

Chemistry, Part 1



How to Take This Course

Complete all the quizzes, the assignment, the lab in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment and lab before you attempt the unit test, they will help you prepare. Some questions on the unit test relate to the assignment and lab. You will have access to the final when all unit tests are complete and your assignments and labs are graded.

Important: Allow 2-3 days for an assignment/lab to be graded. Read the full course instructions to understand the course grading.

- Instructions for the Course
- How This Course Works & Suggested Timeline
- Submitting Your Assignments
- Ask The Teacher

Meet your teacher for this course and ask a question.

Lab Requirement

In order to satisfy the University of California A-G requirements for a chemistry course, two components are required. The first is our online course and the second is a lab. The lab kit has to be purchased separately, it is not provided by SVHS

Lab Kit Requirement
The kit can be purchased from Quality Science Labs (QSL) and delivered through the mail. This kit has been designed by SVHS and QSL to accompany this course. The same kit can be used for Part 2 of this course--only one kit needs to be purchased for students taking Chemistry Part 1 and Part 2. Order your lab kit from [here](#), at checkout use the customer code: svhs2691-17 to receive a 20% discount.

Lab Details and Descriptions
Detailed instructions for the wet labs are provided in the lab kit. Here for a summary description of the labs covered in this course.

The lab assignments that are required to pass this course relate directly to the labs and materials in the "lab kit" mentioned above.

Unit 1: Observing Matter

This unit will introduce you to the study of Chemistry. The unit provides a brief overview of what Chemistry is all about and its importance. You will learn about important historical discoveries in Chemistry and the people who made these discoveries possible. You will get an introduction to physical and chemical properties, what they are and their classifications. Along with physical and chemical properties, you will learn how matter is classified.

- 1.1 Great Discoveries in Chemistry
 - Quiz 1.1 Three Great Discoveries in Chemistry
- 1.2 Physical and Chemical Properties
 - Quiz 1.2 Physical and Chemical Properties
- 1.3 Classifying Matter
 - Quiz 1.3 Classifying Matter
- Unit 1 Assignment - Historical and Current Discoveries
- Unit 1 Lab: Paper Chromatography and Properties of a Group in the Periodic Table

Unit 2: Elements and the Periodic Table

In this unit you will learn the elements and their places on the Periodic Table; the Periodic Law and the placement of elements. You will learn about the atom, what it is, its structure, and the atomic model. Plus this unit will also introduce you to electrons, what they are and their importance.

- 2.1 Model of the Atom
 - Quiz 2.1 Model of the Atom
- 2.2 The Periodic Law
 - Quiz 2.2 The Periodic Law
- 2.3 Trends in the Periodic Table
 - Quiz 2.3 Trends in the Periodic Table
- 2.4 Valence Electrons
 - Quiz 2.4 Valence Electrons
- Unit 2 Assignment - Adopt an Element
- Unit 2 Lab: Atomic Orbital Models and Hybridization of Orbitals

Unit 3: Chemical Compounds and Bonding

This unit introduces you to chemical compounds and bonding. You will learn what chemical compounds are, how they are formed and their makeup. This includes a look at ionic and covalent compounds and various types of chemical bonds. You will learn how to write chemical formulas.

- 3.1 Types of Bonds
 - Quiz 3.1 Types of Bonds
- 3.2 Properties of Ionic and Covalent Compounds
 - Quiz 3.2 Properties of Ionic and Covalent Compounds
- 3.3 Polar and Nonpolar Molecules
 - Quiz 3.3 Polar and Nonpolar Molecules
- 3.4 Writing Chemical Formulas for Ionic Compounds
 - Quiz 3.4 Writing Chemical Formulas for Ionic Compounds
- 3.5 Polyatomic Ions
 - Quiz 3.5 Polyatomic Ions
- 3.6 Writing Chemical Formulas for Molecular Compounds
 - Quiz 3.6 Writing Chemical Formulas for Molecular Compounds
- Unit 3 Assignment - Forms of Elements
- Unit 3 Lab: Electrical Conductivity and Decomposition

Unit 4: Chemical Reactions

In this unit you will learn about chemical reactions. You will study different types of chemical reactions including synthesis, decomposition, combustion, single and double displacement reactions. Using skills and knowledge from prior units, you will learn and practice writing skeleton chemical equations and balancing chemical equations.

