

Chemistry offers a curriculum that emphasizes students' understanding of fundamental chemistry concepts while helping them acquire tools to be conversant in a society highly influenced by science and technology.

The course provides students with opportunities to learn and practice critical scientific skills within the context of relevant scientific questions. Topics include the nature of science, the importance of chemistry to society, atomic structure, bonding in matter, chemical reactions, redox reactions, electrochemistry, phases of matter, equilibrium and kinetics, acids and bases, thermodynamics, quantum mechanics, nuclear reactions, organic chemistry, and alternative energy.

Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts. Lab activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science.

Throughout this course, students are given an opportunity to understand how chemistry concepts are applied in technology and engineering. Journal and Practice activities provide additional opportunities for students to apply learned concepts and practice their writing skills. Exploration activities challenge students to deconstruct scientific claims, analyze scientific articles, and suggest follow-up experiments or topics for further research.

The content is based on the American Association for the Advancement of Science (AAAS) Project 2061 benchmarks and the National Science Education Standards and is aligned with state standards.

Length: Two Semesters

UNIT 1: CHEMISTRY AND SOCIETY

LESSON 1: THE NATURE OF SCIENCE

Study: Science and Scientists

Learn about science and scientists; learn about why scientific processes and discoveries require time and careful work.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Science and Scientists

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 20 min Scoring:
20 points*

Study: The Scientific Process

Learn about the scientific method and associated processes that lead to reliable data; learn about scientific controversy.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The Scientific Process

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring:

20 points

Journal: Science You Can Trust

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring:

20 points

Explore: Using the Scientific Process

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: THE IMPORTANCE OF CHEMISTRY

Study: Chemistry over Time

Learn what chemistry is and the history of chemistry.

Duration: 0 hr 45 min Scoring: 0

points

Quiz: Chemistry over Time

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Study: Chemistry in the World

Learn about how chemistry is used in various careers and in medicine and technology, and about how the use of chemicals has impacted the environment both for good and bad.

Duration: 0 hr 45 min Scoring: 0

points

Quiz: Chemistry in the World

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring:

20 points

Practice: Chemistry in the World

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr

Scoring: 25 points

Explore: The Work of Chemists

Explore a topic that relates to the concepts in the lesson by applying scientific methods

of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: DOING SCIENCE: CHEMISTRY AND SOCIETY

Study: Introduction to Engineering

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Introduction to Engineering

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Lab: Observing and Inferring

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr

30 min Scoring: 50 points

Discuss: Observing and Inferring

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 4: CHEMISTRY AND SOCIETY WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0 points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 5: DIAGNOSTIC

Diagnostic: Chemistry and Society

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 2: ATOMIC STRUCTURE

LESSON 1: MATTER, FORCES, AND ENERGY

Study: Matter and Forces

Learn about matter, the law of conservation of matter, and the forces that act on matter.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Matter and Forces

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Energy

Learn about the different types of energy and how energy changes form.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Energy Conversions

Practice problem-solving skills related to concepts in the lesson.

*Duration: 1 hr 30 min
Scoring: 25 points*

LESSON 2: ATOMS

Study: Atomic Structure

Learn about how all matter is made of atoms; learn about the history of atomic theory; understand the Bohr atom and the differences between neutrons, protons, and electrons.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Atomic Structure

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

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points

Study: The Periodic Table

Learn how to navigate the periodic table and use it to find numbers of protons, electrons, and neutrons.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Journal: Simplifying Your View of Chemistry

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40

min Scoring: 20 points

Explore: A History of the Elements

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: ELEMENTS

Study: Organization and History of the Periodic Table

Learn about the history of the periodic table; the information in the periodic table; and how the table shows the unity, diversity, and organization of life.

Duration: 0 hr 45 min Scoring: 0

points

Quiz: Organization and History of the Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Elements on the Periodic Table

Learn about the elements of the periodic table.

Duration: 0 hr 45 min Scoring: 0

points

Quiz: Elements on the Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Practice: Atomic Structure

Practice problem-solving skills related to concepts in the lesson.

