Atmosphere basics

* Combination of gases, dust, water droplets, and ice crystals
* Surrounds the Earth into space
* Earth’s atmosphere consists mainly of nitrogen (78 percent) and oxygen (21 percent).
* The amounts of nitrogen and oxygen in the atmosphere are fairly constant over recent time.

Water vapor

* Can range of 0% - 4%
* Concentration depends on the seasons, altitude, and properties of the surface underneath

Carbon dioxide

* carbon dioxide has increased, due primarily to the burning of fossil fuels.
* Currently 0.039% (up by 0.028%)

Ozone

* Mostly in ozone layer (20 – 50 km above)
* Only 0.0012% but plays important role in blocking out harmful rays from the sun
* Concentration has decreased due to CFCs which are now banned
* Scientists estimate it should fully recover by the 2100

Troposphere

* Closest to the Earth’s surface
* Contains most of the atmosphere’s mass
* Weather occurs in this layer
* Air temperature decreases with altitude
* Top is called *tropopause*

Stratosphere

* Above tropopause
* Contains the ozone layer
* Air temperature increases with altitude since the ozone layer absorbs the sun’s energy
* Ends at the stratopause

Mesosphere

* Above the stratopause
* Air temperature decreases with altitude since very little solar radiation is absorbed
* Ends at mesopause

Thermosphere

* Low air density so temperature rises (can be over 1000°C)
* Contains the ionosphere (made up of charged particles)
* Ends at thermopause

Exosphere

* Outermost layer
* Transitional region between the Earth’s atmosphere and outer space