Integrated Physics and Chemistry explores the nature of force, motion, energy, and matter. Course topics include kinematics, force, momentum, waves, atoms, the periodic table, molecular bonding, chemical reactivity, electricity, and nuclear energy.

The course provides students with opportunities to learn and practice scientific skills within the context of relevant scientific questions. Scientific inquiry skills are embedded in the direct instruction, through which students learn to ask scientific questions, deconstruct claims, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts. Lab activities reinforce skills related to writing, communication, and critical thinking, in addition to helping students develop a deeper understanding of the nature of science. Throughout this course, students are given an opportunity to understand how physics and chemistry concepts are applied in technology and engineering.

This course is built to the Texas Essential Knowledge and Skills (TEKS) Integrated Physics and Chemistry Standards and Benchmarks.

Length: Two semesters

UNIT 1: INTRODUCTION TO INTEGRATED PHYSICS AND CHEMISTRY

LESSON 1: SCIENCE AND SOCIETY

Study: Introduction to Science
Learn what science is and how it affects your life.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Introduction to Science
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Study: The People of Science
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

Quiz: The People of Science
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Journal: The History of Science
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 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: 10 points

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

LESSON 2: SCIENTIFIC INVESTIGATIONS

Study: Scientific Methods
Learn about designing and performing experiments and collecting data.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Scientific Methods
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Study: Units and Measurement**
Review the usefulness of using units in scientific measurement; learn about significant figures and measurement error; learn about SI units; convert between units.
Duration: 0 hrs 45 mins Scoring: 0 points

**Quiz: Units and Measurement**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Study: Laboratory Safety**
Learn how to recognize and avoid common laboratory hazards and interpret safety symbols.
Duration: 0 hrs 40 mins Scoring: 0 points

**Quiz: Laboratory Safety**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Lab: Measuring and Estimating**
Use scientific methods and skills to perform a lab experiment.
Duration: 1 hr 30 mins Scoring: 50 points

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

**LESSON 3: EVALUATING CLAIMS, INVESTIGATIONS, AND CONCLUSIONS**

**Study: Evaluating Product Claims**
Learn about the advantages and disadvantages of products and how to evaluate a product claim.
Duration: 0 hrs 45 mins Scoring: 0 points

**Quiz: Evaluating Product Claims**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Study: Pseudoscience vs. Science**
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

**Quiz: Pseudoscience vs. Science**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Study: Evaluating Scientific Conclusions**
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

**Quiz: The Scientific Community**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

**Study: Errors in Experiments**
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

**Quiz: Errors in Experiments**
LESSON 4: INTRODUCTION TO INTEGRATED PHYSICS AND CHEMISTRY WRAP-UP

Review: Introduction to Integrated Physics and Chemistry
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr  Scoring: 0 points

Test (CS): Introduction to Integrated Physics and Chemistry
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Introduction to Integrated Physics and Chemistry
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 2: THE PHYSICS OF MOVING OBJECTS

LESSON 1: CHARACTERISTICS OF MOVING OBJECTS

Study: Understanding Moving Objects
Learn how distance, speed, and time are related and about the difference between distance and displacements. Differentiate between scalar and vector quantities.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Understanding Moving Objects
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Introduction to Vectors
Learn the difference between scalar and vector quantities and how to use vectors appropriately.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Introduction to Vectors
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Journal: Defining Distance and Displacement
Discuss distance and displacement.
Duration: 1 hr  Scoring: 10 points

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

LESSON 2: VELOCITY AND ACCELERATION

Study: Velocity and Acceleration
Learn the difference between velocity and speed, and learn what acceleration is and how to calculate it.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Velocity and Acceleration
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points
Study: Graphing Motion
Learn about graphing motion.
Duration: 0 hrs 30 mins Scoring: 0 points

Quiz: Graphing Motion
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 10 points

Lab: Measuring and Graphing Distance and Speed
Complete a lab on displacement velocity and acceleration.
Duration: 1 hr 30 mins Scoring: 50 points

Explore: Moving Objects
Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: THE PHYSICS OF MOVING OBJECTS WRAP-UP

