

Physical Science offers a focused curriculum designed around the understanding of foundational physical science concepts, including the nature of matter, energy, and forces, as well as the application of scientific and engineering practices.

Course topics include energy, forces, electromagnetism, waves, matter, chemical reactions, and nuclear reactions. Teacher-scored labs encourage students to apply the scientific method.

Students discover new concepts through guided instruction and confirm their understanding in an interactive, feedback-rich environment. Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts.

A variety of activities encourage students to think scientifically. Lab and Project activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science and engineering. Virtual Lab activities allow students to engage in investigations that require long periods of observation at remote locations and to explore simulations that scientists use to test predictions. In Discussions, students compare their lab results and exchange ideas about their investigations. Practice and Explore activities provide additional opportunities for students to apply learned concepts and practice their writing and scientific reasoning skills.

This course is built to state standards.

Length: Two semesters

## UNIT 1: SCIENCE AND ENGINEERING

- Lesson 1: Science
- Lesson 2: Scientific and Engineering Processes
- Lesson 3: Wrap-Up: Science and Engineering

## UNIT 2: ENERGY

- Lesson 1: What Is Energy?
- Lesson 2: Thermal Energy
- Lesson 3: Doing Science: Energy
- Lesson 4: Wrap-Up: Energy

## UNIT 3: FORCES

- Lesson 1: Force and Motion
- Lesson 2: Momentum and Collisions
- Lesson 3: Wrap-Up: Forces

## UNIT 4: ELECTROMAGNETS

- Lesson 1: Electricity and Magnetism
- Lesson 2: Electromagnetism
- Lesson 3: Wrap-Up: Electromagnets

## UNIT 5: SEMESTER WRAP-UP

- Lesson 1: Semester Wrap-Up

## UNIT 6: WAVES

- Lesson 1: Wave Properties and Interactions
- Lesson 2: Electromagnetic Waves

- Lesson 3: Applications of Waves
- Lesson 4: Wrap-Up: Waves

## **UNIT 7: STRUCTURE AND PROPERTIES OF MATTER**

- Lesson 1: Structure of Matter
- Lesson 2: Properties of Matter
- Lesson 3: Wrap-Up: Structure and Properties of Matter

## **UNIT 8: CHEMICAL REACTIONS**

- Lesson 1: Describing Chemical Reactions
- Lesson 2: Factors Affecting Chemical Reactions
- Lesson 3: Wrap-Up: Chemical Reactions

## **UNIT 9: NUCLEAR REACTIONS**

- Lesson 1: Fission, Fusion, and Radioactive Decay
- Lesson 2: Modeling Nuclear Reactions
- Lesson 3: Wrap-Up: Nuclear Reactions

## **UNIT 10: SEMESTER WRAP-UP**

- Lesson 1: Semester Wrap-Up