Table _____ Period _____ Date _____

Conduction Lab

Question – Why does the temperature of an object change when it is placed in hot water?

Materials – 2 sets of large metal washers on a string
Styrofoam cup filled with hot water
Room-temperature water
Thermometer

Procedure

1. Use a thermometer to measure the temperature of your washers. Record the temp of the washers in the 'Before' column.
2. Place the thermometer in your hot water cup to measure the initial temperature of the water. Record the temp of the water in the 'Before' column.
3. With the thermometer still in the water, hold the string and lower the metal washers all the way into the water.
4. Observe any changes in the temperature of the water. Leave the washers in the water until the temperature stops changing. Record the temperature of the water in the 'After' column.
5. Remove the thermometer and the washers from the water. Take and record the temperature of the washers in the 'After' column.
6. Empty the cup in the sink and let the thermometer return to room-temperature.

Room-Temperature Washers Placed in Hot Water		
Temperature of…	**Before**	**After**
Water in your cup		
Metal washers		

1. Why did the water temperature change?

2. What happened to the temperature of the washers? Why?

Procedure

1. Repeat procedures 1 through 6 on the other side of the paper but with the room-temperature water and hot washers you get from Miss Johnson.

Hot Washers Placed in Room-Temperature Water		
Temperature of…	**Before**	**After**
Water in your cup		
Metal washers		

1. Why did the water temperature change?

2. What happened to the temperature of the washers? Why?

3. Touch your metal chair leg and then touch the top of the table. Which feels colder?

4. Explain why metal feels colder even though it is the same temperature as the other objects in the room. **HINT**: Certain materials are better at conducting heat than others.

5. Using the same hint above, explain why the water in the room-temperature water feels colder when you put your finger in it than the room-temperature air.

6. 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 then hot water get cooler?