UNIT STUDY GUIDE – ATMOSPHERE

Word	√	Definition
Troposphere		The troposphere starts at the Earth's surface and where air is most dense. Almost all weather is in this region. Temperature gets lower the higher in the layer.
Stratosphere		The stratosphere starts just above the troposphere. The ozone layer, which absorbs and scatters the solar ultraviolet radiation, is in this layer and causes the temperature to rise.
Mesosphere		The mesosphere starts just above the stratosphere and meteors burn up in this layer. Temperature is lower in this region of the atmosphere.
Thermosphere		The thermosphere starts just above the mesosphere. Auroras and satellites occur in this layer and temperatures rise.
Exosphere		This is the upper limit of our atmosphere. It extends from the top of the thermosphere and is where space and our atmosphere meet.
Ozone		Ozone is a gas made up of three oxygen atoms (O_3). It occurs naturally in small (trace) amounts in the upper atmosphere (the stratosphere). Ozone protects life on Earth from the Sun's ultraviolet (UV) radiation.
Nitrogen		A colorless and odorless gas element that makes up most of the atmosphere.
Humidity		A measurement of how much water vapor is in the atmosphere.
Climate		Describes weather conditions over a long period of time and over a region.
Meteorology		Branch of science concerned with the processes and phenomena of the atmosphere, especially as a means of forecasting the weather.
Oxygen		A colorless and odorless gas element that is needed for organisms to survive. It makes up over twenty percent of the Earth's atmosphere.
Weather		The temporary state of the atmosphere at a place and time such as heat, dryness, sunshine, wind, rain, etc.
Density		How much of a substance is in a certain amount of space. Air is most dense nearest the Earth's surface due to gravity.
Ultraviolet (UV) Rays		Part of the energy that comes from the sun and can be harmful to humans. Most UV rays are absorbed in the ozone layer.
Greenhouse Gas		Gases that allow sunlight to enter the atmosphere. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere, leading to the greenhouse effect.
Greenhouse Effect		Heat from the Earth is radiated outward and absorbed by the greenhouse gases in the atmosphere. This process prevents heat from disappearing into space and keeps Earth warm enough to sustain life. Recently, this effect has also caused Earth's average temperature to rise.
Carbon Dioxide		When a carbon atom and two oxygen atoms bond together, they form a colorless, odorless gas called carbon dioxide, which is a heat-trapping greenhouse gas. Whenever we burn fossil fuels such as coal, oil, and natural gas, we are producing carbon dioxide.

Answer the following questions in complete sentences in your notebook.

1. Describe the difference between weather and climate.
2. How has the greenhouse effect affected climate?
3. What is the composition of the air we breathe? Give the percentages of the each type of gas.
4. Describe the ozone layer. Why is it important for us to understand the changes to the ozone?
5. List the layers of the atmosphere in order from Earth to space. Describe two things about each.
6. Describe how density of air changes as you go up through each layer of the atmosphere.
7. Describe how temperature changes as you go up through each layer of the atmosphere.
8. How does meteorology connect to the atmosphere unit?