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Duration: 1 hr Scoring: 25 points

Explore: Momentary Elements

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: ATOMIC STRUCTURE

Study: Civil Engineering

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Civil Engineering

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Lab: Mass, Volume, and Density

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30 min Scoring: 50 points

Discuss: Mass, Volume, and Density

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: ATOMIC STRUCTURE WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0 points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Atomic Structure

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 3: BONDING IN MATTER

LESSON 1: ELECTRONS AND PERIODICITY

Study: Electrons and Orbitals

Learn about energy levels of electrons, electron configurations, and the filling of orbitals.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Electrons and Orbitals

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 20 min Scoring:
20 points*

Study: Predictions and the Periodic Table

Learn about the patterns in the periodic table and the information that can be gained by using the table.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Predictions and the Periodic Table

Take a quiz to assess your understanding of the material.

*Duration: 0 hr 20
min Scoring: 20 points*

Practice: Symmetry and Orbitals

Practice problem-solving skills related to concepts in the lesson.

*Duration: 1 hr 30 min
Scoring: 25 points*

Explore: Electrons and Energy

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: BONDING AND FORCES

Study: Intramolecular Forces

Learn about forces within molecules, draw Lewis structures, and make predictions about the type of bond formed between two atoms.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Intramolecular Forces

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Intermolecular Forces

Learn about the forces between molecules and how they determine properties of substances.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Intermolecular Forces

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Journal: Intermolecular Forces and You

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20 points

Practice: Energy in Bonds

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr 30 min Scoring: 25 points

LESSON 3: COMPOUNDS AND MOLECULES**Study: Molecular Shape**

Learn how to predict molecular shape.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Molecular Shape

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Naming Substances

Learn about naming and writing formulas for compounds.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Naming Substances

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Practice: Bonding in Matter

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr Scoring: 25

points

Explore: Interesting Molecular Shapes

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: BONDING IN MATTER

Study: Food: More, Better, Longer

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Food: More, Better, Longer

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Lab: Periodic Properties

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30

min Scoring: 50 points

Discuss: Periodic Properties

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: BONDING IN MATTER WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0

points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Bonding in Matter

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 4: CHEMICAL REACTIONS

LESSON 1: THE MOLE

Study: The Significance of the Mole

Learn about moles and their main uses and how to perform unit conversions.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The Significance of the Mole

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Study: Using the Mole

Learn how to use moles to determine mass percent composition, the empirical formula, and the molecular formula.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Using the Mole

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Explore: Single-Molecule Science

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: CHANGES IN MATTER

Study: Chemical Reactions

Learn how to define chemical reactions.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Chemical Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Types of Reactions

Learn about the main types of chemical reactions.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Types of Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Journal: Reactions Around You

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20 points

Explore: Hard Water and Ion Exchange

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: BALANCING CHEMICAL REACTIONS

Study: Balancing Inorganic Reactions

Learn about balancing inorganic chemical reactions.

Duration: 0 hr 45 min

Scoring: 0 points

Quiz: Balancing Inorganic Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Study: Balancing Organic Reactions

Learn about the significance of organic reactions, such as combustion, and how to balance organic reactions.

Duration: 0 hr 45 min Scoring: 0 points

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Quiz: Balancing Organic Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Practice: Chemical Reactions

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr Scoring:

25 points

Practice: Balancing Reactions

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr 30 min

Scoring: 25 points

LESSON 4: DOING SCIENCE: CHEMICAL REACTIONS

Study: Engines, Fuel, and Green Design

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0

points

Quiz: Engines, Fuel, and Green Design

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Lab: Precipitation Reactions

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr

30 min Scoring: 50 points

Discuss: Precipitation Reactions

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: CHEMICAL REACTIONS WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0

points

Test (CS): Computer-Scored Unit Test

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Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Chemical Reactions

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 5: CHEMISTRY AT WORK

LESSON 1: REDOX REACTIONS

Study: Understanding Redox Reactions

Learn about the significance of redox reactions.

Duration: 0 hr 45 min Scoring:

0 points

Quiz: Understanding Redox Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Study: Balancing Redox Reactions

Learn about half-reactions and how to balance redox reactions.

