



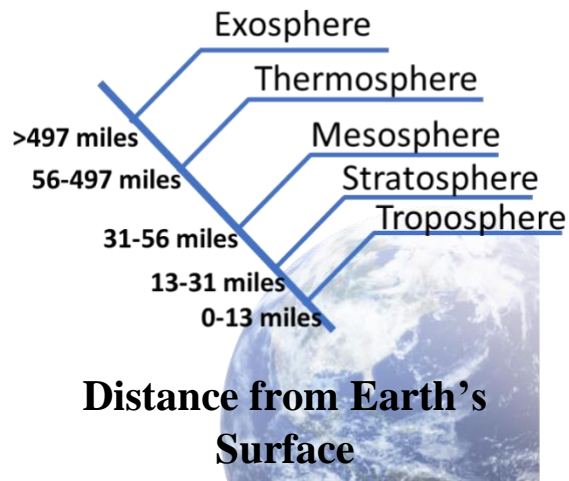
DIY Air Force Activities: Awesome Atmosphere



Materials:

- dirt
- honey
- corn syrup
- dish soap
- water
- vegetable oil
- water bottle or other clear container

***Food coloring (optional)



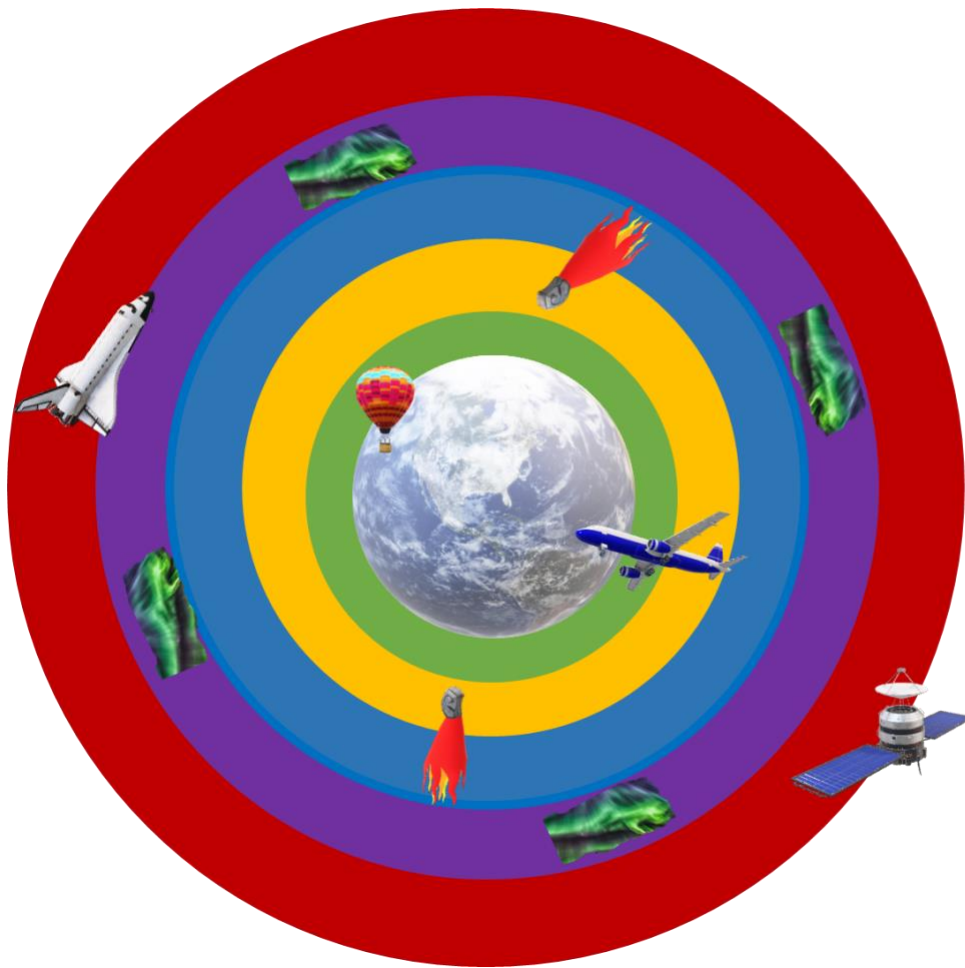
Although we can't always see them, we are constantly surrounded by gas molecules that make up the atmosphere. Our awesome atmosphere extends for hundreds of miles above the earth's surface, and its existence helps to sustain all life on Earth. When we take a deep breath, we are taking in the oxygen our bodies need. Did you know that the atmosphere is made up of much more than oxygen? Generally, it is comprised of 21% oxygen, 78% nitrogen, 0.9% argon, and 0.1% other gases. As you go higher and higher towards space those molecules spread out and the atmosphere becomes less dense. Following the directions below we can use the density of liquids to build a model that allows us to visualize the layers of the atmosphere.

Directions: Add the materials listed in order to a clear cup or bottle and then put the cap on. Pour each liquid in carefully to achieve the best effect!

- Dirt = Earth: Try to pack your earth down in the cup so it won't float around in the liquids.
- Honey = **Troposphere**: This is where we live and where the clouds and weather form.
- Corn syrup = **Stratosphere**: This is where airplanes fly.
- Dish soap = **Mesosphere**: Meteors burn up here.
- Water = **Thermosphere**: Many of the earth's satellites are in this level.
- Vegetable Oil = **Exosphere**: The atmosphere here is very thin and blends into space. Satellites and the space station orbit the earth at this level.

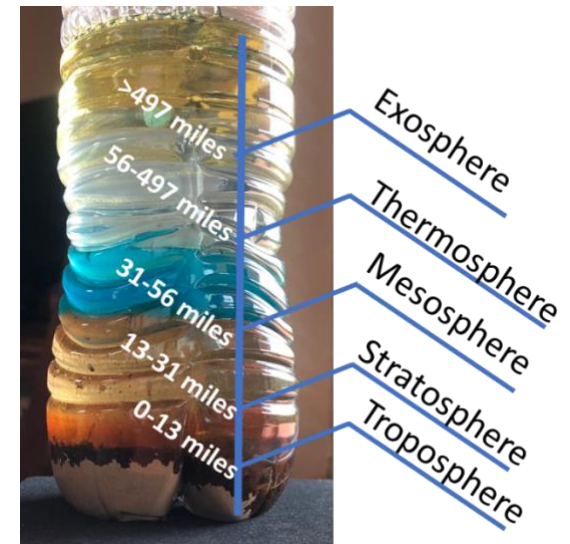
Air Force Associations:

Understanding the changes in atmospheric pressure is very important to pilots. As the air becomes less dense, essential forces for flight like engine power, thrust, and lift are all altered. Being able to quickly collect and assess atmospheric changes is critical when executing missions.



- Exosphere: This layer merges into outer space.
- Thermosphere: This layer absorbs high energy radiation from the sun.
- Mesosphere: Oxygen is very sparse in this layer.
- Stratosphere: The ozone layer resides here.
- Troposphere: This layer supports life on Earth.

Distance from Earth's Surface



For more of a challenge:

Draw the lines for each layer on the bottle and label them. Then add 2 facts about that layer. For example, how does the temperature change as you go higher in the atmosphere?

To learn more about density see our other activities:

Density Diversions, Rainbow Density, and Float Your Boat

For more on weather formation in the atmosphere:

Wild Weather, Basic Barometer, and Water Works