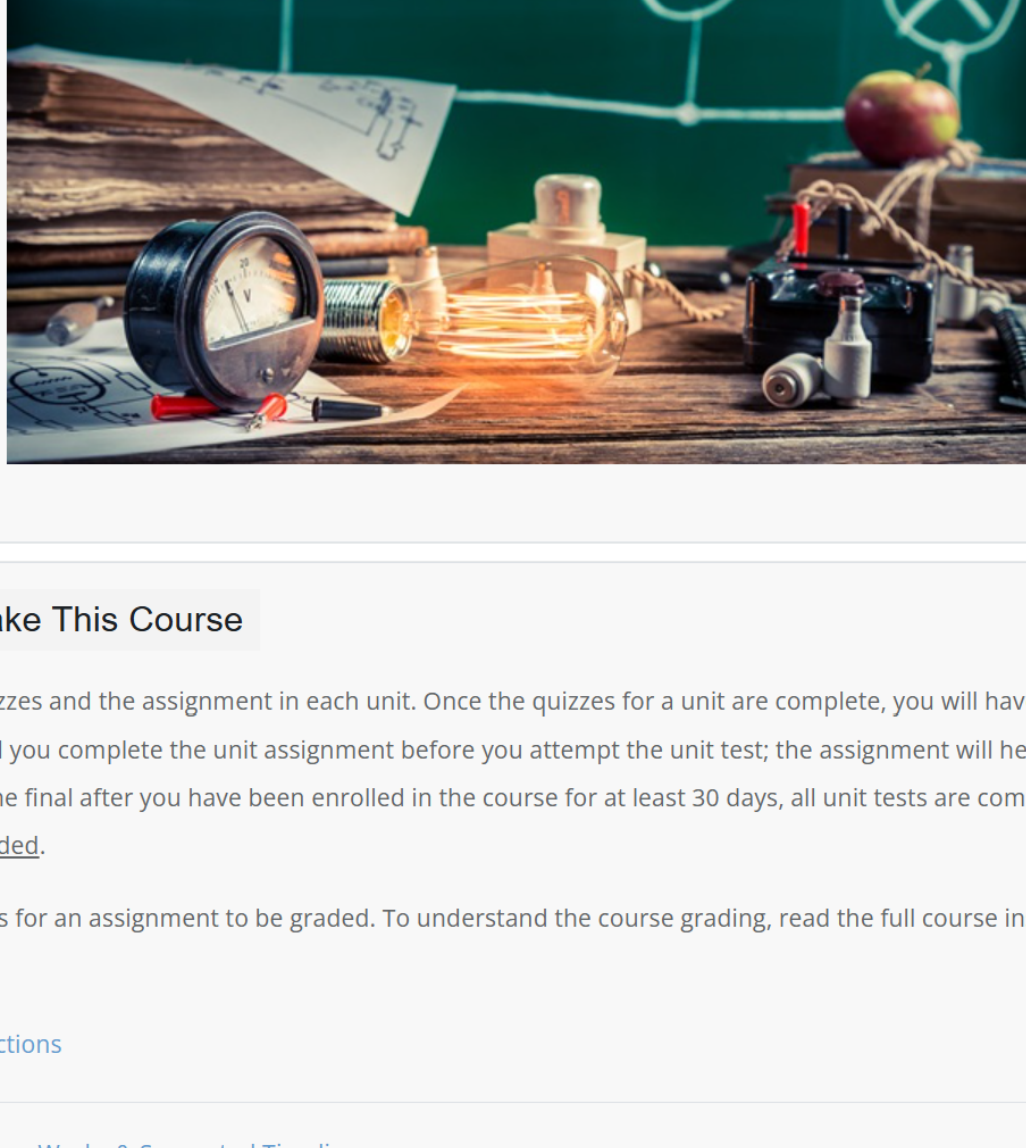


Physical Science, Part 2

ATTENTION

Grading at the end of the semester can take 7 school days!
Submit your **last assignment two weeks** before your school's semester ends.



How to Take This Course

Complete all the quizzes and the assignment in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment before you attempt the unit test; the assignment will help you prepare. You will have access to the final after you have been enrolled in the course for at least 30 days, all unit tests are completed, and your assignments are graded.

Allow 3-4 school days for an assignment to be graded. To understand the course grading, read the full course instructions.