Review: The Physics of Moving Objects
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): The Physics of Moving Objects
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): The Physics of Moving Objects
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 3: FORCES AND NEWTON’S LAWS

LESSON 1: NEWTON’S LAWS OF MOTION

Study: Newton’s Laws of Motion
Learn how Newton’s laws can be applied to everyday situations.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Newton’s Laws of Motion
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Study: Force and Motion
Learn about the principles behind force and motion, and how they are related.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Force and Motion
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Lab: Newton’s Laws
Complete a lab on Newton’s laws of motion.
Duration: 1 hr 30 mins Scoring: 50 points

Explore: Forces
Complete a Web-based exploration into the world of Newton’s laws.
LESSON 2: GRAVITY

Study: Universal Law of Gravitation
Learn how the force of gravity between two objects depends on their masses and the distance between them.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Universal Law of Gravitation
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Acceleration of Falling Objects: Galileo Revisited
Use scientific methods and skills to perform a lab experiment.
Duration: 1 hr 30 mins Scoring: 50 points

Journal: Evaluating Scientific Explanations
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: DENSITY AND BUOYANCY

Study: Density
Learn the definition of density and how to calculate it.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Density
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Engineer Design: Ships
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

Quiz: Engineer Design: Ships
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 10 points

Study: Buoyancy
Learn about buoyant force and how it allows things to float.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Buoyancy
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Density and Buoyancy
Complete a lab on buoyancy.
Duration: 1 hr 30 mins Scoring: 50 points

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

LESSON 4: FORCES AND NEWTON'S LAWS WRAP-UP

Review: Forces and Newton's Laws
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): Forces and Newton's Laws
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Forces and Newton's Laws
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 4: MOMENTUM AND ENERGY

LESSON 1: MOMENTUM

Study: Understanding Momentum and Impulse
Learn how to define, calculate, and relate momentum and impulse.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Understanding Momentum and Impulse
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Momentum
Learn how to differentiate between force and energy and between energy and momentum; learn how to calculate the momentum of a mechanical system.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Momentum
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Study: Conservation of Momentum
Learn how to solve problems involving conservation of momentum and elastic/inelastic collision situations.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Conservation of Momentum
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Energy and Momentum
Perform a lab on energy and momentum.
Duration: 1 hr 30 mins Scoring: 50 points

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

LESSON 2: ENERGY

Study: Potential and Kinetic Energy
Learn how to define and calculate kinetic and potential energy.
Duration: 0 hrs 50 mins Scoring: 0 points
Quiz: Potential and Kinetic Energy
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Journal: Demonstrating Kinetic and Potential Energy
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 points

Study: Conservation of Energy
Learn how work and energy are related, and learn about conservation of mechanical energy.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Conservation of Energy
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Conservation of Energy
Use scientific methods and skills to perform a lab experiment.
Duration: 1 hr 30 mins Scoring: 50 points

Explore: A Career Designing Alternative Fuel Cars
Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: MOMENTUM AND ENERGY WRAP-UP

Review: Momentum and Energy
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): Momentum and Energy
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Momentum and Energy
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 5: SEMESTER 1 REVIEW AND EXAM

LESSON 1: SEMESTER 1 REVIEW AND EXAM

Review: Semester 1 Review
Prepare for the final exam by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Exam: Semester 1 Exam
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.
Duration: 1 hr Scoring: 100 points

Final Exam: Semester 1 Exam
Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.
Duration: 1 hr Scoring: 100 points

UNIT 6: WAVES, SOUND, AND LIGHT
LESSON 1: INTRODUCTION TO WAVES

Study: Introduction to Waves
Learn the definition, characteristics, and properties of waves.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Introduction to Waves
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Amplitude, Frequency, and Speed
Learn about the different types of waves.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Amplitude, Frequency, and Speed
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Wave Properties
Learn about different types of waves; about properties of waves; and about how waves move; learn how to solve problems involving wave speed; frequency; and wavelength.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Wave Properties
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Lab: Observing Waves
Perform a lab on waves.
Duration: 1 hr 30 mins Scoring: 50 points

Explore: A Career as a Seismologist
Explore career options in the field of seismology and earthquakes.
Duration: 1 hr Scoring: 10 points

