# **Heat Comprehension Check**

For questions 1-5, match each vocabulary term to the correct definition:

|  |  |
| --- | --- |
| 1. Conduction | a. the transfer of heat by the movement of gas or liquid |
| 2. Conductor | b. the movement of heat through a material |
| 3. Convection | c. something that prevents the passage of electricity, heat, or sound |
| 4. Insulator | d. energy given off as waves or small bits of matter. Heat from the sun is one example of this. |
| 5. Radiation | e. something that allows heat, electricity, light, sound, or another form of energy to pass through it |

1. Conduction –
2. Conductor –
3. Convection –
4. Insulator –
5. Radiation –
6. Describe two main heat sources for Earth.
7. Explain how thermal energy transfers from ice to water.
8. What is meant by expand and contract when talking about heat?
9. Use an example to illustrate the difference between physical and chemical changes.
10. What is absolute zero?

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1. Conduction – b
2. Conductor – e
3. Convection – a
4. Insulator – c
5. Radiation – d
6. Describe two main heat sources for Earth.
   1. Earth has two main heat sources: the sun and its own core. The sun is the most important source of heat because without it, life could not exist. Earth also gets heat from layers of hot rock and metal in its core. Volcanoes and geysers occasional release this heat from inside Earth.
7. Explain how thermal energy transfers from ice to water.
   1. Thermal energy and heat always flow from warmer objects to cooler ones. For example, ice in a glass of water has particles that move very slowly. The water is warmer than the ice, and contains particles that move quickly. The thermal energy flows from the water to the ice causing these particles to speed up. This causes the ice to melt and change state from a solid to a liquid. All the particles in the glass of water are now at the same temperature and move at the same speed.
8. What is meant by expand and contract when talking about heat?
   1. When something expands, it increases in size. When something contracts, it decreases in size. Most solids and liquids expand when they are heated and contract when they lose heat.
9. Use an example to illustrate the difference between physical and chemical changes.
   1. A physical change occurs when matter changes shape or form, whereas a chemical change occurs when one or more substances are converted into one or more substances with different properties. For example, crumpling a piece of paper is a physical change because the paper has changed only its shape. Burning the paper is an example of a chemical change because one substance (the paper) is being changed into other substances (smoke and ash).
10. What is absolute zero?
    1. Absolute zero is the temperature at which atoms and molecules have the least amount of heat possible. This is the coldest temperature possible where thermal energy is complete absent.