Course Instructions

How This Course Works & Suggested Timeline

Submitting Your Assignments

Ask The Teacher

Meet your teacher for this course and ask a question.

Need help with the course? We offer online tutoring; find more details about it [here](#).

MANDATORY QUIZ

Completion ▾

You are required to take this quiz before you start the course. To prepare, read the course instructions and the "submitting your assignments" document, watch the video on the how this course works page and review the suggested timeline.

Learning Objectives & Standards Met By This Course

Unit 1: Motion

In this unit, students will learn how to determine if an object is in motion and then how to describe the motion changes with kinematic equations and graphing position vs time, velocity vs time, and acceleration vs time.

At the end of this unit, students will be able to

- Identify objects that are in motion.
- Identify variables as scalar or vector.
- Read and interpret p vs t, v vs t, and a vs t graphs.
- Solve problems with vertical and horizontal kinematics equations.

Unit 1 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, [preview the worksheet](#) and download an editable version or PDF.

1.1 Identifying Objects in Motion

Quiz 1.1

Completion ▾

1.2 1D Kinematics

Quiz 1.2

Completion ▾

1.3 Graphing Motion

Quiz 1.3

Completion ▾

1.4 Horizontal Motion

Quiz 1.4

Completion ▾

1.5 Vertical Motion

Quiz 1.5

Completion ▾

Unit 1 Investigation: Stopping Distance

Completion ▾

Unit 2: Newton's Laws

In this unit, students will discover how Newton's Laws impact changes in motion. After learning the types of forces (air, normal, gravity, friction, applied, tension, constant, and field), students will learn about how an external force is needed to change motion and how that external force impacts a singular object to change its acceleration. Students will then explore forces between 2 objects as an action reaction pair and how to determine the force of gravity between two objects.

At the end of this unit, students will be able to

- Identify changes to motion using inertia.
- Use mathematical expressions to describe the movement of an object.
- Identify action reaction pairs.
- Explain orbital patterns using UCM and Newton's Universal Law of Gravitation.

Unit 2 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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2.1 Forces

Quiz 2.1

Completion ▾

2.2 Newton's 1st Law

Quiz 2.2

Completion ▾

2.3 Newton's 2nd Law

Quiz 2.3

Completion ▾

2.4 Newton's 3rd Law

Quiz 2.4

Completion ▾

2.5 Universal Law of Gravitation

Quiz 2.5

Completion ▾

Unit 2 Investigation: Newton's Second Law

Completion ▾

Unit 3: Work and Energy

In this unit, students will learn how momentum and energy are transferred in collisions. Students will begin by learning about impulse and momentum and how momentum is always conserved in collisions. They will then learn about work. Once students explore types of energy and the conservation of energy, they will tie in work to the mechanical energy formula to explain the loss of energy of a system.

At the end of this unit, students will be able to

- Describe how Newton's 3rd Law is related to momentum.
- Use changes in momentum to describe how force and time of impact are inversely related.
- Define and identify types of energy (kinetic, gravitational potential, elastic potential).
- Use energy and momentum to solve collision problems.
- Use mathematical expressions to describe the energy of an object.
- Describe the transfer of energy using the Law of Conservation of Energy and Total Mechanical Energy.

Unit 3 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, [preview the worksheet](#) and download an editable version or PDF.

3.1 Impulse and Momentum

Quiz 3.1

Completion ▾

3.2 Elastic and Inelastic Collisions

Quiz 3.2

Completion ▾

3.3 Work

Quiz 3.3

Completion ▾

3.4 Kinetic and Potential Energy

Quiz 3.4

Completion ▾

3.5 Conservation of Energy

Quiz 3.5

Completion ▾

Unit 3 Investigation: Elastic and Inelastic Collisions

Completion ▾

Unit 4: Waves

In this unit, students will explore how energy is transferred through waves. They will learn about the two main types of waves—transverse and longitudinal—and examine how the medium affects wave behavior, distinguishing between mechanical and electromagnetic waves. Students will also investigate real-world applications of waves in communication technologies and medical imaging.

