Precision Fine Tuning
Application

Problem:

How can correct measurements be made using common laboratory equipment?

Materials:

lab stations

Procedure:

There are a number of lab stations around the room. Your job is to visit each lab station and correctly measure the item identified. Before beginning, prepare a data table in which to record your data from the twelve stations. You are to enter your measurement in the data table. Once this is done, circle the digit which you estimated (guessed). It might be a good idea to have your teacher check your data table after you have visited the first few stations.

Summing Up

1. To what decimal place can mass be measured using the triple beam balance?

2. What determines to how many decimal places volume can be measured?

3. What generalization can you make as to when non-zero digits are considered significant?

4. If you were asked to measure a volume of 20.5 mL, what size graduated cylinder would you use? Explain your answer.

5. Write a rule which states when zeroes are significant and when they are not. Provide an example for each situation.