Specific Heat
Chem Worksheet 16-1

Name _____

Period _____

Use the data in the table to answer the following questions.

Substance	Specific Heat Capacity (J/g °C)
water	4.184 J/g °C
aluminum	0.89 J/g °C
silicon	0.703 J/g °C
iron	0.45 J/g °C
copper	0.387 J/g °C
silver	0.24 J/g °C
gold	0.129 J/g °C
lead	0.128 J/g °C

Useful Equations

$q = mc\Delta T$ $T_c = 5/9(T_f-32)$

$\Delta T = T_{final} - T_{initial}$ $T_K = T_c + 273$

$1\ kg = 1000\ g$ $1\ kcal = 1000\ cal$

$1\ cal = 4.184\ J$

1. Calculate the energy required to heat a beaker of water at ▨°C to boiling. The mass of the water is ▨0 g.

2. A water heater warms 35 ▨ of water from a temperature of ▨7 °C to a temperature of 83.7°C. Determine the amount of energy (in joules) required.

3. Determine the temperature change that will occur when ▨J of energy is applied to 20. g of gold.

4. When ▨J of heat is applied to a sample of iron metal the temperature increases by ▨0 °C. Determine the mass of the metal sample.

5. A silver ring has a mass of ▨g. How many calories of heat are required to increase the temperature from ▨°C to ▨°C?

6. A heat energy of ▨J is applied to a sample of glass with a mass of 28.4 g. Its temperature increases from −▨6 °C to 15.5 °C. Calculate the specific heat of glass.

7. What is the mass of copper that increases its temperature by ▨°C when ▨,000 J of energy is applied?

8. How much energy (in kJ) is lost by a 348 ▨ iron statue that goes from a temperature of ▨K to a temperature of 280 K?

9. When 5800 joules of energy are applied to a 15▨ piece of lead metal, how much does the temperature change by?

10. A 9.84 oz ingot of unknown metal is heated from 73.2 °F to 191.2 °F. This requires 3.91 kcal of energy. Calculate the specific heat of the metal and determine its identity.
   *(1 ounce (oz) = 28.35 grams)