

# Question of the Day

What is the most abundant  
gas in the atmosphere?

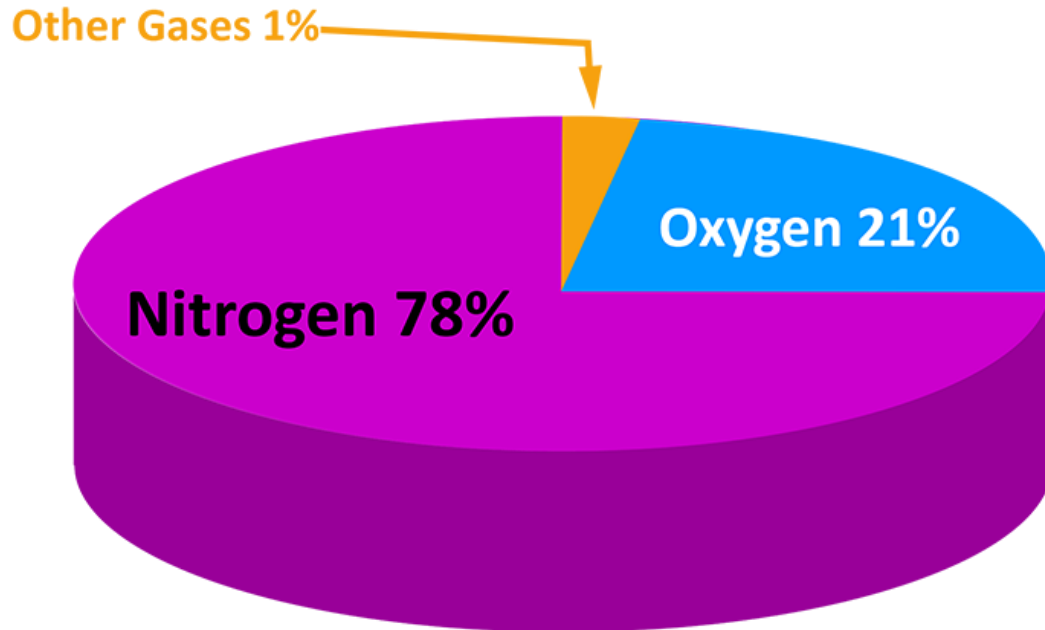




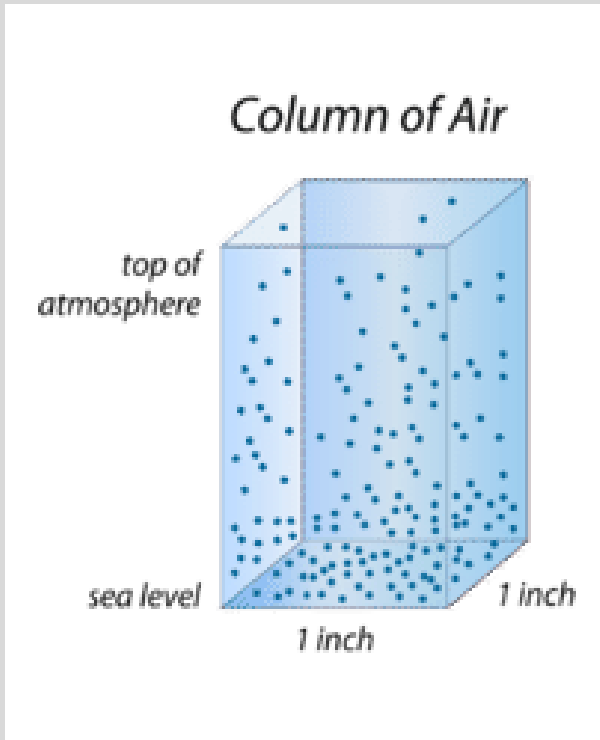
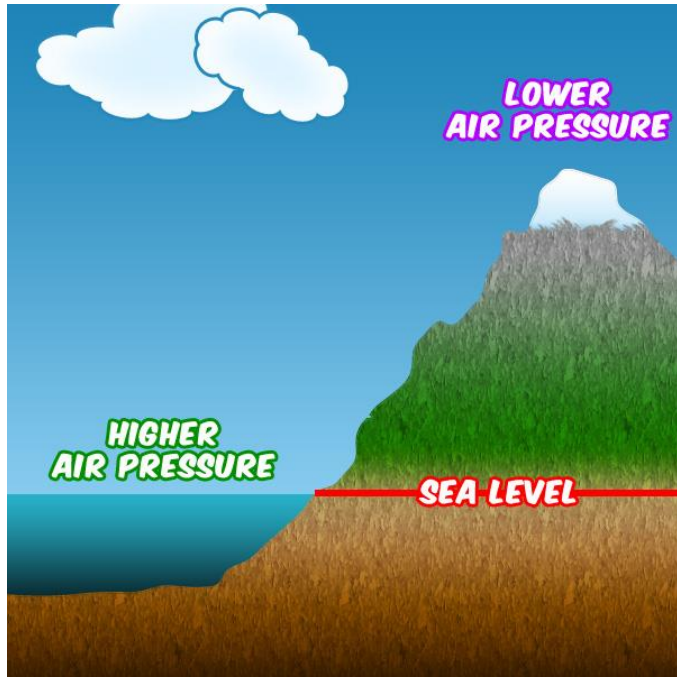
# The Atmosphere

