

Physical Science offers a focused curriculum designed around the understanding of critical physical science concepts, including the nature and structure of matter, the characteristics of energy, and the mastery of critical scientific skills.

Course topics include an introduction to kinematics, including gravity and two-dimensional motion; force; momentum; waves; electricity; atoms; the periodic table of elements; molecular bonding; chemical reactivity; gases; and an introduction to nuclear energy. Teacher-scored labs encourage students to apply the scientific method.

This course is built to state standards.

Length: Two semesters

UNIT 1: LET'S GET PHYSICAL!

LESSON 1: SCIENCE AS INQUIRY

Study: Summarizing

Examine the inquiry the steps in the inquiry process

Duration: 1 hr 15 mins

Discuss: Searching for Truth

Discuss the subject of inquiry with your classmates.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Science as Inquiry

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: THE SCIENTIFIC METHOD

Study: Representing Data Graphically

Learn how to represent data graphically.

Duration: 1 hr 15 mins

Journal: Reflections on the Method

Compose a response to a question about the Scientific Method and submit it to your teacher.

Duration: 0 hrs 30 mins Scoring: 20 points

Lab: Wet Pennies

Complete a lab on the Scientific Method using wet pennies.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: The Scientific Method

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: LET'S GET PHYSICAL! WRAP-UP

Review: Let's Get Physical!

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

Duration: 0 hrs 50 mins

Practice: Introduction to Physical Science

Complete a set of practice problems.

Duration: 1 hr Scoring: 50 points

Test (CS): Let's Get Physical!

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Let's Get Physical!

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 2: GET YOUR MOTOR RUNNING

LESSON 1: INTRODUCTION TO KINEMATICS

Study: Graphing Motion

Explore kinematics, the study of motion, and begin learning how to create graphs around movement.

Duration: 1 hr 15 mins

Discuss: Defining Distance and Displacement

Discuss distance and displacement.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Introduction to Kinematics

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: GRAVITY AND FREE FALL

Study: Catch Me — I'm Falling

Learn how gravitational acceleration affects motion in free fall.

Duration: 1 hr 15 mins

Lab: Falling Bodies

Complete a lab on falling bodies.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Gravity and Free Fall

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: MOTION IN TWO DIMENSIONS

Study: Vectors

Introduction to vectors and magnitude.

Duration: 1 hr 15 mins

Discuss: Athletic Projectiles

Discuss two-dimensional motion.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Motion in Two Dimensions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: GET YOUR MOTOR RUNNING WRAP-UP

Review: Get Your Motor Running

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

Duration: 0 hrs 50 mins

Practice: Motion

Complete a set of practice problems on motion and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): Get Your Motor Running

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

Duration: 1 hr Scoring: 50 points

Test (TS): Get Your Motor Running

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

Duration: 1 hr Scoring: 50 points

UNIT 3: MAY THE NET FORCE BE WITH YOU**LESSON 1: NEWTON'S LAWS OF MOTION****Study: Newton's First Law of Motion**

Welcome to the world of dynamics, force, and Newton's First Law

Duration: 1 hr

Lab: Newton's Laws

Complete a lab on Newton's laws of motion.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Newton's Laws of Motion

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: FRICTION**Study: Therein Lies the Rub**

Learn what causes friction its various types and what effects friction has on motion.

Duration: 1 hr 15 mins

Lab: That Rubs Me the Wrong Way

Complete a lab on friction.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Friction

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: CENTRIPETAL FORCE**Study: Motion in a Circle**

Learn what causes circular motion and how gravity acts on all objects in the universe.

Duration: 1 hr 15 mins

Discuss: My World Is Spinning

Discuss centripetal force.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Centripetal Force

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: BUOYANT FORCE**Study: Buoyant Force and Archimedes' Principle**

Why does something sink or swim? Learn by studying buoyant force and Archimedes' Principle

Duration: 1 hr 15 mins

Journal: What Floats Your Boat?

Compose a journal entry in response to a question on buoyancy and submit it to your teacher.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Buoyancy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 5: MAY THE NET FORCE BE WITH YOU WRAP-UP

Review: May the Net Force Be with You

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

Duration: 0 hrs 50 mins

Practice: Forces

Complete a set of practice problems on forces and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): May the Net Force Be with You

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

Duration: 1 hr Scoring: 50 points

Test (TS): May the Net Force Be with You

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

Duration: 1 hr Scoring: 50 points

UNIT 4: CRASH INTO ME

LESSON 1: MOMENTUM

Study: Momentum and Newton's Second Law

Crash! Impulse, momentum, and the Impulse-Momentum Theorem.

Duration: 1 hr 15 mins

Lab: Losing My Marbles

Complete a lab on momentum.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Momentum

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: WORK SIMPLE MACHINES AND POWER

Study: Power

Jump into the world of work and simple machines.

Duration: 1 hr 15 mins

Discuss: Working Out

What does working out really mean?

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Work Simple Machines and Power

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: ENERGY

Study: Work-Energy Theorem

Learn about the many states of energy and several formulas.

