Chapter 02– Learning Objectives and Study Questions

- What are the two parts of a measurement?
- What does it mean when we say that all measurements have uncertainty?
- Know the difference between an exact number and measured number and how they are used in calculations.
- What are the three base units in the metric system?
- You need to memorize the equalities and corresponding conversion factors for the metric system, the prefixes and corresponding scientific notation powers of 10. You need to know how to create conversion factors to use this information as it applies to length, volume and mass.
- You need to know how to make measurements to the correct number of decimal places, depending on the measuring device.
- What are significant figures?
- What are the rules about significant figures? You should be able to look at a number and determine how many significant figures it has.
- You should be able to round a number to the correct number of significant figures.
- You need to be able to give the answers to multiplication/division and addition/subtraction calculations to the correct number of significant figures.
- What do the numbers mean in scientific notation?
  - You should know how to input numbers in scientific notation into your calculator.
  - You should be able to use numbers in scientific notation in calculations (to the correct number of significant figures).
- You should be able to use any conversion factor (memorized or given) to convert between a measurement in one unit and another unit. (Dimensional Analysis)
  - You should be able to do both one-step and multi-step conversions.
- What is density? You should be able to use any two of the three pieces of information in the density formula to calculate the third.
- What is the relationship between density and floating?
- What is the difference between heat and temperature?
- In which direction does heat flow?
- You need to memorize how to convert between temperatures in Celsius and Kelvin.
- You need to know the formulas to convert between temperatures in Celsius and Fahrenheit.