At the end of this unit, students will be able to

- Describe the relationship between frequency and time period.
- Identify waves as mechanical waves (transverse and longitudinal) or electromagnetic waves.
- Identify parts of a transverse and longitudinal wave.
- Describe how the medium changes the wave.
- Solve problems using the speed of a wave formula.
- Describe the difference between a P wave and S wave.
- Describe how earthquakes impact buildings and cause Tsunamis.
- Explain how light can be both a wave and a photon.
- Describe electromagnetic waves by unique wavelengths and frequencies.
- Explain how electromagnetic waves are used in ultrasounds and X-rays.
- Explain how electromagnetic waves are used in cell phone, wifi, and bluetooth technology.

Unit 4 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, [preview the worksheet](#) and download an editable version or PDF.

4.1 Waves

Quiz 4.1

Completion ▾

4.2 Waves and the Earth

Quiz 4.2

Completion ▾

4.3 Electromagnetic Waves

Quiz 4.3

Completion ▾

4.4 Medical Imaging

Quiz 4.4

Completion ▾

4.5 Digital Transmissions

Quiz 4.5

Completion ▾

Unit 4 Investigation: Analog and Digital Transmission

Completion ▾

Unit 5: Electricity and Magnetism

In this unit, students will learn how electricity and magnetic fields are connected. Students will begin by learning about electrostatics and electric fields plus how they relate to Ohm's Law and Kirchoff's Laws. They will then explore magnetic fields and how they connect to electricity.

At the end of this unit, students will be able to

- Determine the force of attraction/repulsion between two charged particles.
- Explain how a magnetic field generates electricity
- Identify the difference between insulators and conductors.
- Describe the difference between AC and DC circuits.
- Explain how the power grid works.
- List the different types of batteries and explain how they work.
- Describe how power gets to your home and how current flows through a circuit based on Ohm's Law and Kirchoff's Law.

Unit 5 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, [preview the worksheet](#) and download an editable version or PDF.

5.1 What is Electricity?

Quiz 5.1

Completion ▾

5.2 Magnetism

Quiz 5.2

Completion ▾

5.3 Powering Your Devices

Quiz 5.3

Completion ▾

5.4 Powering Your Home

Quiz 5.4

Completion ▾

5.5 Wiring Your Home

Quiz 5.5

Completion ▾

Unit 5 Investigation: Modeling Simple Circuits

Completion ▾

Unit 6: Renewable Energy

In this unit, students will investigate various forms of renewable energy. They will examine the advantages and disadvantages of each type, including solar, wind, geothermal, biomass, and hydro energy. This exploration will help students understand how these energy sources work and their impact on the environment and society.

At the end of this unit, students will be able to

- Differentiate between renewable and nonrenewable resources.
- Identify advantages and disadvantages of geothermal power.
- Identify advantages and disadvantages of wind power.
- Identify advantages and disadvantages of hydro power.
- Identify advantages and disadvantages of solar power.

Unit 6 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, [preview the worksheet](#) and download an editable version or PDF.

6.1 Sources of Electricity

Quiz 6.1

Completion ▾

6.2 Solar

Quiz 6.2

Completion ▾

6.3 Wind

Quiz 6.3

Completion ▾

6.4 Geothermal

Quiz 6.4

Completion ▾

6.5 Hydro

Quiz 6.5

Completion ▾

Unit 6 Investigation: Kirchoff's Laws

Completion ▾

Final Exam

You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and your assignments are graded.

Warning: You have only ONE attempt at the final. Are you ready to take the final? We highly recommend you take the practice final first, and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Remember, if you want to improve your grade in this course, you need to do that BEFORE you take the final exam.

Good Luck!!

Not available unless: The activity **MANDATORY QUIZ** is marked complete

Course Completion & Requesting a Transcript

Warning - If you are waiting for a resubmitted assignment to be graded, do NOT generate any course completion record until the teacher has graded it.

Transcript - Send a transcript to your school to report the credits you earned. A transcript will list all the courses you have taken with us, including those still in progress.

Course Certificate - This link cannot be accessed until you have completed the final. Upon satisfying this requirement, the link will become active.

Feedback - Before you go, we would appreciate your opinion on the course; please take 1 minute to complete the feedback form. We hope you enjoyed this course!

Course Feedback

Thank you for taking this course! Let us know what you think about it.

Request a Transcript

Notify your school that you have completed your course. Send them a transcript by email or mail. A transcript will list all the courses you have completed and those in progress.

Certificate of Completion

Not available unless: The activity **Final Exam** is marked complete