- 4.1 Writing Skeleton Chemical Equations
 - Quiz 4.1 Writing Skeleton Chemical Equations
- 4.2 Balancing Chemical Equations
 - Quiz 4.2 Balancing Chemical Reactions
- 4.3 Synthesis and Decomposition Reactions
 - Quiz 4.3 Synthesis and Decomposition Reactions
- 4.4 Combustion Reactions
 - Quiz 4.4 Combustion Reactions
- 4.5 Single Displacement Reactions
 - Quiz 4.5 Single Displacement Reactions
- 4.6 Double Displacement Reactions
 - Quiz 4.6 Double Displacement Reactions
- Unit 4 Assignment - Reactions
- Unit 4 Lab: Double Replacement Reaction and Analysis of Hydrates

Unit 5: Conservation of Matter

In this unit you will learn about the conservation of matter. You will learn about isotopes, what they are and their place in the study of chemistry. You will learn about atomic mass and what atomic mass is, and practice calculating atomic mass. You will be introduced to Avogadro's number or the Mole, learn what it is and how it is used in chemical equations. This unit also introduces formulas and allows you to use your analytical skills in calculations and formula balances. Finally, this unit teaches converting between mass, mole and the number of particles.

- 5.1 Isotopes and Average Atomic Mass
 - Quiz 5.1 Isotopes and Average Atomic Mass
- 5.2 Avogadro's Number and the Mole
 - Quiz 5.2 Avogadro's Number and the Mole
- 5.3 Formula Mass
 - Quiz 5.3 Formula Mass
- 5.4 Converting Between Mass, Moles, and Number of Particles
 - Quiz 5.4 Converting Between Mass, Moles, and Number of Particles
- Unit 5 Assignment - Control a Haber-Bosch Ammonia Plant
- Unit 5 Lab: Mole Ratios and Titration

Unit 6: Chemical Proportions in Compounds

This unit focuses on the study of chemical proportions in compounds. You will learn about chemical composition and how to calculate percentage of a composition. You will be introduced to the empirical formula and learn its importance in the study of chemistry, you will also learn about the molecular formula too. You will learn how to determine and calculate empirical formulas and molecular structure and chemical equations.

- 6.1 Percentage Composition
 - Quiz 6.1 Percentage Composition
- 6.2 Empirical Formula
 - Quiz 6.2 Empirical Formula
- 6.3 Determining Empirical Formula by Experiment
 - Quiz 6.3 Determining Empirical Formula by Experiment
- 6.4 Molecular Formula
 - Quiz 6.4 Molecular Formula
- Unit 6 Assignment: "Who Done It?" - Mixed Reception
- Unit 6 Labs: Molar Mass by Titration

The Final

Complete all the quizzes, assignments, labs and unit tests in this course. Once they are complete and the assignments and labs have been graded, the Final will be made available and appear below the Practice Final.

Warning: You have only ONE attempt at the Final. There is a 3 hour time limit.

Are you ready to take the Final? We highly recommend you take the Practice Final first and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Good Luck!!

- Practice Final Exam

Course Completion

The "Certificate" and "Course Completion Record Request" links below are not active, they cannot be accessed until you have taken the final. Upon satisfying this requirement the links will become active and you can use them.

Before you go, we would appreciate your opinion on the course, please take 1 minute to complete the feedback form.

We hope you enjoyed this course!

- Course Feedback

Thank you for taking this course! Let us know what you think about it.

- Request a Course Completion Record

Restricted Not available unless: The activity **Final Exam** is marked complete

- Certificate of Completion

Restricted Not available unless: The activity **Final Exam** is marked complete