# Open Chemistry Online – Post Quiz #10 (OpenStax Ch: 5)

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| **Substance** | **Specific Heat Capacity (J/g oC)** |
| Water | 4.184 |
| Iron | 0.449 |

A 50.0 g Iron bar is heated, and then dropped into a 500.0 mL water bath, initially at room temperature (20.0 oC). When thermal equilibrium is reached, the water bath is at 27.6 oC. Assume the density of water is 1.00 g/mL.

Use the table to the right to guide your answers, and assume this system is perfectly insulated: no heat loss to the surroundings.

1. How will the energy change of the iron relate to the energy change of the water?
2. State the final temperature of both the water and the iron bar.
3. Calculate the amount of heat that flows into the water from the iron.
4. Calculate the temperature of the iron bar before submersion.