

# Introduction to Chemistry

<http://www.unit5.org/chemistry/Introduction.htm>

## Learning Objectives/Targets

Worksheet / Lab

### INTRODUCTION TO CHEMISTRY

#### Section 1.1 Evolution of Chemistry

- To describe the early practice of chemistry.
- To identify the three steps in the scientific method.

#### Section 1.2 Modern Chemistry

- To describe the modern practice of chemistry.

#### Section 1.3 Learning Chemistry

- To realize that chemistry is an interesting and relevant subject.

### SCIENTIFIC MEASUREMENTS

#### Section 2.1 Uncertainty in Measurements

- To identify typical instruments in a chemistry laboratory.
- To explain why an instrumental measurement is never exact.

#### Section 2.2 Significant Digits

- To identify the number of significant digits in a given measurement.

#### Section 2.3 Rounding Off Nonsignificant Digits

- To round off a given value to a stated number of significant digits.

#### Section 2.4 Adding and Subtracting Measurements

- To add and subtract measurements and round off the answer to the proper significant digits.

#### Section 2.5 Multiplying and Dividing Measurements

- To multiply and divide measurements and round off the answer to the proper significant digits.

#### Section 2.6 Exponential Numbers

- To explain the concept of exponents and specifically powers of ten.
- To express a value as a power of ten and as an ordinary number.

#### Section 2.7 Scientific Notation

- To express any number in scientific notation.

#### Section 2.8 Unit Equations and Unit Factors

- To write a unit equation for an equivalent relationship.
- To write two unit conversion factors for a unit equation.

#### Section 2.9 Unit Analysis Problem Solving

- To state the three steps in the unit analysis method.
- To apply the unit analysis method of problem solving.

#### Section 2.10 The Percent Concept

- To explain the concept of percent.
- To apply percent as a unit factor.

### THE METRIC SYSTEM

#### Section 3.1 Basic Units and Symbols

- To state the basic units and symbols of the metric system.
- To state the prefixes for multiples and fractions of basic units.

#### Section 3.2 Metric Conversion Factors

- To write the unit equation for a basic metric unit and a prefix unit.
- To write the two unit factors derived from a metric unit equation.

#### Section 3.3 Metric—Metric Conversions

- To express a given metric measurement with a different metric prefix.

#### Section 3.4 Metric—English Conversions

- To express a given measurement in metric units or English units.

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

## Vocabulary

accuracy	Law of Conservation of Mass	scientific theory
alchemy	Material Safety Data Sheet	SI system
applied science (technology)	organic compound	synthesis
chemical	precision	system
controlled experiment	pure science (science)	transmutation
hypothesis	scientific law	variable
inorganic compound	scientific method	

## Labs/Activities

- (1) [Safety Contract pdf](#)
- (2) [Glassware identification & Labware](#)
- (3) [Candle Lab pdf](#)
- (4) [Textbook Activity pdf](#)
- (5) [Home Inventory of Chemicals](#) (ext. link)
- (6) [MSDS Sheets from FLINN Scientific](#) (ext. link)
- (7) [Thalidomide pdf](#)
- (8) [Measurement Prelab pdf](#)
- (9) [Measurement Lab pdf](#)
- (10) [Aluminum Copper Chloride pdf](#)
- (11) [Scientific Notation Lab pdf](#)
- (25) [Checkbook Activity](#)

## Worksheets

- (12) [Material Safety Data Sheet questions pdf](#)
- (13) [Real Life Chemistry pdf](#)
- (14) [Conversion Factors pdf](#)
- (15) [Scientific Notation pdf](#)
- (16) [Mathematics of Chemistry pdf \(key\) pdf](#)
- (17) [Graphing pdf Graph Paper Generator](#) (ext. link)
- (18) [Math Review pdf](#)
- (19) [Metric Article pdf questions pdf](#)
- (20) Blank [Graph Paper pdf](#)
- (21) [Significant Digits pdf](#)
- (22) [Vocab - Introduction to Chemistry pdf](#)
- (23) [Textbook Questions pdf](#)
- (24) [Review Sheet pdf](#)

## Calendar

- Day 1 – First Day of School (Welcome) & pick up papers (1), (3)
- Day 2 – Safety (2), (6), (12)
- Day 3 – Perceptions of Chemistry - (22), [WEBSITE for Chemistry Textbook](#)
- Day 4 – Glassware Identification (2)
- Day 5 – Safety is an Attitude & Pure / Applied Science - [Notes - Introduction to Chemistry pdf](#) (students) [pdf](#)
- Day 6 – Alchemist Dream
- Day 7 – QUIZ: Safety and Glassware (16)
- Day 8 – Pure Science vs. Applied Science (Technology) (4), (8), (9), (23)
- Day 9 – Checkbook Activity (25)
- Day 10 – Scientific Notation and Conversion Factors (7), (20)
- Day 11 – Scientific Notation and Graphs (11), (15), (21)
- Day 12 – LAB: Aluminum and Copper Chloride (10), (17)
- Day 13 – Conversion Factors (14), (15)
- Day 14 – Acids and Bases
- Day 15 – Review Day (24)
- Day 16 – TEST: Introduction to Chemistry