Duration: 0 hr 45

min Scoring: 0 points

Quiz: Balancing Redox Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Journal: Redox Reactions in Your Day

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min

Scoring: 20 points

Explore: Fighting Free Radicals

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: ELECTROCHEMISTRY

Study: Galvanic Cells

Learn about galvanic cells, batteries, and cell voltages.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Galvanic Cells

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Electrolytic Cells

Learn how about spontaneous and nonspontaneous redox reactions, including electrolytic cells.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Electrolytic Cells

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Cathodic Protection

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr 30 min

Scoring: 25 points

LESSON 3: TYING IT TOGETHER

Study: Calculating with the Periodic Table

Learn how to calculate average atomic mass and theoretical yield of products, and how to determine the limiting reagent and the percent yield.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Calculating with the Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Scientific Themes

Learn about the themes that link chemistry to the other sciences.

Duration: 0 hr 45 min
Scoring: 0 points

Quiz: Scientific Themes

Take a quiz to assess your understanding of the material.
Duration: 0 hr 20 min Scoring: 20
points

Practice: Chemistry at Work

Practice problem-solving skills related to concepts in the lesson.
Duration: 1 hr Scoring: 25
points

Explore: Using Scientific Themes

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.
Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: CHEMISTRY AT WORK

Study: Electrical Systems

Learn about the process of scientific inquiry.
Duration: 0 hr 40 min Scoring: 0 points

Quiz: Electrical Systems

Take a quiz to assess your understanding of the material.
Duration: 0 hr 20 min Scoring: 20
points

Lab: Oxidation-Reduction Reactions

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30 min Scoring: 50 points

Discuss: Oxidation-Reduction Reactions

Discuss the results of your lab.
Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: CHEMISTRY AT WORK WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.
Duration: 0 hr 30 min Scoring: 0
points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC**Diagnostic: Chemistry at Work**

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 6: CHEMISTRY SEMESTER 1 REVIEW AND EXAM

LESSON 1: CHEMISTRY SEMESTER 1**Review: Chemistry Semester 1**

Prepare for the semester exam by reviewing key concepts covered in Chemistry Semester 1.

Duration: 1 hr Scoring: 0 points

Exam: Chemistry Semester 1

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Chemistry Semester 1.

Duration: 1 hr Scoring: 100 points

Final Exam: Chemistry Semester 1

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Chemistry Semester 1.

Duration: 1 hr Scoring: 100 points

UNIT 7: ENERGY IN MATTER

LESSON 1: PHASES OF MATTER**Study: Kinetic Theory**

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Learn about how the kinetic theory explains phases.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Kinetic Theory

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Solids

Learn about the properties of solids, particularly metallic solids.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Solids

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Journal: Phases Around You

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20 points

Practice: Resistivity and Conductivity

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr 30 min Scoring: 25 points

LESSON 2: LIQUIDS AND SOLUTIONS

Study: Solutions

Learn about the properties of solutions, how mixtures are different from solutions, and what factors influence the rate of solution formation.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Solutions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Melting and Boiling

Learn about how intermolecular forces affect melting points, and how addition of solute affects melting and freezing points.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Melting and Boiling

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Explore: Food Colloids

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Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: GASES

Study: Changes in Gases

Learn about changes in gases, and about how to use graphs to explain what happens as gases change.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Changes in Gases

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: The Ideal Gas Law

Do calculations with absolute temperature, the ideal gas law, and partial pressures.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The Ideal Gas Law

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Energy in Matter

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr Scoring: 25 points

Explore: Mining Helium

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: ENERGY IN MATTER

Study: Aeronautical Engineering

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Aeronautical Engineering

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min
Scoring: 20 points

Lab: Freezing Point Depression

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1
hr 30 min Scoring: 50 points

Discuss: Freezing Point Depression

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: ENERGY IN MATTER WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0
points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:
1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Energy in Matter

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 8: EQUILIBRIUM AND KINETICS

LESSON 1: EQUILIBRIUM

Study: The Equilibrium Constant

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Learn about the concept of equilibrium, and about what happens when equilibrium is disturbed.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The Equilibrium Constant

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Study: Acid and Base Equilibrium

Learn about acids and bases, and about the equilibria of acids and bases.

