**Name: Period: Seat#:**

**Worksheet #2**

**Conceptual Questions**

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| 1. Explain the difference between heat and temperature.
 | 1. Define specific heat and provide the units for it.
 | 1. Which will heat up *slower*> Explain why.Metal A – specific heat = 0.35$\frac{J}{g°C}$

Metal B – specific heat = 0.12$\frac{J}{g°C}$ |
| 1. Draw a generic graph for an endothermic reaction.Is energy being lost or gained?
 | 1. Draw a generic graph for an exothermic reaction. Is energy being lost or gained?
 |
| 1. Define convection.
 | 1. Define conduction.
 | 1. Define radiation.
 |

**Mathematical Questions**

* Identify the variables involved
* Show plugging in the variables to the correct places in the equation
* Get an actual answer, including units! Box your answer!
* Don’t forget - you must show units and any conversions that might be involved.
* You can either rearrange your equation before you plug in your variables, or after. Do what works for you!
* Some answers are provided at the end. They are underlined.

|  |  |
| --- | --- |
| 1. Find the amount of heat (Q) needed to raise the temperature of 5.00 g of a substance from 20.0°C to 30.0 C if the specific heat of the substance is 2.01 J/g°C. *100.5 J*

Variables Q = ?m = 5.00 gC = 2.01 J/g CΔ T = 10 C | 1. A metal with a specific heat of 0.780 J/g°C requires 45.0 J of heat to raise the temperature by 2.00°C. What is the mass of the metal? *28.8 g*
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| 1. A metal with a specific heat of 0.70 J/g°C and a mass of 8.00 g absorbs 48.0 J of heat. What will be the temperature change of the metal? *8.57°C*
 | 1. What is the specific heat of a substance that absorbs 2.5 x 103 joules of heat when a sample of 1.0 x 104 g of the substance increases in temperature from 10.0°C to 70.0°C? *C = 0.0042 J/g°C*
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| The table below shows the specific heats for some common substances. Use this table for the following questions.

|  |  |
| --- | --- |
| **Substances**  | **Specific Heat (J/g°C)**  |
| Aluminum  | 0.90  |
| Copper  | 0.38  |
| Gold  | 0.13  |
| Ice  | 2.09  |
| Iron  | 0.450  |
| Lead  | 0.130  |
| Steam  | 1.87  |
| Water  | 4.18  |

 | 1. How much heat (Q) is needed to raise the temperature of 8.00 g of lead by 10.0°C? *10.4 J*
 |
| 1. 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? *1462.5 J*
 | 1. The temperature of a 100.0-g block of ice increases by 3.00°C. How much heat does the ice receive?

*627 J* |
| 1. Ten grams of steam absorbs 60.0 J of heat. What is the temperature increase of the steam? *3.2°C*
 | 1. 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? *66.7 g*
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