**Chem 11 Lab: Density of a Solid TEACHER NOTES**

**Question:**

What is the density of an unknown solid?

We used aluminum pellets, but any large enough pieces of metal would work.   
 Density bars would do the trick, as well.

**Pre-Lab thinking (class discussion)**

What IS density? How do we calculate it?

*D=m/V measured in grams per millilitre or grams per cm3*

What would we need to measure, to find the density of an object?   
How will we measure this?

*Mass of solid (in grams)  
 Volume of solid*

*-our solid has an irregular shape, so LxWXH won’t work  
 -volume by displacement of water.*

What can/should we do to minimize error in our data?

*Use precise measuring devices (ex: Grad. Cylinder, not beaker)*

*One data point might have error…   
 using the average of a data set (graph) should give a better overall picture*

**Build a procedure:**

*Brainstorm this together.*

*For this lab, I provide a summarized procedure and a data collection chart.   
 The data is complex and even with a chart, students get lost in the numbers.*

*I’ve decided that modelling data management is the way to go for this lab.*

Notes:

Solid is added in small portions.

Total mass of solid in the graduated cylinder is the sum of ALL portions…   
 and uncertainties grow.

Volume is measured as (new volume – original volume).   
 Each calculation uses only two data points, so only two uncertainties combine.