

Integrated Chemistry-Physics 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 Indiana Academic Standards for Integrated Chemistry-Physics.

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

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 10 mins Scoring: 10 points

Practice: Evaluating Claims, Investigations, and Conclusions

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

Duration: 1 hr Scoring: 25 points

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.

Duration: 1 hr Scoring: 10 points

Practice: Newton's Laws of Motion

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

Duration: 1 hr Scoring: 25 points

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 destructive 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****Study: Understanding Matter**

Learn about matter and how to identify its physical and chemical properties.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Physical and Chemical Properties of Matter

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Making Observations

Learn how to choose the correct tool to make accurate measurements of matter.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Making Observations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 10 mins Scoring: 10 points

Study: Elements on the Periodic Table

Learn about the elements of the periodic table.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Elements on the Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: The Periodic Table

Complete a lab on the periodic table.

Duration: 1 hr 30 mins Scoring: 50 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: 10 points

Practice: Atoms and Matter

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

Duration: 1 hr Scoring: 25 points

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