

Module 1: Properties and Measurements

Table of Contents

[Module 1.1: Physical and Chemical Properties](#)

[Module 1.2: Measurements](#)

[Module 1.3: Precision and Accuracy](#)

[Module 1.4: Mathematical Treatment of Measurements](#)

Overview

In this module, through the classification of matter (solid, liquid and gas), and the comparison of content between pure substance and mixture, various physical and chemical properties are first introduced. This is then followed by learning the concept of measuring the physical and/or chemical properties, which can serve the purpose of identifying specific chemicals or to monitor specific physical or chemical changes. The precision and accuracy of scientific measurements are also discussed. Lastly, in order to apply these knowledge including problem solving, this module ends with the conversion of units and quantitative measurements i.e. dimensional analysis.

Student Learning Outcomes for the Course

- SLO 1: Recognize units of measurement and associate them with the states of matter.

Keywords

Matter, Properties, Measurements

Teaching Tips

Some students may need help and/or practice on the following:

- Distinguish between physical and chemical properties. Worksheets are available in Module 1.1.
- Emphasis on using the proper units in scientific measurements.
- Distinguish between precision and accuracy.
- A brief review of algebra can go a long way for dimensional analysis, the concept of molarity etc.
- Exercises are essential to the learning of unit conversion and dimensional analysis, which are available in Module 1.4.

Diversity, Equity and Inclusion ([see more resources](#))

The Digital Enhancement Group encourages UNC system faculty to enhance Diversity, Equity, and Inclusion of all types in all STEM courses. Within the Chem I modules, we have included some examples with which to possibly start. Our materials are not comprehensive, but rather specific to the topics within each module.