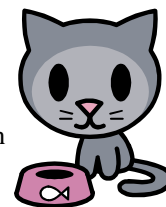


## Specific Heat Worksheet #1



**Directions:** Calculate the following showing ALL work to receive credit.

Formula  $Q = mc\Delta T$ , where  $Q$  is heat in joules,  $c$  is specific heat capacity in  $J/g^{\circ}C$ ,  $m$  is the mass in grams, and  $\Delta T$  is the change in temperature in  $^{\circ}C$ .

- For #1-4 circle the variables it gives you and underline what you are trying to find. You can use two colors of highlighters if you like instead.

Q	Work	Answer with Units!
1	Find the amount of heat ( $Q$ ) needed to raise the temperature of 5.00 g of a substance from $20.0^{\circ}C$ to $30.0^{\circ}C$ if the specific heat of the substance is $2.01 J/g^{\circ}C$ . <b>100.5 J</b>	
2	A metal with a specific heat of $0.780 J/g^{\circ}C$ requires 45.0 J of heat to raise the temperature by $2.00^{\circ}C$ . What is the mass of the metal? <b>28.8 g</b>	
3	A substance requires 50.0 J of heat to raise its temperature by $6.00^{\circ}C$ . If the mass of the substance is 5.00 g, what is the specific heat of the substance? <b>1.67 J/g<math>^{\circ}C</math></b>	
4	A metal with a specific heat of $0.70 J/g^{\circ}C$ and a mass of 8.00 g absorbs 48.0 J of heat. What will be the temperature change of the metal? <b>8.57 <math>^{\circ}C</math></b>	

The table below shows the specific heats of some common substances.

**Use the table to answer questions 5-9**

Substances	Specific Heat ( $J/g^{\circ}C$ )	Substances	Specific Heat ( $J/g^{\circ}C$ )
Aluminum	0.90	Iron	0.450
Copper	0.38	Lead	0.130
Gold	0.13	Steam	1.87
Ice	2.09	Water	4.18

Q	Work	Answer with Units!
5	How much heat (Q) is needed to raise the temperature of 8.00 g of lead by 10.0°C? <b>10.4 J</b>	
6	The temperature of a 250.0-g ball of Iron increases from 19.0°C to 32.0°C. How much heat did the iron ball gain? <b>1462.5 J</b>	
7	The temperature of a 100.0-g block of ice increases by 3.00°C. How much heat does the ice receive? <b>618 J</b>	
8	Ten grams of steam absorbs 60.0 J of heat. What is the temperature increase of the steam? <b>3°C</b>	
9	A piece of lead loses 78.0 J of heat and experiences a decrease in temperature of 9.0°C. What is the mass of the piece of lead? <b>66.7 g</b>	