

Name: _____

_____ / 11

Chapter 9.2 Homework
Conceptual Physics

Parent Signature: _____

Reviewing Concepts

17. Explain the difference between temperature and thermal energy.

18. What is heat? How is heat related to temperature?

19. Which has higher thermal energy, a swimming pool of water at 70° Fahrenheit, or a teacup of water at 80° Fahrenheit? Does higher thermal energy always mean a higher temperature?

20. Name three units of energy used to measure heat and describe what type of situations each is usually used for.

a.

b.

c.

21. What is the meaning of the term *specific heat*? What causes it to vary from substance to substance?

22. Considering the specific heat of water, explain how oceans help to regulate the temperature on Earth.

Solving Problems

9. How much heat is needed to raise the temperature of 10.0 kg of wood from 20.0°C to 25.0° C? The specific heat of wood is 2,500 J/kg°C.

10. A teapot contains 0.5 kg of water. Five thousand joules of heat are added to the water. What is the temperature change in the water? The specific heat of water is 4184 J/kg°C.

11. You add 47,000 J of heat to 1.00 kg of steel. What is the temperature change in the steel? The specific heat of steel is 470 J/kg°C.

12. How much heat is needed to raise the temperature of 10.0 kg of aluminum from 10.0 °C to 40.0° C? The specific heat of aluminum is 900 J/kg°C.

13. How many calories does it take to increase 1.00 g of water by 20.0° C?