Atmospheric Layers

Cross-Curricular Focus: Earth Science

Name: _____

The atmosphere surrounding Earth is made up of several layers of gas mixtures. The most common gases in our atmosphere are nitrogen, oxygen and carbon dioxide. The amount of the gases in the mixture varies above the different places on Earth.

The atmosphere puts pressure on the planet. The amount of pressure becomes less and less the further away from Earth's surface you are. When we think of the atmosphere, we mostly think of the part that is closest to us. At any moment in time, the overall condition of Earth's atmosphere, including the part we can see and the parts we cannot, is called weather. Weather can change, and it frequently does. That is because the conditions of the atmosphere can change.

The four main layers in Earth's atmosphere are the troposphere, the stratosphere, the mesosphere and the thermosphere. The layer that is closest to the surface of Earth is called the **troposphere**. It extends up from the surface of Earth for about 11 kilometers. This is the layer where airplanes fly. We experience almost all weather in this layer. About three-fourths of our atmosphere's air is also found in the troposphere.

Just above the troposphere is the **stratosphere**. It extends to about 50 kilometers above Earth's surface. Most of our planet's ozone layer is in this colder, drier layer. Ozone is important to the health of our planet because it helps keep some of the sun's dangerous radiation from reaching the Earth's surface.

If we continue upward, the next layer is the **mesosphere,** which extends up to about 80 kilometers above Earth's surface. The mesosphere is extremely cold. It is within this layer that you are most likely to find meteors. Most meteors will completely burn up before they reach Earth's surface.

The final layer is the **thermosphere**, the layer that is closest to the sun. Temperatures in the thermosphere can be over 1,500º Celsius.

Together, the layers of our atmosphere protect Earth. The atmosphere provides the conditions needed to support life.

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) Which layer of the atmosphere has most of the air?

_____

_____

2) If you were to send a bottle rocket 15 kilometers up into the air, which layer of the atmosphere would it be in?

_____

_____

3) What are the most common gases in Earth's atmosphere?

_____

_____

4) Why is it important to protect the stratosphere?

_____

_____

5) Why aren't there many meteors in the troposphere?

_____

_____

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Actual wording of answers may vary.

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the troposphere

2) If you were to send a bottle rocket 15 kilometers up into the air, which layer of the atmosphere would it be in?

stratosphere

3) What are the most common gases in Earth's atmosphere?

nitrogen, oxygen and carbon dioxide

4) Why is it important to protect the stratosphere?

It contains the ozone, which protects Earth from the sun's radiation.

5) Why aren't there many meteors in the troposphere?

They burn up before they reach the troposphere.