

## **Study Notes for Chapter 22: The Atmosphere**

*Directions: Use the following notes to complete your study notes and then to prepare for the test. Please do not take this copy from the classroom. Thank you.*

### **Chapter 22 Section 1: Characteristics of the Atmosphere**

1. The atmosphere is a mixture of gases, primarily nitrogen, oxygen, and argon, that surrounds Earth.
2. The two most abundant compounds in the atmosphere are carbon dioxide and water vapor.
3. One effect of air pollution is destruction of the ozone layer.
4. Dust, salt, and pollen are all particulates in the atmosphere.
5. Atmospheric pressure is measured with a barometer.
6. The troposphere is the lowest layer of the atmosphere, where all weather conditions exist.
7. The stratosphere is the layer of the atmosphere which contains the ozone layer.
8. The mesosphere is the coldest layer of the atmosphere in which temperature decreases as altitude increases.
9. The thermosphere is the uppermost layer of the atmosphere; includes the ionosphere.
10. Interactions between solar radiation and the ionosphere cause auroras.
11. Temperature inversions can intensify the effect of smog when cool, polluted ground air is trapped by warm air.
12. One harmful effect of temperature inversions is smog.

### **Chapter 22 Section 2: Solar Energy and the Atmosphere**

13. Energy from the sun travels to Earth as radiation.
14. The electromagnetic spectrum is all of the frequencies or wavelengths of electromagnetic radiation.
15. The solar radiation least absorbed by the layers of the atmosphere before reaching Earth is visible light.
16. Albedo is the fraction of solar radiation reaching Earth that is reflected.
17. Solar radiation that is not reflected back into the atmosphere is absorbed by surface materials.
18. After Earth absorbs infrared rays that heat the ground, thermal energy is absorbed by the atmosphere from the ground.
19. The warming of the surface and lower atmosphere of Earth that occurs when carbon dioxide, water vapor, and other gases in the air trap heat near Earth's surface is known as the greenhouse effect.
20. A delay between Earth's absorption of solar energy and an increase in temperature makes the warmest part of a day in the afternoon.
21. Conduction is the transfer of energy as heat through a material. By direct contact.
22. Convection is movement of matter due to differences in density caused by temperature variations.

### **Chapter 22 Section 3: Atmospheric Circulation**

23. The Coriolis Effect is the curving of the path of a moving object from an otherwise straight path due to Earth's rotation.
24. Because of the Coriolis Effect, an object that travels north from the equator will curve to the right.
25. Convection cells are the three looping patterns of air flow that exist in each hemisphere.
26. Prevailing winds that blow through the middle of the United States are called Westerlies.
27. The trade winds of the Northern and Southern Hemispheres meet at the equator in a narrow zone of weak variable winds called the doldrums.
28. The narrow bands of high-speed winds that blow in the upper atmosphere are called jet streams.
29. Local winds are influenced by local conditions and local temperature.
30. Land breezes blow cool air from land to water.