Honors Chemistry Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Dr. Wexler  
Lab: Determining the Temperature of Hot Metal (HS-PS3-1)  
Date:

In this experiment you will use your knowledge of heat capacity and the law of conservation of energy to determine the temperature of a hot steel object.

Procedure:

1. Measure the mass of the steel object you are given.

2. Fill a beaker with a known volume of room temperature water and measure its temperature with a digital thermometer.

3. Grasping with tongs, heat the steel object in the flame of a Bunsen burner until it is red hot.

4. Drop the hot steel object into the beaker of water.

5. Measure the new temperature of the water.

Calculate the temperature of the metal object: (show all work, including units)  
Given: the specific heat capacity of steel = 0.45 J/g•°C  
Given: the specific heat of liquid water = 4.18 J/g•°C