Name _____ Date _____ Period _____ Page _____

# Heat, Temperature and Conduction Activity Sheet

Question to Investigate: _____

_____

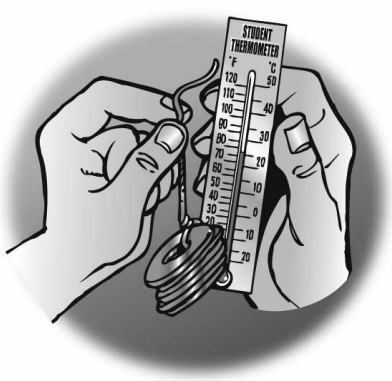
**Materials for each group**

- 2 sets of large washers on a string
- Beaker filled with hot water
- Room - temperature water
- 2 thermometers
- Beaker

**Procedure**

**Part 1:** ***Room- temperature washers placed in hot water***

1. Pour 200 mL of water into the control water beaker
2. Obtain 200 mL of hot water from the teacher with the experimental beaker.
3. Place a thermometer into the control water beaker to measure the "Before" temperature (measure in Celsius). Record the "Before" temperature for the control water beaker in the data table below.
4. Remove the thermometer from the control water beaker and place it in the hot water beaker to the measure the "Before" temperature of the hot water. Record the temperature of the hot water in the "Before" column in the chart in the data table below. Leave the thermometer in the hot water beaker.
5. Use another thermometer and measure the temperature of the washer. Hold the string of the washers, and touch the washer against the bulb of the thermometer. Record the temperature in the "Before" column in the data table below.
6. With the thermometer in the hot water, hold the string and lower the washers all the way into the water.
7. Leave the washers in the hot water until the temperature stops changing. Record the temperature of the hot water in the "After" column for the hot water in the table below.
8. Lift the string of washers, and remove the washers from the hot water and measure and record the temperature of the washer in the "After" column in the data table below.
9. Take the thermometer out the hot water in put it into the control water beaker. Measure and record the temperature in the "After" column for the control water in the data table below.
10. Empty the hot water into the sink.




| Room - temperature washers placed in hot water | | |
|---|---|---|
| **Temperature of .....** | **Before** | **After** |
| Hot water | | |
| Metal washers | | |
| Control Water | | |

1. Why do you think the temperature of the water in your beaker changes more than the water in the control cup?

**Part 2:** ***Hot washers placed in room- temperature water***

1. Pour about 200 milliliters of room - temperature water into your beaker.
2. Record the control water "Before" and "After" data from Part 1 into the data table below for Part 2.
3. Place the thermometer into the room temperature water and record the temperature of the room-temperature in the "Before" column in the table below.
4. Obtain a set of hot washers from the teacher and quickly and carefully use a thermometer to measure and the temperature in the "Before" column for the room-temperature water.
5. With the thermometer still in the room-temperature water, hot the string and lower the hot washers into the water.
6. After 2 minutes, pull the string and remove the washers from the water. Measure and record the temperature of the washers in the "After" column in the data table below.
7. Take and record the temperature of the room temperature in the "After" column.
8. Empty all beakers into the sink and return the hot washers to the teacher.

| Hot washers placed in room - temperature water | | |
|---|---|---|
| **Temperature of .....** | **Before** | **After** |
| Room – Temp Water | | |
| Hot Metal Washers | | |
| Control Water | | |

**Conclusions:**

1. Touch your metal chair or desk leg and then touch your plastic desk top. Which is colder, the metal or the plastic? _____ Explain why one feels colder even though it is the same temperature (room temperature) as the other one. Hint: Certain materials are better at conducting heat than others. _____

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2. Let's say that you put a cup of cold water in one room and a cup of hot water in another room. Both rooms are room - temperature. Why does the cold water get warmer and the hot water get cooler? -

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