**Atmosphere**  - A thin layer of air that forms a protective covering around the planet.

* Mixture of solids, liquids, and gases.
* Extends from Earth’s surface to outer space.
* Green plants formed and released oxygen.

**Gases in the Atmosphere**

* 78% Nitrogen (MOST ABUNDANT)
* 21% Oxygen (O₂)
* 1% Trace gases (9 of them)
* Water Vapor

**Solids in the Atmosphere**

* Dust wind picks dust up from ground
* Salt is picked up from the ocean
* Pollen comes from plants

**Liquids in the Atmosphere**

* Water droplets from oceans
* Liquids from volcanos

**Layers of the Atmosphere**

Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere

**Lower Layers** – (Troposphere, Stratosphere)

**1. Troposphere**

* Lowest layer
* We live here
* Contains 99% of the water vapor
* Contains 75% of Atmospheric gases
* Weather occurs here ( rain, snow, and clouds)
* Extends up to 10 km (approximately 6 miles)

**2. Stratosphere**

* Directly above the troposphere
* 10km – 50 km (31 miles) above Earth’s surface
* Contains a gas called Ozone (contains **3** Oxygen atoms) Oxygen(contains **2** Oxygen atoms)
* Contains the Ozone layer (protects us from the Sun’s harmful rays)

**\*\***Troposphere & Stratosphere contain most of the air.

**Upper Layers of the Atmosphere**

**3. Mesosphere**

* Extends from the top of the stratosphere to 85km (53 miles) above of Earth’s surface
* Meteors are seen burning up here
* Contains the Ionosphere

**4.** **Thermosphere**

* Named for its high temperatures
* It is the thickest layer
* Extends from end of Mesosphere 85km to 500km (310 miles) above Earth’s surface
* Contains the Ionosphere

**Ionosphere** – is a layer of electrically particles (ions)

* At night It allows radio waves to travel across the country to other cities
* During the day the Sun interacts with these ions so these waves don’t travel as far as at night where there is no sunlight

**5. Exosphere**

* Space ships fly here
* Spacecraft’s rely on bursts from small rocket thrusters to move around
* Beyond the exosphere is outer space

**Atmospheric Pressure**

* Extend hundreds of kilometers above Earth’s surface
* Earth’s gravity pulls the gases towards the surface
* The weight of these gases presses down on the air below
* Molecules near Earth’s surface are close together
* This dense air at the bottom exerts more force than the air at the top of the atmosphere in the form of pressure

**\*\***Air Pressure decreases as we go up in higher altitudes into the atmosphere, so the pressure is greatest near Earth’s surface **Ex)** as you climb up a mountain it gets more difficult to breathe

**Temperature in the Atmosphere**

The Suns energy passes through the atmosphere and some layers contain gases that absorb the Sun’s energy and some do not. So the Layers of the atmosphere have different temperatures.

**Troposphere** – Warm and cold. As you go higher in this layer the temperature decreases

**Stratosphere** – Molecules of Ozone absorb some sun this raises the temperature. More Ozone is in the

Upper part of this layer so temperature rises as we go higher into the stratosphere.

**Mesosphere** – Coldest layer

**Thermosphere** **& Exosphere** – Have few molecules and are the first layers to receive Sun rays so

temperatures are high here

**Ozone Layer**

* Located in the stratosphere (19-48km)
* Invisible and shields us from the sun’s harmful rays
* Absorbs most of the ultraviolet radiation (UV rays) from the sun.
* CFC’s (chlorofluorocarbons) destroy the ozone gas in the Ozone layer. Found in Refrigerators, air conditioners spray cans. CFC’s are banned by many governments now.
* Ozone Hole found in Antarctica. August to December ozone decreases here lowest in October

**Ch. 6 Section 1 Review**

1. What are the different gases that make up Earth’s atmosphere (with

percentages)?

2. List the different layers of the atmosphere in order above earth.

3. Which layer of the atmosphere do we find rain, snow, clouds, and most of

Earth’s weather?

4. How much water vapor does the troposphere contain?

5. What layer contains the Ozone layer? What is the job of the ozone layer?

6. How many atoms of O₂ does the gas Ozone contain? How many does Oxygen

contain?

7. What happens to the temperature as we go from the bottom of the

stratosphere to the top?

8. Which layer is the coldest?

9. Which layer would we see meteors burning up?

10. What 2 layers would we find the Ionosphere in?

11. Which layer is named for its high temperatures?

12. Which layer is the thickest layer?

13. What layer would we find spaceships?

14. What is beyond the exosphere?

15. What layer contains electrically charged particles called ions?

16. Why do radio waves travel better and longer distances at night as opposed to

during the day?

17. What happens to air pressure as we go up into higher altitudes?

18. Describe the temperature in each of the layers.

19. What is responsible for destroying Ozone gas in the ozone layer?

20. What is the Ozone hole?