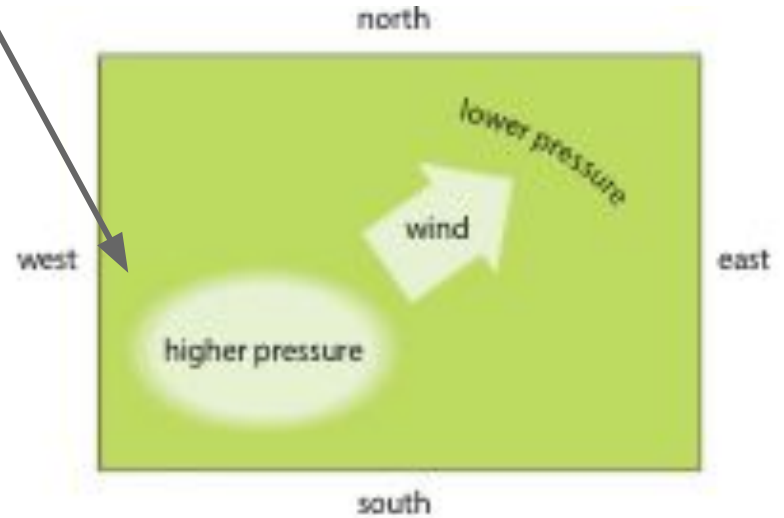


Lessons 11, 12, and 13

Worldwide Wind

- **latitude:** The means of specifying a location relative to the equator. Lines of latitude run parallel (east to west) to the equator.
- **prevailing wind:** The most common, or modal, wind direction for a region. On Earth, the direction of the prevailing winds are related to the **latitude** of the region.
- **wind:** The movement of air from areas of higher pressure toward areas of lower pressure.
- **wind direction:** The compass point from where the wind originates.

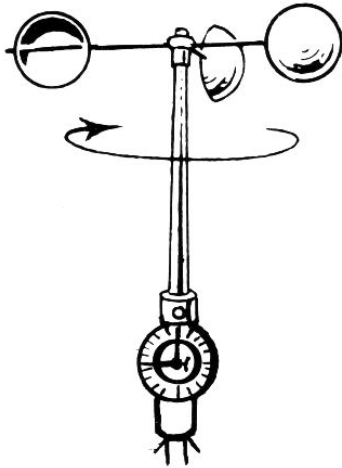
- The wind direction is where the wind is coming from not where it is going
- The pattern of prevailing winds influences the distribution of climates on Earth
- For example, if you live on the coast the prevailing wind comes from over the ocean so your climate is going to be more rainy than if the wind comes from over land
- Think about where we live in Western Oregon in relationship to the ocean in comparison to the climate of Eastern Oregon. We get more rainfall here and it is drier there.



A southwest wind blows from southwest toward northeast.

Measuring Wind

- **anemometer:** An instrument used to measure wind **speed**.



