

Name:

Date:

Period:

## Homework: Thermal Energy

**CHANGE IN TEMPERATURE = FINAL TEMPERATURE - INITIAL TEMPERATURE.**

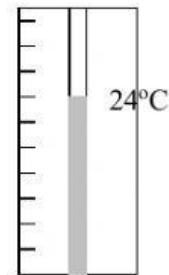
Positive  $\Delta T$  means the substance absorbed energy and heated up.

Negative  $\Delta T$  means the substance lost energy and cooled down.

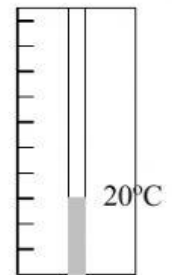
Use the table of specific heats below to answer questions 1-5:

Substance	Specific Heat [J/g $\cdot$ °C]
Water	4.184
Wood	1.760
Carbon (graphite)	0.710
Glass	0.664
Iron	0.450

1. How much heat is gained by a 20 gram piece of iron that changes from an initial temperature of 21°C to a final temperature of 66°C? (**Show your work.**)



**Initial  
Temperature**



**Final  
Temperature**

2. About how much heat is lost by a 10.0 gram piece of glass that undergoes the temperature change shown? (**Show your work.**)

3. When 5 g of graphite changes from an initial temperature of 20°C to a final temperature of 27°C, what is the change in thermal energy? (**Show your work.**)

**Remember:**

**Heat can only travel through SOLIDS by conduction.**

**Heat is carried in FLUIDS by convection.**

A FLUID is a \_\_\_\_\_ or a \_\_\_\_\_.

**Decide if the following heat movement was completed through conduction or convection.**

Hot air moving to second floor of a house \_\_\_\_\_

Heat passing from an electric stove to a pot directly on top of it \_\_\_\_\_

Hot cooking oil rising to the top of a pot \_\_\_\_\_

Hot branding irons mark a cow \_\_\_\_\_

Pizza pan transferring heat to a cooking pizza \_\_\_\_\_

Steam rises from a cup of boiling water \_\_\_\_\_

Heat moves through a metal fire poker so that the handle is warm \_\_\_\_\_

Liquid iron moves to the top of a vat of iron \_\_\_\_\_

Heat moves through a metal spoon that is placed in hot food \_\_\_\_\_

Warm "lava" moves to the top of a lava lamp \_\_\_\_\_

Hot copper pots transfer heat to the water inside \_\_\_\_\_

Heat travels from a persons hand to the desk they are touching \_\_\_\_\_