

Layers of the Atmosphere

You will understand a little more about the layers of the atmosphere after doing the following activity.

1. Take an empty water bottle and just cover the bottom of it with honey. Be sure to drip the honey in the center of the bottle so that you do not get any on the sides. The honey represents the densest (and smallest) part of the atmosphere called the **troposphere**.
2. Next, VERY SLOWLY pour 8 teaspoons of corn syrup into the bottle. Again, try to slowly pour this in to the center of the bottle avoiding the sides. Don't worry if the honey and corn syrup appear to mix - they will settle back out if you pour very slowly. The corn syrup is less dense than the honey and represents the **stratosphere**.
3. Next, VERY SLOWLY pour 8 teaspoons of dish detergent into the bottle. Try to pour this as slowly as you can in to the center of the bottle. The dish detergent represents the **mesosphere**.
4. Next, pour about $1\frac{1}{4}$ cups of water very slowly into your bottle, tilting it slightly so that the water runs down the inside. If you do this carefully, you will avoid bubbles as the water hits the dish detergent. Carefully, hold your bottle upright and notice the layers that have formed. The water represents the **thermosphere**.
5. Lastly, allow your counselor to pour about an inch of vegetable oil into your bottle. This oil represents the **ionosphere** which really extends much further than the bottle will allow.
6. Carefully, put your bottle cap back on and allow the layers to settle. As you look at your bottle from side, you will see 5 distinct layers. Like the layers of the atmosphere, these liquid layers have different densities. The densest layer (honey -troposphere) is closest to the bottom (earth) and each layer gets less dense as you go up (and away from earth).