

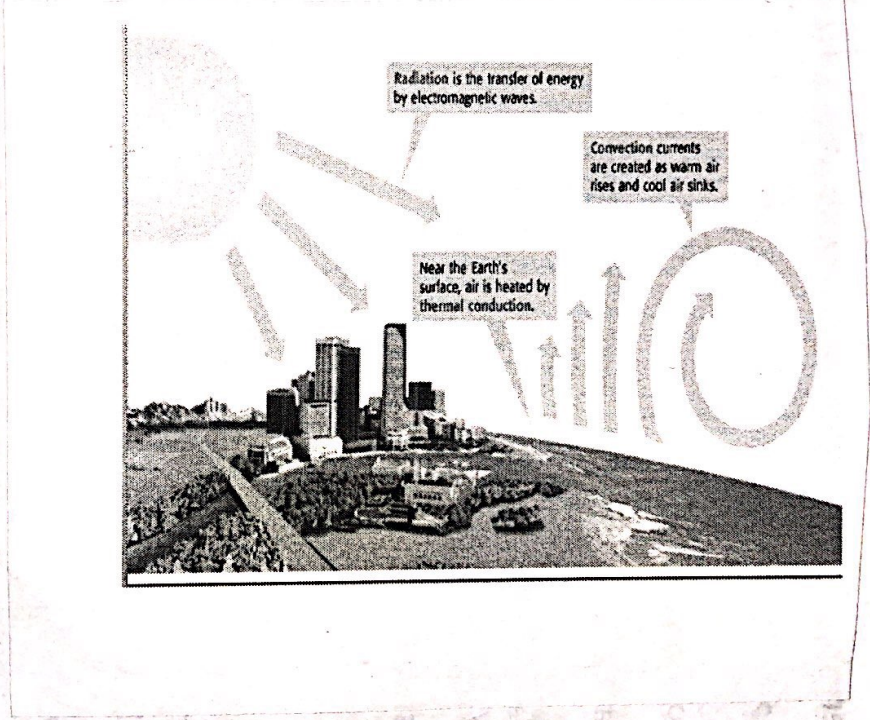
Unit 2.5 Wind: Vocab

Wind Vocabulary Words

1. **Atmospheric Conduction** – transfer of heat from the Earth's surface to the air molecules directly above it.
2. **Atmospheric Convection** – the transfer of heat through the atmosphere by wind
3. **Atmospheric Radiation** – the transfer of heat from the sun through waves into the atmosphere and Earth's surface
4. **Wind** – caused by the uneven heating of Earth's surface or differences in air pressure flowing from areas of high pressure to areas low pressure.
5. **Land Breeze** – when air over land is cooler, the cooler air moves towards the ocean producing a land breeze (night)
6. **Sea Breeze** – when air over the ocean is cooler, the cooler air moves towards the land and produces a sea breeze (day)
7. **Air pressure** – The measure of the force with which air molecules push on a surface.
8. **Coriolis Effect** – The apparent curving of the path of a moving object from an otherwise straight path due to the earth's rotation.
9. **Density** - how tightly packed together molecules of a substance are
10. **Convection Current** - the movement of a fluid where warmer molecules rise and cooler molecules sink

assignment due by 10/4/18.

Density Air Pressure Atmospheric Heating



Density, Air Pressure, and Atmospheric Heating Notes

What is Density?

- Density is how tightly packed together the molecules of something are.
- As fluids heat up, the molecules spread apart or expand. This decreases their density.
- As fluids cool off, the molecules move closer together, or condense. This increases their density.

What is Air Pressure?

- Air pressure is the measure of the force with which air molecules push on a surface.
- As fluids heat up, they expand and have less air pressure and less density.
- As fluids cool off, they condense and have more air pressure.

What is Atmospheric Heating?

Atmospheric Radiation

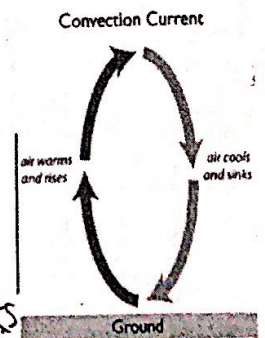
- When you stand outside, you are being warmed by radiation from the sun.
- Earth and its atmosphere are warmed by waves from the sun.

Atmospheric Conduction

- Remember: Thermal conduction is the transfer of thermal energy from warm to cool by touch.
- When air molecules come into direct contact with the warm surface of Earth, thermal energy is transferred to the atmosphere.

Atmospheric Convection

- Remember: Convection is the transfer of thermal energy by the circulation or movement of a liquid or gas (fluid).
- MOST thermal energy in the atmosphere is transferred by convection.
- As the Earth warms the air, it begins to rise through convection.
- As air is heated, it becomes less dense and rises. Cool air is denser, so it sinks.
- As the cool air sinks it pushes the warm air up. The cool air is eventually heated by the Earth's surface and begins to rise again. This is called a convection current.



Global Winds

Global Winds Notes

What you will be able to do:

- Explain the relationship between air pressure and wind direction.
- Describe global wind patterns.

Air in a Balloon

- What happens if you blow up a balloon and then let it go? The air rushes out. Why?
- The air inside the balloon is at a higher pressure than the air outside the balloon. Basically, letting the air out of the balloon creates wind.
- The movement of air caused by differences in air pressure is called wind.

Air Rises at the Equator and Sinks at the Poles

- Differences in air pressure are caused by the uneven heating of the Earth.
- The equator receives more direct solar energy than other latitudes, so air at the equator is warmer and less dense than the surrounding air.
- Warm, less dense air rises and creates an area of low pressure. This warm, rising air flows toward the poles.
- At the poles, the air is colder and denser than the surrounding air, so it sinks.
- As the cold air sinks, it creates areas of high pressure around the poles. This cold polar air then flows toward the equator.

Pressure Belts Are Found Every 30 Degrees

- Air travels in many large circular patterns called convection cells.
- Convection cells are separated by pressure belts which are bands of high pressure and low pressure found at about every 30 degrees of latitude.

Global Winds

- The combination of convection cells found every 30 degrees of latitude and the Coriolis Effect produces patterns of air circulation called global winds.
- Major global wind systems include the polar easterlies, westerlies, and trade winds.
- Winds such as easterlies and westerlies are named for the direction from which they blow.
- For example, westerlies, blow from the west.

Land to Sea Breeze

Name _____

Land and Sea Breeze Notes

- These winds move short distances and can blow _____ either the land or the sea.
- Land and water produce _____ from day to night that cause these winds.

Sea Breeze

- During the Day, the land heats up _____ than the ocean.
- This causes warm air to rise over the land, creating a _____ pressure system of air.
- Cooler air over the ocean sinks (high pressure) and moves in to take its place.
- Sea breezes are stronger than land breezes and come from the _____.

Land

Ocean

Land Breeze

- During the night the land cools off faster than the ocean, causing warm air to rise over the ocean, creating a _____ pressure system.
- Cooler air sinking (high pressure) over the land moves in to take its place.
- Land Breezes are weaker than sea breezes and come from the _____.

Land

Ocean

