

## Unit 1 Chapter 1: The Atmosphere

### TEST Study Guide

#### Vocabulary:

1. Atmosphere: a mixture of gases that surrounds a planet or moon
2. Air Pressure: the measure of the force with which air molecules push on a surface
3. Troposphere: the lowest layer of the atmosphere, in which temperature decreases at a constant rate as altitude increases
4. Stratosphere: the layer of the atmosphere that is above the troposphere and in which temperature increases as altitude increases
5. Mesosphere: the layer of the atmosphere between the stratosphere and the thermosphere and in which temperature decreases as altitude increases
6. Thermosphere: the uppermost layer of the atmosphere, in which temperature increases as altitude increases
7. Exosphere: the outermost layer of the atmosphere, which is the “edge” of outer space
8. Radiation: the transfer of energy as electromagnetic waves
9. Thermal Conduction: the transfer of energy as heat through a material (ex: pan on stove getting hot when above the flame-DIRECT CONTACT)
10. Convection: the transfer of thermal energy by the circulation or movement of a liquid or gas
11. Greenhouse Effect: the warming of the surface and lower atmosphere of Earth that occurs when water vapor, carbon dioxide, and other gases absorb and reradiate thermal energy
12. Global Warming: a gradual increase in average global temperatures. One reason for global warming may be the increasing greenhouse gases.
13. Wind: the movement of air caused by differences in air pressure
14. Coriolis Effect: the apparent curving of the path of a moving object from an otherwise straight path due to the Earth’s rotation
15. Polar Easterlies: prevailing winds that blow from east to west between 60 and 90 degrees latitude in both hemispheres
16. Westerlies: prevailing winds that blow from west to east between 30 and 60 degrees latitude in both hemispheres
17. Trade Winds: prevailing winds that blow northeast from 30 degrees north latitude to the equator and that blow southeast from 30 degrees south latitude to the equator
18. Jet Stream: a narrow belt of strong winds that blow in the upper troposphere and can reach 400 km/h
19. Air Pollution: the contamination of the atmosphere by the introduction of pollutants from human and natural sources
20. Acid Precipitation: rain, sleet, or snow that contains a high concentration of acids. This is caused when sulfur oxide and nitrogen oxide are released into the air.

#### Things to Know:

1. The Earth’s atmosphere is made up of mostly nitrogen (78%), but also oxygen (21%), and other gases (1%).
2. From the Earth’s surface to space are the troposphere, stratosphere, mesosphere, thermosphere, and exosphere.
3. Auroras are caused by electrically charged particles in the ionosphere.
4. Only about 2-billionths of the energy radiated by the sun reaches Earth. Most solar energy that reaches the Earth’s atmosphere is absorbed by Earth’s surface.

5. Radiation balance is when the amount of energy received from the sun and the amount of energy returned to space are about equal.
6. Air moves in large, circular patterns called convection cells.
7. Coriolis Effect explains why winds traveling north appear to curve to the east.
8. Local winds are produced by local geographic features. Mountain and valley breezes are caused by differences in temperature and elevation.
9. Carbon monoxide, dust, and smoke from forest fires that are put directly into the air are called primary pollutants. Ozone and smog are examples of secondary pollutants. Vehicle exhaust is the major source of human-caused air pollution.
10. Acid shock is a rapid change in a body of water's acidity.
11. Ozone hole allows more UV radiation to reach the Earth. Air pollution causes coughing, headaches, and lung cancer. Allowance Trading System limits the amount of pollution companies can release. Hybrid cars use both gasoline and electric power.
12. Health problems that can result from breathing polluted air are dizziness, headaches, burning or itchy eyes, shortness of breath, sore throat, lung cancer, other respiratory diseases, chest pain, and allergies.
13. Primary pollutants that come from natural causes are dust, sea salt, volcanic gases and ash, pollen, and smoke from forest fires.
14. Smog is formed when vehicle exhaust reacts with air and sunlight to form ozone. Ozone then reacts with vehicle exhaust and smog is formed.