

## CHAPTER OVERVIEW

### 1: Basics of Measurement

Measurements are one of the most important things to understand in chemistry as well as other physical sciences. Measurements are not only important in science, but in many fields of work which depend upon science including agriculture, medicine, and other health related fields. In all of these fields, workers are routinely measuring things and reading measured amounts: the area of a plot of land, the weight of a patient, the concentration of a medication, the volume of a measuring device. Misunderstandings of measurement could result in catastrophe in any of these areas. (in fact, miscalculations related to measurements were responsible for several tragedies including [a very expensive Mars mission](#).) There are several important things to understand related to measurements: what they are, their precision, and how to perform calculations with measured numbers. Section 1.1 discusses measurements in terms of numbers and units. Section 1.2 discusses how we explain precision when we report measurements. Section 1.3 discusses how we can use the units of measurements to correctly perform the types of calculations that will be important in this course, and in applications which you will use in whatever field you go into.

#### [1.1: Taking Measurements- Numbers and Units](#)

##### [1.1.1: Scientific Notation - Writing Large and Small Numbers](#)

##### [1.1.2: The Basic Units of Measurement](#)

#### [1.2: Significant Figures](#)

##### [1.2.1: Significant Figures - Writing Numbers to Reflect Precision](#)

##### [1.2.2: Significant Figures in Calculations](#)

#### [1.3: Conversions](#)

##### [1.3.1: Problem Solving and Unit Conversions](#)

##### [1.3.2: Solving Multi-step Conversion Problems](#)

##### [1.3.3: Units Raised to a Power](#)

#### [1.4: Density](#)

#### [1.5: Temperature - Random Motion of Molecules and Atoms](#)

#### [1.E: Measurements \(Exercises\)](#)

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