Chapter 1 Notes

1.1

* Earth’s atmosphere supports life
	+ The atmosphere makes life on Earth possible
		- **Atmosphere** – a whole layer of air that surrounds Earth
			* Keep Earth warm and transports energy
	+ Characteristics of the Atmosphere
		- **Altitude** – distance above sea level
			* As altitude increases, air becomes thinner (Less Dense)
		- **Density** – the amount of mass in a given volume
* Gases of the Atmosphere



* Natural processes modify the atmosphere
	+ The Carbon Cycle
	+ The Nitrogen Cycle
	+ The Water Cycle

1.2

* The sun supplies the atmosphere’s energy
	+ Energy from the sun heats the atmosphere
		- **Radiation** – energy that travels across distances in the form of certain types of waves
	+ Atmosphere moves energy in 3 ways
		- **Radiation**
		- **Conduction** – the transfer of heat energy from one substance to another by direct contact
		- **Convection** – the transfer of energy from place to place by the motion of gas or liquid
	+ The atmosphere has temperature layers
		- **Troposphere**
		- **Stratosphere**
		- **Mesosphere**
		- **Thermosphere**

1.3

* Gases in the atmosphere absorb radiation
	+ Gases can both absorb and give off radiation
		- **Ultraviolet radiation** – (UV) these waves have more energy than the light you can see. Can cause sunburn
		- **Infrared radiation** – these waves have less energy than visible light, causes materials to warm
	+ The greenhouse effect keeps Earth warm
		- **Greenhouse effect** – is a process where gases in the atmosphere absorb and emit infrared radiation, keeping energy in Earth’s system
		- **Greenhouse gases** – carbon dioxide, methane, water vapor, nitrous oxide, and other gases that absorb and give off infrared radiation

1.4

* Human activities affect the atmosphere
	+ Human activity can cause air pollution
		- **Air pollution** – smoke and other harmful materials added to the air
	+ Types of pollution
		- **Particulates** – tiny particles or droplets that are mixed in with air
		- **Fossil fuels** – fuels formed from the remains of prehistoric animals and plants (gasoline, coal, oil)
		- **Smog** – combination of smoke and fog
	+ Effects of pollution
		- Health problems
		- Environmental damage
	+ Controlling pollution
		- Make car exhaust cleaner
		- Reduce number of cars on the road
		- Limit amount of pollution from factories and power plants
* Human activities are increasing greenhouse gases
* Human activities produce chemicals that destroy the ozone layer