# Earth's Atmosphere

- **Size=** Earth's atmosphere begins on Earth's surface and extends about 600 miles upward.
- **Composition=**Our atmosphere is made of a mixture of gassy elements, water vapor, and tiny solid particles
  - Most of the gases exist between 0-3.5 miles of Earth's surface
- **Layers=** The atmosphere is made up of 4 **major** layers and each layer is divided by temperature.

# Composition- original gases

- The most abundant gas in the atmosphere is **Nitrogen** at **78%**
- Oxygen makes up **21%** of our atmosphere
- Carbon Dioxide, Argon, and other gases exist in small amounts
- The amount of gases decrease and the atmosphere thins as you travel away from the surface

# Composition

- Around 4 billion years ago, Earth had no atmosphere.
- Our surface was covered with volcanoes that released gases during eruptions

# Composition- Oxygen

- Oxygen is new in our atmosphere!
- Oxygen in our atmosphere is the result of **plants and algae** making food by photosynthesis
- Plants combine carbon dioxide ($CO_2$) and radiation from the Sun to make their food.
- During the photosynthesis (food making process), **oxygen is released.**

# Layers- Height

- Our atmosphere has 4 major layers and 1 minor layer

1. **Troposphere- 0-6 miles**
2. **Stratosphere-6-30 miles**
    a) **Ozone Layer**
3. **Mesosphere – 30-50 miles**
4. **Thermosphere- 50+ miles**

# Layers- Temperature

- Each layers is divided vertically by temperature

1. Troposphere- temp ↓ with height
2. Stratosphere-temp ↑ with height
3. Mesosphere – temp ↓ with height
4. Thermosphere- temp ↑ with height

# Layers- Ozone Layer

- Within the stratosphere is the **ozone layer.**
- This is a group of ozone gas molecules (O3) that absorb harmful UV (ultraviolet) radiation waves from the sun.
- If ozone did not absorb and filter UV radiation, many living organisms could not survive on Earth