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| **Date** | **Topic** | **Homework** |
| **CB** | **PA** | **H** |
| M – Oct 6 | Potential and Kinetic Energy | None | None | None |
| T – Oct 7 | Heat and Temperature | 1-2, 5-6 | 1-5 | 1-5 |
| W – Oct 8 | Specific Heat | 6, 8 & 9 | 6, 8-10 | 6-11 |
| Th – Oct 9 | Specific Heat | 11 & 12 | 12-14 | 12-15 |
| F – Oct 10 | Specific Heat/ Heat Capacity | 15 & 16, Prepare for Lab | 15-17, Prepare for Lab | 16-19, Prepare for Lab |

**Do not write your answers on this sheet. Only answers written in your notebook will be graded. SHOW YOUR WORK FOR ALL PROBLEMS!!!**

1. What is heat?
2. What is temperature?
3. How does temperature differ from heat?
4. How can you tell which one of two samples will release energy in the form of heat when the two samples are in contact?
5. Use the figure on the right to answer the following questions:

30 oC 30oC 60oC

  

100 mL 200 mL 200 mL

**A B C**

* 1. In which beakers in the movement of molecules the same?
	2. Rank the beakers from the one that contains the most heat to the beaker that contains the least heat.
	3. Compare the movement of molecules between beaker B and beaker C.
1. Using Table 1 below, which metal would heat up the fastest in the sun? Which would heat up slowest? How do you know?
2. For each set, choose which block contains the most heat?

(HINT: You may need to use the specific heat capacities in the table on the right.)

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| **Table 1: Specific Heat Capacity of Metals** |
| **Metal** | **J/g oC** |
| Aluminum | 0.897 |
| Iron | 0.444 |
| Copper | 0.385 |
| Gold | 0.129 |
| Nickel | 0.440 |
| Silver | 0.240 |
| Calcium | 0.650 |
| Lead | 0.160 |

a. Block A: 45 g of Ca at 32oC Block B: 25 g of Ca at 32oC

b. Block C: 45 g of Ca at 12oC Block B: 45 g of Ca at 32oC

c. Block E: 25 g of Ca at 12oC Block F: 25 g of Au 12oC

d. Block G: 45 g of Fe at 75oC Block H: 45 g of Ni at 75oC

1. The specific heat capacity of fresh water is 4.18 J/(gK) while the specific heat capacity of sea water is 3.90 J/(gK). Which body of water can change temperature the fastest assuming mas is the same? Explain your answer.
2. How much heat is released when 45 g of gold is cooled from 62oC to 25oC?
3. A sample of water is heated from 15 oC to 55 oC. What is the mass of the sample if 2500J of heat is absorbed? (Specific heat of water = 4.18 J/g oC)
4. What is the specific heat of 23.0g of a substance that is heated from 15 oC to 45 oC if 212.5J of heat was needed to warm the object?
5. What change in temperature is required for a 8.2g sample of copper to absorb 150J of heat?
6. What is the specific heat of 3.0g of substance that is cooled from 89 oC to 28 oC if 422.0J of heat was released from the object?
7. What change in temperature is required for a 25.2g sample of aluminum to absorb 78.0J of heat?
8. How much heat is absorbed when 64.0g of silver is warmed from 57 oC to 100.0 oC?
9. A sample of water is cooled from 100.0 oC to 34.5 oC. What is the mass of the sample if 48.00 J of heat is released? (Specific heat of water = 4.18 J/g oC)
10. How much heat is released when 155g of gold is cooled from 82 oC to 15 oC? The specific heat of gold is 0.129 J/g oC.
11. What is the final temperature of a 15.2 gram sample of copper if the initial temperature was 12.0 oC and the sample absorbed 225J of heat? The specific heat of copper is 0.387 J/g oC.
12. Gold has a specific heat of 0.129 J/g oC. What is the intial temperature of an 88 gram sample of gold if the final temperature was 50.0 oC and the system **lost** 425 J of heat?