

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### **The Atmosphere: Troposphere vs. Stratosphere**

*Directions: Students are to create a Venn diagram using information from the reading passage below.*

The Earth is surrounded by an ocean of gases we call the atmosphere. The atmosphere is important because it contains the air most living things breathe. It also absorbs heat energy from the sun and recycles water by returning it back to the Earth as rain (water cycle). Without the atmosphere, life as we know it could not exist on Earth. The atmosphere is divided into layers, just like a layer cake. There are 4 main layers, which are the troposphere, stratosphere, mesosphere, and thermosphere. Each layer varies in thickness and in temperature. These layers also differ in composition – the types of gases that make up each layer. The atmosphere is composed of a mix of several different gases in differing amounts. The permanent gases whose percentages do not change from day to day are nitrogen, oxygen, and argon. Nitrogen accounts for 78% of the atmosphere, oxygen 21%, and argon 0.9%.

The first layer is the layer of the atmosphere that we live in, called the troposphere. The troposphere is the lowest region of the Earth's atmosphere, where masses of air are very well mixed together and the temperature decreases with altitude. Nitrogen and oxygen are the two main gases that make up the atmosphere. Other gases that make up the atmosphere include argon, carbon dioxide, water vapor, neon, helium, and hydrogen. The air is heated from the ground up because the surface of the Earth absorbs energy and heats up faster than the air. Weather occurs in the Earth's troposphere. In fact, most clouds form in this layer. It is also the sphere where airplanes fly.

The second layer is the stratosphere. In the Earth's stratosphere, the temperature increases with altitude (as opposed to the troposphere, where it gets colder with altitude). It also contains a special gas called ozone, which is found in a layer called the ozone layer. This layer blocks out most of the dangerous rays from our sun. These dangerous rays cause sunburn, which can lead to skin cancer. Scientists have discovered that the ozone layer has gotten thinner due to pollution. No weather occurs in the stratosphere; it's cloud free.

#### **Resources:**

<http://www.windows2universe.org/earth/Atmosphere/layers.html>

<http://www.vtaide.com/png/atmosphere.htm>