Duration: 1 hr 15 mins

Discuss: Conserving Energy

Discuss energy conservation.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: CRASH INTO ME WRAP-UP**Review: Crash into Me**

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

Duration: 0 hrs 50 mins

Practice: Energy

Complete a set of practice problems on work and energy and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): Crash into Me

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

Duration: 1 hr Scoring: 50 points

Test (TS): Crash into Me

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

Duration: 1 hr Scoring: 50 points

UNIT 5: I'M PICKIN' UP GOOD VIBRATIONS**LESSON 1: PROPERTIES OF WAVES****Study: Types of Waves**

Explore the types and properties of waves.

Duration: 1 hr 15 mins

Lab: Smile and Wave

Complete a lab on waves using coiled springs.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Waves

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: SOUND WAVES**Study: Matching-Up Time**

Learning about wave properties and the Doppler Effect

Duration: 1 hr 15 mins

Quiz: Sound Waves

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: ELECTROMAGNETIC WAVES**Study: Light Spectrum**

Introduction to electromagnetic waves and the properties of the light spectrum.

Duration: 1 hr 15 mins

Quiz: Electromagnetic Waves

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: OPTICS**Study: Reflection and Mirrors**

Reflecting on reflections, rays, and optic applications.

Duration: 1 hr 15 mins

Lab: Bend It Like Beckham

Complete a lab on optics.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Optics

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 5: I'M PICKIN' UP GOOD VIBRATIONS WRAP-UP

Review: I'm Pickin' Up Good Vibrations

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

Duration: 0 hrs 50 mins

Practice: Waves

Complete a set of practice problems on waves and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): I'm Pickin' Up Good Vibrations

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

Duration: 1 hr Scoring: 50 points

Test (TS): I'm Pickin' Up Good Vibrations

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

Duration: 1 hr Scoring: 50 points

UNIT 6: IT'S ELECTRIC!

LESSON 1: STATIC ELECTRICITY

Study: Electric Charge

Investigate insulators, conductors, Coulomb's Law and Conservation of Charge.

Duration: 1 hr 15 mins

Lab: A Shocking Tale

Complete a lab on static electricity.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Static Electricity

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: CURRENT AND CIRCUITS

Study: Ohm's Law

Confronting the world of circuits and answering the question "why don't birds on electric wires get shocked?"

Duration: 1 hr 15 mins

Discuss: Current Events

Discuss current.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Current and Circuits

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: MAGNETISM

Study: Electromagnetism

Moving into the worlds of magnets and magnetic fields.

Duration: 1 hr 15 mins

Journal: Surprise Science

Compose a journal entry in response to a question on magnetism and submit it to your teacher.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Magnetism

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: IT'S ELECTRIC! WRAP-UP

Review: It's Electric!

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

Duration: 0 hrs 50 mins

Practice: Electricity and Magnetism

Complete a set of practice problems on electricity and magnetism and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): It's Electric!

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

Duration: 1 hr Scoring: 50 points

Test (TS): It's Electric!

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

Duration: 1 hr Scoring: 50 points

UNIT 7: SEMESTER 1 REVIEW AND EXAM

LESSON 1: SEMESTER 1 REVIEW AND EXAM

Review: Semester 1 Review

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

Duration: 1 hr

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: 90 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: 90 points

UNIT 8: IT'S ELEMENTARY

LESSON 1: STRUCTURE AND COMPONENTS OF THE ATOM

Study: It's Elementary

Probing the periodic table; exploring states of matter

Duration: 1 hr 15 mins

Study: Atomic Properties

Describe atoms and the many models of describing atoms.

Duration: 1 hr 15 mins

Lab: Braving the Elements

Complete a lab on atomic structure.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Structure and Components of the Atom

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: THE PERIODIC TABLE

Study: Families

Understanding rows and columns on the Periodic Table

Duration: 1 hr 15 mins

Discuss: Periodic Updates

Discuss the periodic table.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: The Periodic Table

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: TRENDS AND PATTERNS

Study: Trends

Sensing patterns in the Periodic Table.

Duration: 1 hr 15 mins

Lab: Elements from Outer Space

Complete a lab on trends and patterns.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Trends and Patterns

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: IT'S ELEMENTARY WRAP-UP

Review: Atomic Structure and the Periodic Table

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

Duration: 0 hrs 50 mins

Practice: Atomic Knowledge

Complete a set of practice problems on elements and submit the assignment to your teacher.

Duration: 0 hrs 50 mins Scoring: 50 points

Test (CS): It's Elementary

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

Duration: 1 hr Scoring: 50 points

Test (TS): It's Elementary

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

Duration: 1 hr Scoring: 50 points

UNIT 9: BOND. MOLECULAR BOND.

LESSON 1: BONDING

Study: The Bond Family Tree

Investigating ionic bonding, covalent bonding, and electronegativity.

Duration: 1 hr 15 mins

Discuss: Bond and Determined

Discuss bonding.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Bonding

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: SHAPES OF MOLECULES

Study: Hydrogen Bonding

Exploring exothermic and endothermic reactions.

Duration: 1 hr 15 mins

Lab: Edible Molecules

Complete a lab on shapes of molecules.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Shapes of Molecules

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: COMPOUNDS

Study: Covalent Compounds

Grappling with the Naming of Compounds.