Duration:

0 hr 45 min Scoring: 0 points

Quiz: Acid and Base Equilibrium

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Journal: Maintaining Your Equilibrium

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min

Scoring: 20 points

Practice: Solubility Product Constant

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr

30 min Scoring: 25 points

LESSON 2: ACIDS AND BASES

Study: The pH Scale

Learn about common acids and bases, pH, and pOH.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: The pH Scale

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Acid-Base Reactions

Learn principles of acid-base reactions, predict products of acid-base reactions, and learn about buffers.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Acid-Base Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Explore: Acid Rain and Ecosystems

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: KINETICS

Study: Reaction Rate

Learn about reaction rate.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Reaction Rate

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Calculating the Reaction Rate

Learn about how to calculate reaction rate.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Calculating the Reaction Rate

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Practice: Equilibrium and Kinetics

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr

Scoring: 25 points

Practice: Calculations with Rate Laws

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr

30 min Scoring: 25 points

LESSON 4: DOING SCIENCE: EQUILIBRIUM AND KINETICS

Study: Drug Design

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Drug Design

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Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Lab: Disturbing Equilibrium

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30

min Scoring: 50 points

Discuss: Disturbing Equilibrium

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: EQUILIBRIUM AND KINETICS WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0

points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Equilibrium and Kinetics

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 9: TRANSFERRING ENERGY

LESSON 1: TRANSFERRING HEAT

Study: Thermal Energy

Honors > Chemistry

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Learn about thermal energy and heat flow.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Thermal Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Calculating Heat

Learn about specific heat and heat calculations.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Calculating Heat

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Journal: Heat Transfer Around You

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min

Scoring: 20 points

Explore: Passive Solar Homes

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: ENTHALPY

Study: Enthalpy and Reactions

Learn about heat transfer in chemical reactions, about energy storage in chemical bonds, and about the enthalpy of reaction and the enthalpy of formation.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Enthalpy and Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Calculating Enthalpy

Learn about how to use Hess's law.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Calculating Enthalpy

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Explore: Calories and Calorimetry

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 3: ENTROPY AND SPONTANEITY

Study: Entropy

Learn about entropy and its relationship to physical and chemical changes.

Duration: 0 hr 45 min

Scoring: 0 points

Quiz: Entropy

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Spontaneity of a Reaction

Learn about the spontaneity of a reaction.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Spontaneity of a Reaction

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min

Scoring: 20 points

Practice: Transferring Energy

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr Scoring:

25 points

Explore: Entropy and the Second Law of Thermodynamics

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: TRANSFERRING ENERGY

Study: Up Into Space

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Up Into Space

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Lab: Heats of Reaction

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30 min

Scoring: 50 points

Discuss: Heats of Reaction

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: TRANSFERRING ENERGY WRAP-UP**Review: Unit Review**

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0

points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration:

1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC**Diagnostic: Transferring Energy**

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 10: QUANTUM AND NUCLEAR CHEMISTRY

LESSON 1: QUANTUM MECHANICS**Study: Waves**

Learn about frequency, wavelength, velocity, and energy of light waves, and about the electromagnetic spectrum.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Waves

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Quantization

Learn about the quantization of light and electrons.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Quantization

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Explore: Particle-Wave Duality of Light

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: ENERGY IN ELECTRONS AND NUCLEI**Study: Spectra**

Learn about flame tests, and about absorption and emission spectra.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Spectra

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Nuclear Structure

Learn about the structure of the nucleus, and the forces that act within the nucleus.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Nuclear Structure

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Transitions Between Energy Levels

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr 30 min Scoring: 25 points

Journal: Reflecting on Quantum Mechanics and Nuclear Structure

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20 points

LESSON 3: NUCLEAR REACTIONS

Study: Fission, Fusion, and Radioactive Decay

Learn about fission and fusion reactions, and about radioactive decay.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Fission, Fusion, and Radioactive Decay

Take a quiz to assess your understanding of the material.

*Duration: 0 hr
20 min Scoring: 20 points*

Study: Half-life

Learn about half-lives and radioactive dating.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Half-life

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Energy in Electrons and Nuclei

Practice problem-solving skills related to concepts in the lesson.

