Specific heat

# Overview

In this lab, you will use a simulation to collect “data” and evaluate the specific heat of a substance. You will also use the accepted value of the specific heat of water to determine the average power output of your stove.

# Specific heat simulation

Go to <http://employees.oneonta.edu/viningwj/sims/specific_heat_s.html>. You’ll need to enable flash to run the simulation.

## Task

Determine the specific heat of any available material.

## Notes & tips

* For uncertainty, use plus or minus one smallest increment of each measurement. For example, heat is given to the ones place, so the uncertainty is ±1 J.
* I expect multiple data points and graphical analysis; simply using on one (or even a handful) of measurements is not sufficient for this part of the lab. (More generally: don’t trust a calculation from a single data point.)
  + Hint: in that equation, how are *Q* and *ΔT* related? What sort of graph could you produce? What would a line of best fit tell you?
* Don’t neglect error bars on your graphs.
* Logger Pro can give you the uncertainty of the fit parameters on a line of best fit; this has to do with the algorithm used and the data it is fitting to. Uncertainty of the fit parameters is *not* the same as the RMSE or R2 value.
* Give a brief description of your process in the Materials & Methods section of your report; it doesn’t need to be more than a couple of sentences.

# Stove power output

## Task

Using water, determine the power output of your stove. You may use an electric kettle if you prefer.

## Notes & tips

* Be sure to cite your source for what you use as the accepted value of the specific heat of water.
* You may work in whatever system of units is convenient for your equipment—just be sure to be consistent
* The Materials & Methods section of your lab report should focus on this experiment.