Chapter 12 Study Guide

1. Draw a picture of what solid matter looks like, what liquid matter looks like, and what gas matter looks like.
2. What happens to a particle as it cools down? It slows down and the particles move closer together.
3. What happens to a particle as it warms? It gets faster and the particles begin to move more freely.
4. Explain how a thermometer works. The thing glass tube has a bulb filled with colored alcohol. The bulb is placed on or in the material being measured. Depending on the material’s temperature, liquid travels up or down the tube.
5. What is the measure of the average amount of motion in particles of matter? Temperature
6. What is conduction? The transfer of heat energy by one thing touching another.
7. What are insulators? A material that limits the amount of heat that passes through it.
8. What is convection current? How does one form? A pattern of flowing heat energy. It forms when heated air expands and cooler air sinks below the warmer air.
9. What are you feeling when you feel the warmth from a light bulb on your skin? Radiation
10. What does thermal energy measure? The total energy of moving particles.
11. Which method of heat transfer does not require matter? Radiation
12. What is an example of convection? A mobile turns from a candle burning below it.
13. What is energy? The ability to cause change or do work.

14. Explain the difference between an insulator and a conductor. Identify one insulator and one conductor. An insulator limits the amount of heat that passes through it, and a conductor readily allows heat to move through it. A piece of marble is an insulator, and a metal spoon is a conductor

1. Explain how a radiator heats a room’s air. Include in your answer the way heat moves from the radiator to the room.

A radiator uses convection to heat a room. Water is heated and sent through pipes in a room. The pipes lead to radiators that are made of metal. As the hot water moves, some of the heat energy moves through the walls of the radiator to the air of the room. Convection currents then move the air through the room.

1. Radiation, conduction, and convection all work together on Earth’s surface. Explain how these three methods of heat transfer work together on Earth’s surface to warm the surface and the air and to cause wind and rain patterns.