**Unit 3 Study Guide**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Study Guide is due Tuesday, April 21st for a homework grade.**

Unit 3 Vocab Test will be Friday, April 24th. Unit 3 Multiple Choice Test will be Thursday, April 23rd.

**Lesson 1 – Pages 165-173**

1. Write down the names of the 5 spheres including a short description of each sphere.
2. The Hydrosphere and Cryosphere is made up of both fresh water and salt water. What percent of water on the Earth is fresh water? What percent of the water on the Earth is salt water?
3. The Geosphere is made up of three layers. Write down the names of each layer. Which layer has the most mass?
4. Describe the density of the mantle compared to the crust.
5. What is the composition of the Earth’s atmosphere?

**Lesson 2 – Pages 180 – 185**

1. What causes atmospheric pressure?
2. At higher elevations, why is it harder to breathe?
3. What happens to air pressure as altitude increases?
4. List the correct order of the atmospheric layers from lowest to highest.
5. Which layer of the atmosphere would contain the most of the ozone molecule naturally? What is the main benefit of ozone?
6. What is a direct result of the trapping of energy by Earth’s atmosphere?
7. How does carbon dioxide influence the atmosphere?
8. Why are cloudy nights warmer than clear nights?
9. What does the prefix “thermo” mean? Why is the uppermost layer of the atmosphere called the thermosphere?
10. Explain why air pressure is greater at the surface than higher in the atmosphere.

**Lesson 3 – Pages 190 – 199**

1. Mr. Holthaus measures the temperature of the retention pond here at school. The following table shows the data. At what time was thermal energy of the water the LEAST?

|  |  |
| --- | --- |
| Time | Temperature in Degrees Celsius |
| 8am | 13 |
| 10am | 15 |
| 12pm | 18 |
| 2pm | 16 |

1. Why is sand on the beach warmer than the water in the ocean during the day?
2. When air becomes warmer it expands, which type of energy increases as air becomes warmer?
3. Describe what happens to the kinetic energy and volume of water as it is boiling.
4. What are the 3 ways heat can be transferred? Describe each method in detail.
5. Sunlight warming dirt in a garden is an example of what type of heat transfer?
6. Which type of light is the main form of electromagnetic radiation from the sun that reaches Earth’s surface?
7. Which way does energy flow when water is in contact with an ice cube and warm air?
8. Give three examples of conduction.
9. Give three examples of convection.
10. As air is heated, it becomes less dense and rises. What causes the decrease in density of the warming air?
11. Which types of matter can convection happen in?
12. In what direction will energy flow when a warm rock comes into contact with cooler ground?
13. During the day when the Earth receives energy from the sun, what is the main form of the electromagnetic radiation? What is the main form of radiation released by the Earth at night?

**Lesson 4 - Pages 204 – 211**

**1.**What are mid-latitude winds that blow from west to east?

2. Which type of global wind describes a tropical wind that blows from east to west?

3. What is a land breeze?

4. In general, how does air move in convection cells?

5. How are winds named?

**Lesson 5 – Pages 218 – 227**

1. What is the source of the energy for ocean surface currents?
2. Which two factors are responsible for the formation of deep currents?
3. What causes upwelling? Draw a picture to illustrate the cause.
4. What is a surface current?
5. What movement of ocean water has the greatest direct effect on the growth of ocean producers?