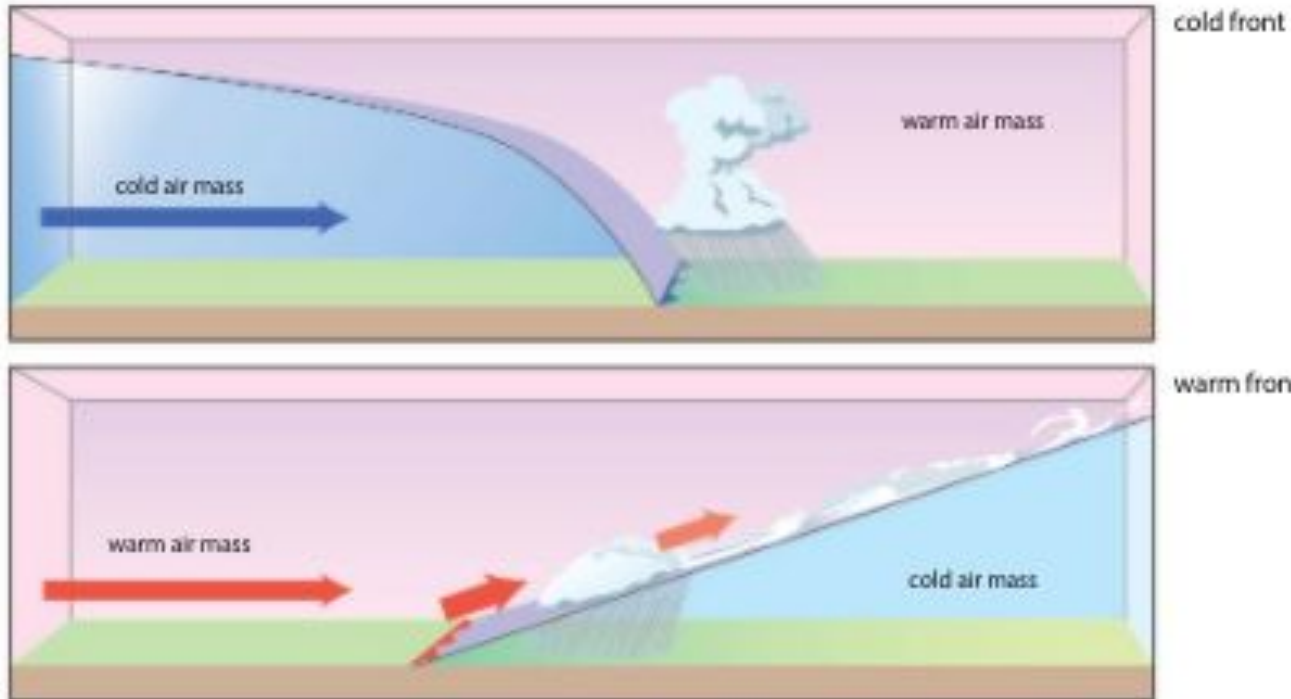
- **wind vane:** An instrument used to measure wind **direction**.



Forecasting Weather









- **cold front:** An area where a moving mass of colder air is replacing a warmer air mass.
- **front:** Areas with unstable, often stormy weather.
- **warm front:** An area where a warmer air mass is replacing a cooler air mass.
- **weather forecast:** A meteorologist's prediction of the weather.
- **weather map:** A map that shows the weather conditions over a large area at a particular time.

- ❑ It is more difficult for less-dense **warm** air to replace denser **cooler** air
- ❑ Warm fronts move more slowly than cold fronts
- ❑ Warm fronts are cloudy, unstable conditions and last longer than cold fronts
- ❑ The air behind a warm front is usually warmer and more humid than the air at the front



Weather Map Symbols

Weather Map Symbols

WEATHER	SYMBOL	ASSOCIATED WEATHER
Precipitation		Rain, snow, fog, or other forms of precipitation
Cold front		Cooler temperatures, possible precipitation
Warm front		Warmer temperatures, possible precipitation
Low pressure		Cloudy skies, possible precipitation
High pressure		Clear skies
Hurricane		Damaging winds, rain, possible flooding
Tornado watch		Area where tornadoes may occur, possible severe thunderstorms
Tropical storm		Very strong winds and heavy rains

- Choose one of the maps on the next slide
- Examine and identify the location of the following:
 - Weather fronts
 - Areas of precipitation
 - Areas of clear or cloudy skies
 - Areas of high and low pressure
 - Areas of high probability for unusual weather events such as hurricanes or tornadoes
- On a piece of paper, write a weather report for one of the maps

For example, “On August 24th, there is a cold front stretching from Arizona northeast up to Minnesota that may create...”

Weather Maps, August 24 through August 27



Weather Maps, August 28 through August 31



Optional Activities

- Design an anemometer or wind vane using materials you have at home
 - An anemometer must indicate the speed of the wind, stay upright on its own, spin at a countable rate
 - A wind vane must indicate the direction the wind is coming from, stay upright on its own, align with the 4 directions - north, south, east, west

- Create a video of you as a meteorologist giving a weather forecast for the map you chose or for current weather in the U.S. or somewhere in the world.