Ch 4 Study Guide

N.B. p. _____
Single/Science

Name: _____

1. What is the *kinetic theory of matter*?

2. Describe the particle movement for each:
   Solid—
   Liquid—
   Gas—

3. Temperature is the _____amount of _____ of all particles in an object or location.
4. Thermal energy is the _____ amount of _____ of all particles in an object or location.
5. Explain how alcohol & mercury thermometers work.

6. What makes alcohol & mercury a good substance to use for making thermometers?

7. Name three units for temperature. Circle the one that contains absolute zero.

8. What is absolute zero?

9. Explain the difference in *heat* and *temperature.*

10. Heat flows from _____ temperatures to _____ temperatures.
11. Name two units for heat. Circle the one that is the *standard* unit for heat.

12. Define *calorie*.

13. Define *specific heat*.

14. If something has a high specific heat, describe how it would heat up or cool down.

15. Which would have more thermal energy for each:
    a. a lake at 25 degrees Celsius *or* a cup of tea at 32 degrees Celsius?
    b. 50 mL of water at 40 degrees Celsius *or* 50 mL of water at 55 degrees Celsius?

16. Alcohol & mercury thermometers work through *uniform* _____ _____, which means that…_____ _____

17. Define *thermal energy*.

18. Name & define 2 units of measurement for energy.

19. 1 calorie = _____ Joules

20. _____ is the amount of energy required for 1 gram of a substance to increase in temperature by 1 degree Celsius.

21. The more mass an object has, the (more or less) energy required to produce an increase in temp. The more mass an object has, the (more or less) energy that must be released to decrease the temperature.

22. List & describe 3 ways in which heat is transferred.

23. Identify the method of heat transference for each:
    _____boiling water (water inside the pan)
    _____getting burned by touching a hot object
    _____warming in the sun
    _____getting a sun burn
    _____burning your feet when walking across hot pavement
    _____warm water moving around in the ocean
    _____warm air moving through the atmosphere
    _____heat moving through empty space
    _____requires physical contact
    _____creates currents
    _____dense fluids sink, less dense fluids rise
    _____movement of x-rays, visible light, & infrared light)

24. _____ are materials that easily transfer energy or heat by physical contact. They have _____ specific heat.
25. _____ are materials that do not transfer energy or heat easily by physical contact. They have _____ specific heat

26. State whether each is an insulator or conductor:

_____air	_____plastic
_____metal	_____rubber
_____styrofoam	_____wood

27. <u>Convert to Fahrenheit</u>:
    10 degrees Celsius

    <u>Convert to Celsius</u>:
    20 degrees Fahrenheit

28. Draw a calorimeter & explain how it works.