

Modeling Earth's Atmospheric Layers

1. Start with a large piece of paper.
You can use legal paper or ~ 3 sq. ft of butcher/chart paper.
2. **Draw the Earth.** Use coloring utensils to trace a Earth in the center of the paper. Be sure to leave space to draw around it. Color the Earth blue and green to represent the continents and oceans.
3. Draw the **troposphere**, which is the first layer of the atmosphere. The troposphere extends 16 km above Earth.
 - a. Use the following scale - 1mm=1km. Put a series of dots around Earth, 16 mm from the Earth's surface.
 - b. Connect the dots and label it the troposphere. Color it yellow. Draw pictures to help indicate what happens in this layer. You can add airplanes, people, weather occurrences, bad ozone.
4. Draw the **stratosphere**, which is the second layer of the atmosphere. It extends 16km-50km above the Earth's surface.
 - a. Measure and draw a circle 50 mm from Earth's surface. Be careful- do not draw it starting from the troposphere, remember to start measuring from Earth's surface.
 - b. Connect the dots and label it stratosphere. Color it orange.
 - c. Draw pictures to help indicate what happens here. Jet streams occur here, which are fast moving currents of air between the 2 layers. This is also where the ozone layer is found, which absorbs ultraviolet radiation.
5. Draw the **mesosphere**, which extends 50km-90km from the Earth's surface.
 - a. Measure and draw a circle 90 mm from the Earth's surface.
 - b. Label this layer mesosphere. Color it red.
 - c. Draw pictures to help show characteristics. It is the coldest layer of the atmosphere. Radio waves are reflected to Earth and meteors burn up in this layer.
6. Label the **ozone**. The ozone is not a main layer of the atmosphere, but plays an important role in how it works.
 - a. The ozone is between the stratosphere and the mesosphere. Its symbol is O_3 because it is made of three oxygen atoms.
 - b. Color a thin, blue line to represent the ozone. Make a small section of the line dotted (----) to represent the "hole" in the ozone layer.
7. Draw the **thermosphere**. This is the fourth layer of the atmosphere. It extends 90km-300km from the Earth's surface.
 - a. Label it the thermosphere and color it green.
 - b. Draw pictures to help show characteristics. The thermosphere is very hot and contains light "shows" called auroras.
8. Beyond the thermosphere is the **exosphere**. It extends 300km-> 600 km.
 - a. Color this gray and label it exosphere.
 - b. When meteoroids enter Earth's atmosphere, they enter through the thermosphere, which is extremely hot. Because of the heat, most meteoroids burn up. Draw and label a meteor entering Earth's atmosphere.

(attachment 3)