

Introduction to Chemistry Course Curriculum

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Course Overview

This 15-hour course (five 3-hour sessions) introduces middle school students to fundamental chemistry concepts through interactive slideshow lessons, practice problems, and engaging activities via Zoom.

Curriculum Outline

Day 1: The Building Blocks of Matter

Topics:

- Introduction to Chemistry and Its Importance
- What is Matter?
- Atoms: Protons, Neutrons, and Electrons
- Atomic Models and Drawings
- Elements and the Periodic Table Introduction

Interactive Elements:

- Slideshow with visual atom models
 - Practice: Drawing atoms for specific elements
 - Kahoot! quiz on atomic structure basics
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Day 2: Elements, Compounds, and the Periodic Table

Topics:

- Elements vs. Compounds
- Chemical Symbols and Formulas
- Reading the Periodic Table (atomic number, atomic mass, groups, periods)
- Molecules and How Atoms Combine
- Introduction to Chemical Bonding (covalent and ionic basics)

Interactive Elements:

- Slideshow with periodic table walkthrough
 - Practice: Identifying elements and writing formulas
 - Virtual scavenger hunt using the periodic table
 - Kahoot! quiz on elements and compounds
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Day 3: Properties of Matter and Chemical Changes**Topics:**

- Physical vs. Chemical Properties
- States of Matter and Phase Changes
- Density and How to Calculate It
- Mixtures vs. Pure Substances
- Evidence of Chemical Changes

Interactive Elements:

- Slideshow with real-world examples
 - Practice problems: calculating density
 - Kahoot! quiz on properties and changes
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Day 4: Chemical Reactions and the Law of Conservation of Mass**Topics:**

- What is a Chemical Reaction?
- Chemical Equations (reactants and products)
- The Law of Conservation of Mass
- Balancing Simple Chemical Equations
- Energy and Chemical Reactions (exothermic/endothermic basics)

Interactive Elements:

- Slideshow with step-by-step equation balancing
 - Practice: Balancing chemical equations
 - Kahoot! quiz on reactions and equations
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Day 5: Review and Culminating Project**Topics:**

- Comprehensive Review of All Concepts
- Connections Between Chemistry and Everyday Life

- Final Project: "What's It Made Of?" - Students research an everyday object and identify the elements, compounds, and molecules that make it up
- Class Presentations and Discussion

Interactive Elements:

- Slideshow review with practice problems
- Project work time with teacher guidance
- Virtual gallery walk for presentations
- Kahoot! cumulative review game