*Duration: 1
hr Scoring: 25 points*

Explore: Nuclear Medicine

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 4: DOING SCIENCE: QUANTUM AND NUCLEAR CHEMISTRY

Study: Nuclear Power

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Nuclear Power

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Lab: Radioactivity and Radiation

Use the scientific method and scientific skills to perform a lab experiment.

*Duration: 1
hr 30 min Scoring: 50 points*

Discuss: Radioactivity and Radiation

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Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: QUANTUM AND NUCLEAR CHEMISTRY WRAP-UP

Review: Unit Review

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0 points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC

Diagnostic: Quantum and Nuclear Chemistry

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 11: ENERGY IN ORGANIC MOLECULES

LESSON 1: FOUNDATIONS OF ORGANIC CHEMISTRY

Study: Carbon Compounds

Learn about why carbon atoms form a wide variety of molecules; learn about the general structure and importance of organic compounds.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Carbon Compounds

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Hydrocarbons

Learn about the naming of simple hydrocarbons.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Hydrocarbons

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Explore: Protein Structure and Function

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

LESSON 2: INTRODUCTORY BIOCHEMISTRY**Study: Functional Groups**

Learn about the structures of the main functional groups on organic molecules.

Duration: 0 hr

45 min Scoring: 0 points

Quiz: Functional Groups

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Study: Biological Molecules

Learn about the main biological macromolecules.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Biological Molecules

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20

points

Practice: Properties of Functional Groups

Practice problem-solving skills related to concepts in the lesson.

Duration: 1

hr 30 min Scoring: 25 points

Journal: Molecules in You

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20

points

LESSON 3: ENERGY IN THE WORLD

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Study: Fossil Fuels

Learn about the chemistry of fossil fuels, and about the environmental issues connected to fossil fuels.

Duration: 0 hr 45 min Scoring: 0 points

Quiz: Fossil Fuels

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Study: Alternative Fuels

Learn about biofuels, nuclear energy, and other alternative fuel sources.

Duration: 0 hr 45 min

Scoring: 0 points

Quiz: Alternative Fuels

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Practice: Energy in Organic Molecules

Practice problem-solving skills related to concepts in the lesson.

Duration: 1 hr

Scoring: 25 points

Explore: Alternative Energy Options

Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.

Duration: 1 hr Scoring: 25 points

Journal: You Decide

Write about topics in chemistry that connect to daily life.

Duration: 0 hr 40 min Scoring: 20 points

LESSON 4: DOING SCIENCE: ENERGY IN ORGANIC MOLECULES**Study: Prosthetic Engineering**

Learn about the process of scientific inquiry.

Duration: 0 hr 40 min Scoring: 0 points

Quiz: Prosthetics

Take a quiz to assess your understanding of the material.

Duration: 0 hr 20 min Scoring: 20 points

Lab: Molecular Models

Use the scientific method and scientific skills to perform a lab experiment.

Duration: 1 hr 30 min

Scoring: 50 points

Discuss: Molecular Models

Discuss the results of your lab.

Duration: 0 hr 20 min Scoring: 15 points

LESSON 5: ENERGY IN ORGANIC MOLECULES WRAP-UP**Review: Unit Review**

Prepare for the unit test by reviewing key concepts and skills.

Duration: 0 hr 30 min Scoring: 0 points

Test (CS): Computer-Scored Unit Test

Take a computer-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

Test (TS): Teacher-Scored Unit Test

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 1 hr Scoring: 50 points

LESSON 6: DIAGNOSTIC**Diagnostic: Energy in Organic Molecules**

Take a diagnostic unit test that will generate a study plan based on your responses.

Duration: 1 hr Scoring: 25 points

UNIT 12: CHEMISTRY SEMESTER 2 REVIEW AND EXAM

LESSON 1: CHEMISTRY SEMESTER 2**Review: Chemistry Semester 2**

Prepare for the semester exam by reviewing key concepts covered in this semester.

Duration: 1 hr Scoring: 0 points

Exam: Chemistry Semester 2

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 100 points

Final Exam: Chemistry Semester 2

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 100 points