Earth's surrounding mixture of gases

# The Composition of the Atmosphere



1. Nitrogen makes up 78% of the Earth's atmosphere.  
*It enters the atmosphere when volcanoes erupt and when dead organisms decay.*
2. Oxygen, the second most abundant gas in Earth's atmosphere, is primarily produced by plants and algae.
3. Other gases, including argon, carbon dioxide, methane, and water vapor, make up the rest of the atmosphere.
4. In addition to gases, the atmosphere contains many types of tiny solid particles.  
*This includes soil, salt, ash, skin, hair, bits of clothing, pollen, bacteria, viruses, and liquid droplets called aerosols.*



# Air Pressure

The atmosphere is pulled toward Earth's surface by gravity.

As a result of the pull of gravity, the atmosphere is denser near the Earth's surface.

# Layers of the Atmosphere

5 layers based on temperature change

## 1. Troposphere

- Atmospheric layer closest to Earth
- All weather occurs in this layer
- Temperatures decrease as you travel up

## 2. Stratosphere

- Temperatures increase as you travel up because ozone in the stratosphere absorbs the sun's UV energy

## 3. Mesosphere

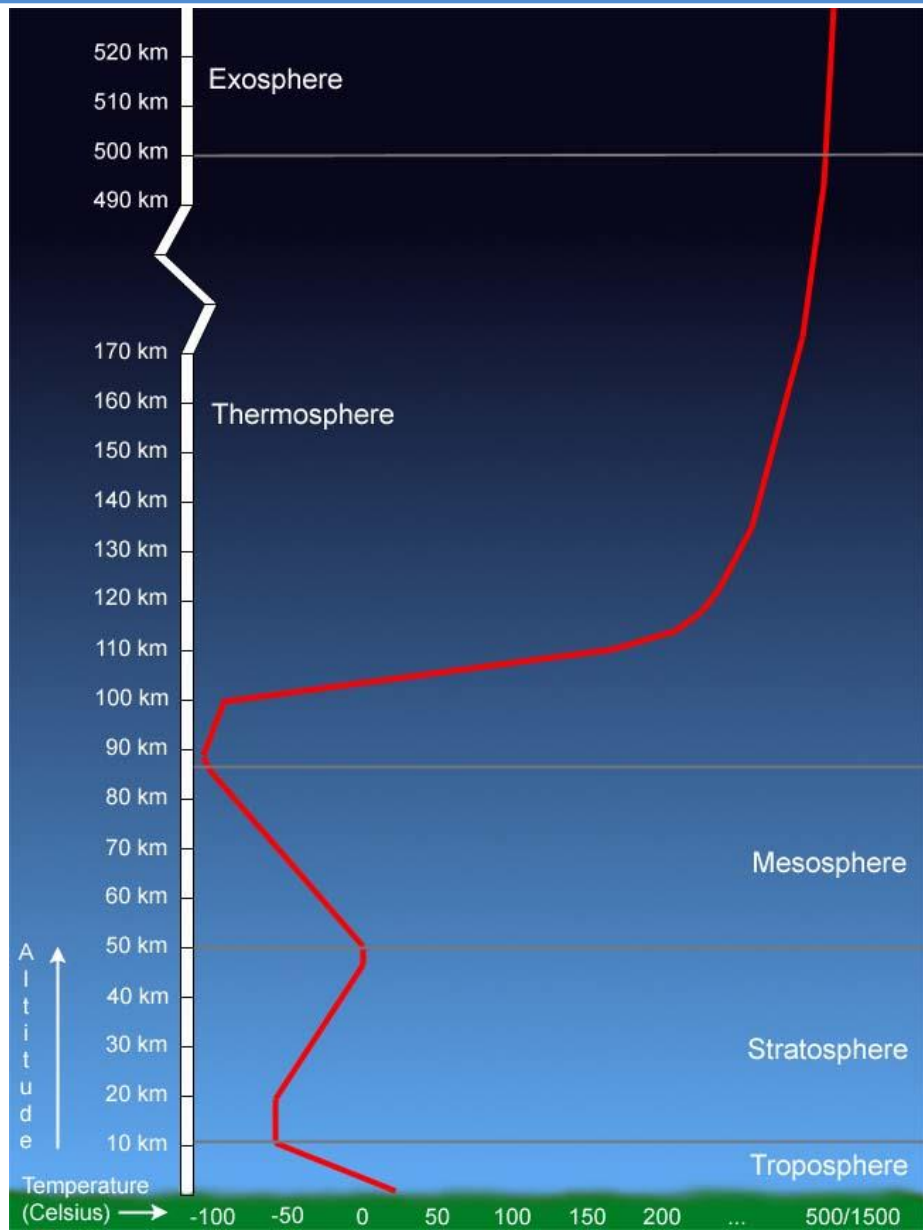
- The coldest layer in the atmosphere

## 4. Thermosphere

- Nitrogen and oxygen directly absorb solar radiation, resulting in temperatures above 2,000°C,
- Despite these high temperatures, the Thermosphere would not feel hot to us

## 5. Exosphere

- Where the atmosphere meets space



# Warming up the Atmosphere

The Earth receives about 2 billionths of the Sun's energy. About half of that energy reaches the Earth's surface.

