

Group Heat Quiz

Name: KEY

Work in **pairs** to finish the following group quiz. Everyone should turn in a completed copy of the quiz before the end of the hour. **Show All Work!**

1. Determine the amount of energy is required to raise the temperature of 12.5 grams of water from 40° Celsius to 74° Celsius.

$$1776.5 \text{ J}$$

2. What quantity of energy is required to heat a piece of iron weighing 3.5 grams from 35 degrees Celsius to 55 degrees Celsius?

$$31.43 \text{ J}$$

3. A 5.0 gram sample of a metal requires 6 J of energy to change its temperature from 23 to 28.1 degrees Celsius. What is the metal?

$$.235 \text{ J/g}^\circ\text{C}$$

SILVER

4. If 34,000 J of heat is applied to a 9110 gram block of metal the temperature increases 10.7 degrees Celsius. Calculate the specific heat capacity of the metal.

$$.349 \text{ J/g}^\circ\text{C}$$

5. A 35.2 gram sample of a iron requires 125.1 J of energy to heat. Calculate the change in temperature.

$$\Delta T = \frac{Q}{mc} = 7.91^\circ\text{C}$$

6 A 50.0 gram piece of metal is placed in an oven at 300° C. The metal is transferred to 100 grams water in a foam cup calorimeter with an initial temperature of 22.42° C. If the temperature of the water increases to 30° C what is the identity of the metal?

	METAL	H ₂ O
m	50g	100g
C	?	4.18 J/g°C
T _i	300°C	22.42°C
T _f	30°C	30°C

$$Q = 100g (4.18 \frac{J}{g^\circ C}) \Delta T$$

$$= 3168.44J$$

$$C = .235 \frac{J}{g^\circ C}$$

Ag - silver

Specific Heat Capacity Values

H₂O = 4.18 J/g*° C Au = .128 J/g*° C Ag = .235 J/g*° C Fe = .449 J/g*° C
 Cu = .385 J/g*° C