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

LESSON 2: SOUND WAVES

Study: Understanding Sound Waves
Learn about the characteristics of sound waves, how to calculate the intensity and speed of a sound wave, and the Doppler effect.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Understanding Sound Waves
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Collision of Sound Waves
Learn about collisions of sound waves with solid objects and with other sound waves.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Collision of Sound Waves
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Exploring Sound Waves
Complete a lab on sound.
Duration: 1 hr 30 mins Scoring: 50 points

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

LESSON 3: ELECTROMAGNETIC WAVES

Study: Understanding Electromagnetic Waves
Learn about the electromagnetic spectrum, the speed of light, and common examples of electromagnetic waves.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Understanding Electromagnetic Waves
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Journal: Electromagnetic Waves
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 points

Study: Light Waves, Mirrors, & Lenses
Learn about the law of reflection, the different types of mirrors, and how to use ray diagrams.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Light Waves, Mirrors, & Lenses
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Study: Law of Refraction
Learn about how waves interact with media and with other waves; learn the differences between constructive and deconstructive interference.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Law of Refraction
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

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

LESSON 4: WAVES, SOUND, AND LIGHT WRAP-UP

Review: Waves, Sound, and Light
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): Waves, Sound, and Light
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Waves, Sound, and Light
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 7: ATOMS AND MATTER

LESSON 1: ATOMS AND ELEMENTS
LESSON 2: PHASES OF MATTER

Study: Movement of Particles
Learn about the various states of matter in terms of kinetic molecular theory; learn why molecules move and how their movements can be measured.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Movement of Particles
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Study: Temperature and Thermal Energy
Learn how work is done in a heat engine and what factors affect its efficiency
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Temperature and Thermal Energy
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Observing Phase Changes
Complete a lab on heat.
Duration: 1 hr 30 mins Scoring: 50 points
Study: Phase Changes
Learn how thermal energy is related to the motion of atoms and molecules. Understand the four phases of matter and how to solve problems involving phase changes.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Phase Changes
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Thermodynamics
Use scientific methods and skills to perform a lab experiment.
Duration: 1 hr 30 mins Scoring: 50 points

Journal: Phases of Matter Around You
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: ATOMS AND MATTER WRAP-UP

Review: Atoms and Matter
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): Atoms and Matter
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Atoms and Matter
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 8: CHEMICAL BONDS AND REACTIONS

LESSON 1: CHEMICAL BONDS

Study: Ionic Bonds
Learn how elements bond to create covalent molecules and ionic crystals.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Ionic Bonds
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Covalent Bonds
Learn how electronegativity affects how elements bond. Understand the difference between polar and nonpolar bonds.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Covalent Bonds
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Bond Energy and Arrangement
Learn about the energy stored in a chemical bond, bond order, and the difference between endothermic and exothermic reactions.
Duration: 0 hrs 50 mins Scoring: 0 points
Quiz: Bond Energy and Arrangement
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Modeling Molecules
Complete a lab on shapes of molecules.
Duration: 1 hr 30 mins Scoring: 50 points

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

LESSON 2: CHEMICAL REACTIONS

Study: Balancing Chemical Reactions
Learn about the nature of chemical reactions and the factors that affect reaction rates.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Balancing Chemical Reactions
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Types of Chemical Reactions
Learn about the different types of chemical reactions and the standard chemical equations for each type.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Types of Chemical Reactions
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Lab: Observe a Chemical Reaction
Complete a lab on chemical reactions.
Duration: 1 hr 30 mins Scoring: 50 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 hrs 45 mins Scoring: 0 points

Quiz: Chemistry in the World
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Explore: Air Pollution and Acid Rain
Explore a topic that relates to the concepts in the lesson by applying scientific methods of analysis.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: SOLUBILITY AND INTERMOLECULAR FORCES

Study: Solutions and Solubility
Learn about the properties of solutions, how mixtures are different from solutions, and what factors influence the rate of solution formation.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Solutions and Solubility
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins  Scoring: 20 points

**Study: Intermolecular Forces**
Learn about the forces between molecules and how they determine properties of substances.
Duration: 0 hrs 45 mins  Scoring: 0 points

