Name _____ Date _____ Class _____

Thermal Energy and Heat

Chapter Test A

Multiple Choice

Write the letter of the correct answer on the line at the left.

_____ **1.** No more energy can be removed from matter at

a. its freezing point.
b. 0ºC.
c. absolute zero.
d. 273 K.

_____ **2.** The movement of thermal energy from a warmer object to a cooler object is called

a. heat.
b. temperature.
c. motion.
d. momentum.

_____ **3.** The transfer of energy by electromagnetic waves is called

a. conduction.
b. convection.
c. radiation.
d. insulation.

_____ **4.** Heat transfer occurs

a. in many directions.
b. both from warm objects to colder ones and from cold objects to warmer ones.
c. only from warm objects to colder ones.
d. only from cold objects to warmer ones.

_____ **5.** A material that conducts heat poorly is called a(n)

a. insulator.
b. conductor.
c. metal.
d. radiator.

_____ **6.** The amount of energy required to raise the temperature of 1 kilogram of a substance by 1 kelvin is called its

a. specific heat.
b. heat transfer.
c. change of state.
d. melting point.

_____ **7.** As the thermal energy of matter increases, its particles usually spread out, causing

a. condensation.
b. evaporation.
c. thermal expansion.
d. vaporization.

LIVEWORKSHEETS

Name _____ Date _____ Class _____

Thermal Energy and Heat *(continued)*

_____ **8.** Heated air moves from baseboard heaters to the rest of a room in a process called

a. conduction.
b. convection.
c. radiation.
d. insulation.

_____ **9.** Which of these is a good conductor?

a. wood
b. paper
c. silver
d. air

_____ **10.** A measure of the average kinetic energy of the individual particles in an object is called

a. thermal energy.
b. conduction.
c. convection.
d. temperature.

Completion

Fill in the line to complete each statement.

11. If two glasses of water are at the same temperature, the average _____ energy of the particles of water in each glass is the same.

12. A one-degree change in temperature on the Celsius temperature scale is equal to a one-unit temperature change on the _____ temperature scale.

13. Even though the water in a filled bathtub may be at the same temperature as water in a teacup, the water in the bathtub has more _____ because it contains a greater number of water molecules.

14. Iron has a higher specific heat than silver. If 1 kg of iron and 1 kg of silver absorb equal amounts of heat, the temperature of the _____ will increase by a greater amount.

15. Joints in train tracks are designed with extra space to allow for _____ in hot weather.

True or False

If the statement is true, write true. *If it is false, change the underlined word or words to make the statement true.*

_____ **16.** A student lists three temperature measurements: 100°F, 100°C, and 100 K. Of the three measurements, <u>100 K</u> is the highest temperature.

_____ **17.** The more particles a substance has at a given temperature, the more <u>thermal</u> energy it has.

_____ **18.** During <u>conduction</u> heat is transferred by the movement of currents within a fluid.

_____ **19.** Trapped air is a good <u>conductor</u> because it reduces heat transfer.

_____ **20.** As most substances are cooled, they <u>expand</u>.

LIVEWORKSHEETS

Name _____ Date _____ Class _____

Thermal Energy and Heat *(continued)*

Using Science Skills

Use the figure below to answer the following questions in the spaces provided.

Mass and Temperature of Water in Three Beakers

	Beaker A	Beaker B	Beaker C
Mass of Water (g)	100	200	200
Temperature (°C)	30	30	60

21. Which beaker contains water with the most thermal energy? Explain your answer.

_____

_____

_____

22. Which beakers contain water with the same average kinetic energy per molecule? Explain.

_____

_____

_____

Essay

Write an answer for each of the following questions on a separate sheet of paper.

23. Which is a larger change in temperature: a change of 1 Celsius degree or 1 Fahrenheit degree? Explain.

24. What is the difference between thermal energy and heat?

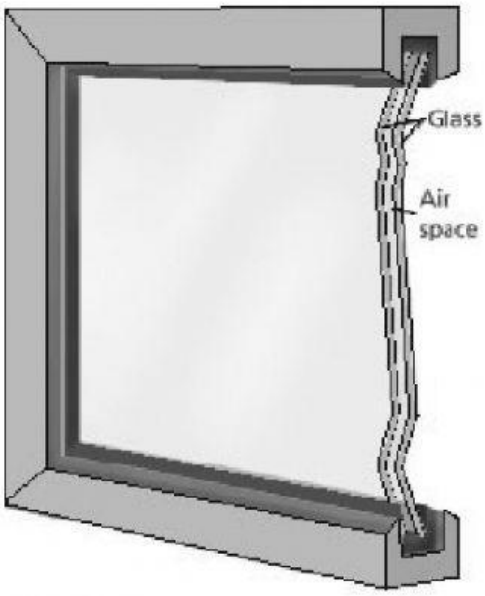
LIVEWORKSHEETS

Name _____ Date _____ Class _____

Thermal Energy and Heat *(continued)*

Using Science Skills

Use the figure below to answer the following questions in the spaces provided.



25. Why do you think the device shown contains an air space?

_____

_____

_____

26. Many older windows have only a single pane. Why do these windows not insulate very well?

_____

_____

_____

Essay

Write an answer for each of the following questions on a separate sheet of paper.

27. Explain the role of density in the formation of convection currents.

28. Describe, in terms of the motion of particles in an object, how heat conduction transfers energy between objects or from one part of an object to another part at a lower temperature.

LIVEWORKSHEETS