

## Chapter 6: Thermal Energy

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Beginning on page 158, read and complete the following questions.

### Section 1: Temperature and Heat

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1. What is meant by “matter in motion”?

2. Refer to Figure 1 on page 158. Which object would have particles with more kinetic energy, the horseshoe that has just been pulled from the fire or the horseshoe that has cooled?



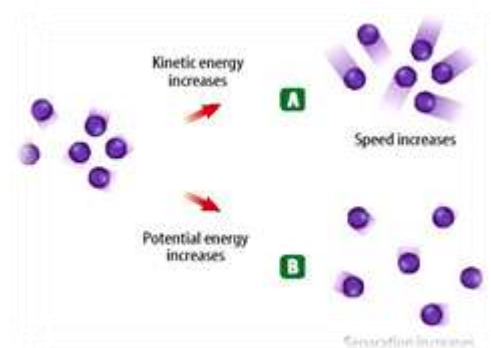
3. Define temperature.

4. What is the standard SI unit for temperature? Is the standard unit the most common unit used?

5. What happens to the speed of the particles in an object as the temperature increases?

6. Define thermal energy.

7. Refer to Figure 2 on page 159. Why does increasing the temperature of an object increase its thermal energy?



8. A large bowl holds twice as much water as a small bowl. The temperature of the water in both bowls is the same. Is the thermal energy the same or different? Explain.

9. Define heat.

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10. What is the unit of measurement for heat?
11. Define specific heat.
12. Refer to Table 1 on page 161. Which substance has a higher specific heat, water or iron?
13. Based on its specific heat which substance would get hot faster, water or iron?
14. What is a coolant?
15. Why does water make a good coolant?

### Check you understanding.

**Directions:** Identify each of the statements as true or false. If identified as false, change the statement to make it true.

- \_\_\_\_\_ 1. As the object's temperature decreases, the movement of the particles also decreases.
- \_\_\_\_\_ 2. As thermal energy of an object increases, temperature also increases.
- \_\_\_\_\_ 3. Materials with a high specific heat can absorb heat without a large change in temperature.
- \_\_\_\_\_ 4. As thermal energy is transferred to an object, the particles will absorb energy and drop in temperature.
- \_\_\_\_\_ 5. If two substances have the same temperature, they must have the same thermal energy.
- \_\_\_\_\_ 6. Heat always flows from warmer to cooler objects