**Quiz: Intermolecular Forces**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins  Scoring: 20 points

**Journal: Intermolecular Forces and You**
Write about topics in chemistry that connect to daily life.
Duration: 1 hr  Scoring: 10 points

**Study: Separating Solutions**
Learn about how intermolecular forces affect melting points, and how addition of solute affects melting and freezing points.
Duration: 0 hrs 45 mins  Scoring: 0 points

**Quiz: Separating Solutions**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins  Scoring: 10 points

**Practice: Solubility and Intermolecular Forces**
Practice problem-solving skills related to concepts in the lesson.
Duration: 1 hr  Scoring: 25 points

**LESSON 4: CHEMICAL BONDS AND REACTIONS WRAP-UP**

**Review: Chemical Bonds and Reactions**
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr  Scoring: 0 points

**Test (CS): Chemical Bonds and Reactions**
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins  Scoring: 50 points

**Test (TS): Chemical Bonds and Reactions**
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins  Scoring: 50 points

**UNIT 9: ELECTRICITY AND ENERGY RESOURCES**

**LESSON 1: ELECTRICITY AND CURRENTS**

**Study: Electricity and Objects**
Learn the definitions of charge and current and how static electricity can arise, and solve problems using Coulomb’s law.
Duration: 0 hrs 50 mins  Scoring: 0 points

**Quiz: Electricity and Objects**
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins  Scoring: 20 points

**Study: Electric Force**
Learn how to determine the force between two electric charges; learn how to calculate an electric field; learn how to use the right-hand rule to determine the direction of an electric force.
Duration: 0 hrs 45 mins  Scoring: 0 points

**Quiz: Electric Force**
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Study: Understanding Circuits
Define a circuit and understand characteristics of circuits. Learn how to apply Ohm’s law.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Understanding Circuits
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Electric Circuits
Learn how to diagram series circuits; learn how to determine the current; resistance; or voltage in a circuit; differentiate between complete; open; and short circuits.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Electric Circuits
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

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

LESSON 2: ELECTROMAGNETISM

Study: Electromagnetism
Learn about the relationship between electricity and magnetism and how electromagnets work.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Electromagnetism
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Electromagnets
Learn how magnetic fields can produce electric fields, and vice versa; learn about properties of electromagnetic waves.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Electromagnets
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 10 mins Scoring: 10 points

Explore: A Career as an MRI Technician
Explore career options in the fields of electricity and magnetism.
Duration: 1 hr Scoring: 10 points

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

LESSON 3: SOURCES OF ENERGY

Study: Radioactive Materials
Learn about alpha, beta, and gamma radiation.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Radioactive Materials
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points
Study: Nuclear Power
Learn about nuclear chain reactions and understand the difference between nuclear fusion and fission. Learn how fission is used in nuclear reactions and how fusion powers the sun and other stars.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Nuclear Power
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Natural Energy Sources
Learn about the limitations of fossil fuels and about the different types of natural energy sources available.
Duration: 0 hrs 50 mins Scoring: 0 points

Quiz: Natural Energy Sources
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 10 mins Scoring: 20 points

Study: Engines, Fuel, and Green Design
Learn about the process of scientific inquiry.
Duration: 0 hrs 40 mins Scoring: 0 points

Quiz: Engines, Fuel, and Green Design
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 10 points

Journal: Critiquing Energy Sources
Write about topics in physics and chemistry that connect to daily life.
Duration: 1 hr Scoring: 10 points

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

LESSON 4: ELECTRICITY AND ENERGY RESOURCES WRAP-UP
Review: Electricity and Energy Resources
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Test (CS): Electricity and Energy Resources
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Electricity and Energy Resources
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 10: SEMESTER 2 REVIEW AND EXAM

LESSON 1: SEMESTER 2 REVIEW AND EXAM
Review: Semester 2 Review
Prepare for the final exam by reviewing key concepts and skills.
Duration: 1 hr Scoring: 0 points

Exam: Semester 2 Exam
Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.
Duration: 1 hr Scoring: 100 points

Final Exam: Semester 2 Exam
Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.

Duration: 1 hr  Scoring: 100 points