Duration: 1 hr 15 mins

Lab: How Do You Color Your Eggs?

Complete a lab on compounds.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Compounds

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: BOND. MOLECULAR BOND. WRAP-UP

Review: Bond. Molecular Bond.

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

Duration: 0 hrs 50 mins

Practice: Bonding

Complete a set of practice problems on bonding and compounds and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): Bond. Molecular Bond.

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Bond. Molecular Bond.

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 10: CHEMICAL REACTIONS

LESSON 1: CHEMICAL EQUATIONS AND CONSERVATION LAWS

Study: Balancing Equations

Learn how to balance chemical equations.

Duration: 1 hr 15 mins

Lab: I'm Having a Reaction

Complete a lab on chemical reactions.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Chemical Equations and Conservation Laws

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: REACTION TYPES

Study: Combustion Precipitates and Solutions — Oh My!

Learn about different kinds of chemical reactions.

Duration: 1 hr 15 mins

Discuss: Discussing Chemical Reactions

Discuss reaction types.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Reaction Types

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: ACIDS AND BASES

Study: Reactions

Responding to reactions.

Duration: 1 hr 15 mins

Journal: Basic Hygiene

Compose a journal entry in response to a question on acids and bases and submit it to your teacher.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Acids and Bases

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: CHEMICAL REACTIONS WRAP-UP

Review: Chemical Reactions

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

Duration: 0 hrs 50 mins

Practice: Chemical Reactions

Complete a set of practice problems on chemical reactions and submit the assignment to your teacher.

Duration: 0 hrs 50 mins Scoring: 50 points

Test (CS): Chemical Reactions

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

Duration: 1 hr Scoring: 50 points

Test (TS): Chemical Reactions

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

Duration: 1 hr Scoring: 50 points

UNIT 11: JUMPIN' JACK FLASH — IT'S A GAS

LESSON 1: HEAT

Study: Phase Changes

Learn how changes in the amount of thermal energy cause matter to change from one state to another.

Duration: 1 hr 15 mins

Lab: Can You Feel the Heat?

Complete a lab on heat.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Heat

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: THE GAS LAWS

Study: The Pieces of the Puzzle

Learn how gases behave under different conditions.

Duration: 1 hr

Discuss: Moonwalking

Discuss ideal gases.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: The Gas Laws

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: THERMODYNAMICS

Study: Entropy

Introduction to Entropy.

Duration: 1 hr

Lab: Homemade Ice Cream

Complete a lab on thermodynamics at home.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Thermodynamics

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: JUMPIN' JACK FLASH & IT'S A GAS WRAP-UP

Review: Jumpin' Jack Flash — It's a Gas

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

Duration: 0 hrs 50 mins

Practice: Gases and Thermodynamics

Complete a set of practice problems on gases and thermodynamics and submit the assignment to your teacher.

Duration: 1 hr Scoring: 50 points

Test (CS): Jumpin' Jack Flash — It's a Gas

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Jumpin' Jack Flash — It's a Gas

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 12: NUCLEAR ENERGY IS DA BOMB

LESSON 1: RADIOACTIVITY

Study: Decay Processes

Digging into the Decay Process. Radioactivity.

Duration: 1 hr 15 mins

Lab: Nuclear Decay Chain

Complete a lab on radioactivity.

Duration: 1 hr 30 mins Scoring: 40 points

Quiz: Radioactivity

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 2: NUCLEAR REACTIONS

Study: Nuclear Transmutations

Learn how radioactive atoms decay.

Duration: 1 hr

Discuss: Conserving Your World

Discuss nuclear reactions.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Nuclear Reactions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 3: ENERGY OF THE FUTURE

Study: Where Do We Go from Here?

Learn about nuclear fission and fusion.

Duration: 1 hr

Journal: Not in My House?

Compose a journal entry in response to a question on future energy sources and submit it to your teacher.

Duration: 0 hrs 30 mins Scoring: 20 points

Quiz: Nuclear Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 40 mins Scoring: 30 points

LESSON 4: NUCLEAR ENERGY IS DA BOMB WRAP-UP

Review: Nuclear Energy Is Da Bomb

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

Duration: 0 hrs 50 mins

Practice: A Pound of This and a Pound of That

Complete a set of practice problems on nuclear energy and submit the assignment to your teacher.

Duration: 0 hrs 50 mins Scoring: 50 points

Test (CS): Nuclear Energy Is Da Bomb

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

Duration: 0 hrs 40 mins Scoring: 50 points

Test (TS): Nuclear Energy Is Da Bomb

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

Duration: 0 hrs 40 mins Scoring: 50 points

UNIT 13: SEMESTER 2 REVIEW AND EXAM

LESSON 1: SEMESTER 2 REVIEW AND EXAM

Review: Semester 2 Review

Prepare for the semester exam by reviewing key concepts covered in Semester 2.

Duration: 1 hr

Exam: Semester 2 Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.

Duration: 0 hrs 50 mins Scoring: 90 points

Final Exam: Semester 2 Exam

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

Duration: 0 hrs 50 mins Scoring: 90 points