1. Go to the website: <http://employees.oneonta.edu/viningwj/sims/specific_heat_s.html>
2. Click on Description and read the description of the activity. Click on Description again to make the description disappear.
3. Choose one of the six materials. Choose the mass you want to use and how long you want the flame to last. Then click on Heat.
4. Using the amount of Joules added to the material determine the heat capacity of the object.
5. Repeat again using the same metal but change the mass and time of heating.
6. Repeat steps 3-4 for 3 different materials. Record your data in the table below. SHOW ALL OF YOUR WORK for your calculations. Note you are solving for Cp, not q!!!

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Material used | Mass  m  (g) | Initial Temp of the metal (Ti ) | Final Temp of the metal (Tf) | **Change** in temperature  ΔT= Tf – Ti (0C) | Energy added –q (J) | Calculated specific heat (J/g0C)  Use the equation q=m Cp ΔT and solve for **Cp**  \*\*\* SHOW YOUR WORK\*\*\* |
| Ag | 5.0 g |  |  |  |  |  |
| Ag | 10.0 g |  |  |  |  |  |
| H2O | 5.0 g |  |  |  |  |  |
| Cu | 5.0 g |  |  |  |  |  |
|  |  |  |  |  |  |  |

Based upon the data you collected, in general do metals have a high or low specific heat capacity compared to water? Google one other metal’s specific heat capacity in J/g°C. Does this support your claim?

Based upon water’s specific heat capacity, do you think it would take water a longer or shorter amount of time to heat up (and cool down) than a similar mass of copper (or silver)? Explain why.

Why do you think the specific heat capacity did not change for the material you tested twice even though you changed the amount of the material and the amount of energy added?

Design and run an experiment to see how duration (time) effects the heat change of the substance. Write down your data as evidence to support your claim. Why do you think that time is not part of the specific heat calculation?