

Book I Chapter 1

Lesson 2-Atmospheric Heating

Vocab:

Radiation

Thermal conduction

Convection

Global warming

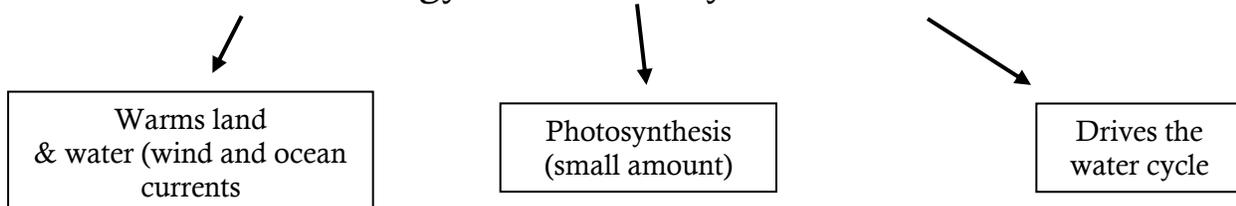
Greenhouse effect

*The **SUN** is a powerful energy source.

- The Earth receives solar energy
- The solar energy moves through Earth's atmosphere
- The atmosphere impacts how much of the sun's energy reaches Earth's surface.

RADIATION

- Radiation is energy traveling through space.
- Can come from:
 - Sunlight
 - Radar
 - Microwaves
 - Nuclear power
 - X-rays
- Can be dangerous but not all radiation is hazardous
- Because of our atmosphere, we only receive a small amount of the sun's energy
 - About 2 billionths total!
- Radiation is how the sun's energy reaches earth
 - 20% of this energy is absorbed by the ozone layer, clouds, and gases in the atmosphere
 - 25% of this energy is scattered and reflected back into space by clouds/molecules in the atmosphere
 - 5% of this energy is reflected by the surface of the Earth
 - 50% of this energy is absorbed by the Earth's surface.



CONDUCTION

- Thermal conduction: the transfer of heat through a material
- Always “moves” or is transferred from WARM to COLD
- Must have DIRECT CONTACT
- Has a very small impact on heating the atmosphere.
- Only the layer of air directly above surface of Earth.

CONVECTION

- The transfer of heat by using a moving liquid or gas.
- Air gets heated → rises
- Cooler air → sinks
- Causes a circular motion called CONVECTION CURRENT

GREENHOUSE EFFECT

- Term used to describe how our atmosphere acts like a “blanket” to keep some of the sun’s energy from reflecting back into outer space.
- Without this “greenhouse effect” our planet could not sustain life.
- VITAL to the survival of life!

GREENHOUSE GASES

- Gases such as carbon dioxide, water vapor, methane, and nitrous oxide are gases in our atmosphere that make up the “blanket” that keeps our planet at the right temperature for life.
- Increase could be caused by:
 - Pollution
 - Deforestation
 - Population increase

Large increase
in carbon
dioxide
- Livestock (methane increase)
- Do these increases in greenhouse gases have a direct link to an increase in global temperature? → GLOBAL WARMING