Energy is transferred in Earth's atmosphere by 3 mechanisms:

## **Radiation**

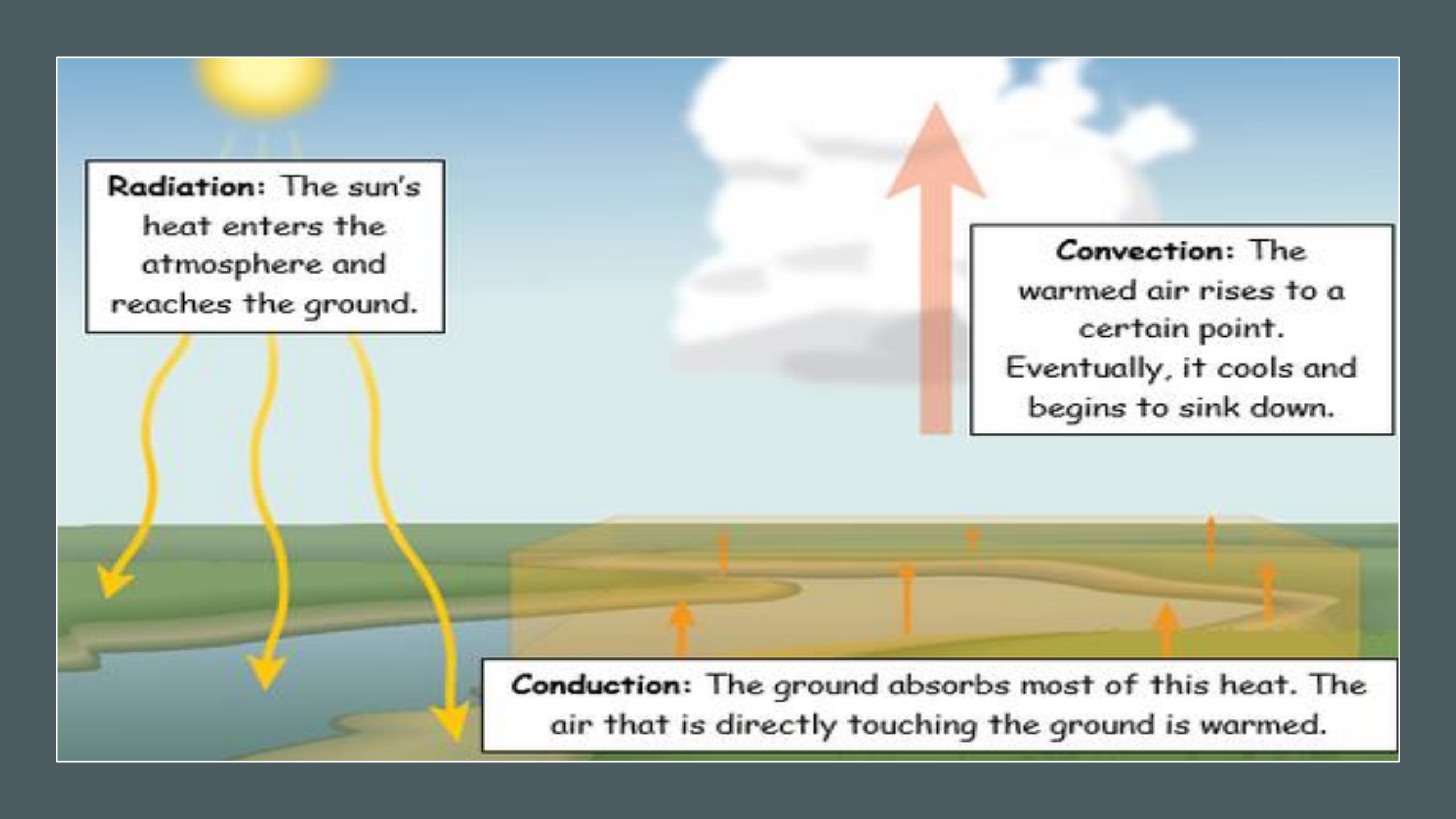
- Transfer of energy through electromagnetic waves

## **Conduction**

- Transfer of heat from warmer objects to colder objects
- Occurs near Earth's surface

## **Convection**

- When variations in temperature move the air
- Caused by unequal heating of atmosphere



**Radiation:** The sun's heat enters the atmosphere and reaches the ground.

**Convection:** The warmed air rises to a certain point. Eventually, it cools and begins to sink down.

**Conduction:** The ground absorbs most of this heat. The air that is directly touching the ground is warmed.