Worksheet – Calculations Involving Specific Heat

1. For q = m · c · ΔT : identify each variable by name & the units associated with it

2. Heat is not the same as temperature, yet they are related. Explain how they differ.

   a. *Perform calculations using (q = m · c · ΔT)*   b. *Determine if it's endothermic or exothermic*

1. Gold has a specific heat of 0.129 J/(gx°C). How many joules of heat energy are required to raise the temperature of 15 grams of gold from 22°C to 85°C? *Endothermic or exothermic?*	2. An unknown substance with a mass of 100 grams absorbs 1000 J while undergoing a temperature increase of 15°C. What is the specific heat of the substance? *Endothermic or exothermic?*
2. If the temperature of 34.4g of ethanol increases from 25°C to 78.8°C, how much heat has been absorbed by ethanol? The specific heat of ethanol is 2.44 J/(gx°C) *Endothermic or exothermic?*	3. Graphite has a specific heat of 0.709 J/(gx°C). If a 25g piece of graphite is cooled from 35°C to 18°C, how much energy was lost by the graphite? *Endothermic or exothermic?*
4. Copper has a specific heat of 0.385 J/(gx°C). A piece of copper absorbs 5000 J of energy and undergoes an energy change from 100°C to 200°C. What is the mass of the copper? *Endothermic or exothermic?*	5. 45 grams of an unknown substance undergoes a temperature increase of 38°C after absorbing 4172.4 J. What is the specific heat of the substance? Look at the table on page 513 of your book and identify the substance. *Endothermic or exothermic?*
6. A 40. g sample of water absorbs 500 Joules of energy. How much did the water temperature change? The specific heat of water is 4.18 J/(gx°C). *Endothermic or exothermic?*	7. If 335g of water at 65.5°C loses 9750 J of heat, what is the final temperature of water? Liquid water has a specific heat of 4.18 J/(gx°C). *Endothermic or exothermic?*