Student Lab Sheet

Name_____ Date: _____

Are HEAT and TEMPERATURE the same thing? YES NO

Vocabulary Words

Heat Transfer – The movement of thermal energy from one object to another of a different temperature.

Conduction – The transfer of heat from one particle of matter to another.

Convection – The transfer of heat by movement of a fluid.

Radiation – The direct transfer of energy by electromagnetic waves.

Insulator – A material that does not conduct heat well.

Conductor – A material that conducts heat well.

Experiment 1 Data Collection

READING	Cup A ^{o}C	Cup B ^{o}C
1		
2		
3		
4		
5		
6		

Observations:

1. Describe how the metal bar feels before experiment 1.

2. Hypothesis: What do you think will happen to the metal bar during experiment 1?

   Describe how the metal bar feels during experiment 1:
   a. Before Reading 1?

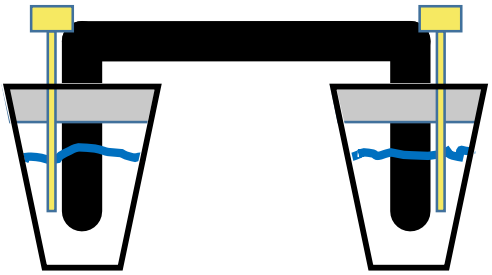
   b. After Reading 2?

   c. After Reading 4?

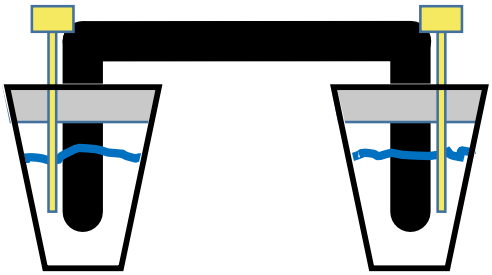
3. Summarize your observations made during experiment 1. Did the temperature of the bar change? Did the temperature of the water change? If so, how?

Use your vocabulary words to label diagram for experiment 1 below (use arrows to represent the direction of heat flow).

<u>Vocabulary Word Bank:</u> conduction, convection, radiation, insulator, conductor, thermometer, hot water, cold water.



Experiment 1



Experiment 2

Experiment 2 Data Collection

READING	Cup C ^{o}C	Cup D ^{o}C
1		
2		
3		
4		
5		
6		

Observations:

4. Hypothesis: What do you think will happen to the metal bar during experiment 2?

   Describe how the metal bar feels during experiment 1:
   a. After Reading 2?

   b. After Reading 4?

5. Summarize your observations made during experiment 2. Did the temperature of the bar change? Did the temperature of the water change? If so, how?

6. Why are the results in experiment 2 different from experiment 1?

7. Was there heat transferred in experiment 2? Why? Was there an insulator or a conductor present? Was there conduction, convection or radiation?

Use your vocabulary words to label diagram for experiment 2 above (use arrows to represent the direction of heat flow).

Vocabulary Word Bank: conduction, convection, radiation, insulator, conductor, thermometer, hot water, cold water.

Knowledge Check (KC):

KC1. What **must** be present for heat to flow (transfer) from one thing to another one?

KC2. Did experiments 1 and 2 prove the answer to KC1? Yes or No. How did you prove it?

KC3. Are heat and temperature the same thing? Why? What are the units of heat, and temperature?

KC4. In what direction does heat transfer?