

Physical Science
Credits - 1 Duration - 1 Year
Course Overview

The Physical Science course provides opportunities for students to develop and communicate an understanding of physics and chemistry through lab-based activities, mathematical expressions, and concept exploration. Concepts covered in this course include structure of matter, chemical and physical

Describe some of the environmental issues presently being studied by scientists.
 Examine how scientific controversies arise.
 Appreciate the importance of following guidelines in doing experiments.
 Define constant, independent, and dependent variable.
 Recognize the need for standards of measurement.
 Name the prefixes used in SI and tell what multiple of ten each represents.
 Identify SI units and symbols for length, volume, mass, density, time, and temperature.
 Identify three types of graphs and explain the correct use of each type.
 Analyze the benefits and drawbacks of universal use of SI measurements.
 Compare and contrast speed, velocity, and acceleration.
 Evaluate the effects of wearing seat belts during a car crash.
 Form an opinion about whether laws should make people wear seat belts.
 Identify cause and effect relationships between force and changes in velocity.
 Explain Newton's first law of motion.
 Examine how gravitational force is related to mass and distance.
 Explain how force, mass, and acceleration are related.
 Explain why things that are thrown or shot follow a curved path.
 Compare motion in a straight line with circular motion.
 Analyze the advantages and disadvantages of exposing astronauts to weightlessness.
 Draw conclusions about the safety of space travel.
 Explain conservation and momentum.

Term Academic Vocabulary!

constant	theory	acceleration	centripetal
control	density	average speed	acceleration
critical thinking	derived unit	balanced forces	centripetal force
dependent variable	graph	constant speed	isometric exercise
experiment	kelvin	force	law of conservation of
greenhouse effect	kilogram	friction	momentum
hypothesis	liter	gravity	momentum
independent variable	mass	inertia	Newton's second law
model	meter	instantaneous speed	of motion
observation	second	net force	Newton's third law of
ozone layer	SI	speed	motion
physical science	standard	velocity	projectile
scientific law	time	weight	terminal velocity!
technology	volume	air resistance	

TERM II

TERM III
Description

TERM IV

Description

Students will explore the electromagnetic spectrum, mirrors and lenses, electricity, fossil fuels, nuclear energy and alternative energy sources.

Topics & Duration

Chapter 19: Light	2 Week(s)
Chapter 20: Mirrors and Lenses	2 Week(s)
Chapter 21: Electricity	2 Week(s)
Chapter 25: Energy Sources	2 Week(s)

Term Essential Questions

Compare and contrast different types of waves.

Describe the arrangement of waves on the electromagnetic spectrum.

Describe transparent, translucent, and opaque materials.

Analyze advantages and disadvantages of different types of lighting.

Describe properties of light, including reflection and refraction and diffraction.

Explain how an image is formed in two types of mirrors.

Identify examples and uses of plane, concave, and convex mirrors.

Explain how lenses are used to correct vision.

Describe how several different optical instruments work.

Describe polarized light and the uses of polarizing filters.

Distinguish between conductors and insulators.

Recognize the presence of a charge using an electroscope.

Explain lightning and evaluate the pros and cons of lightning induced forest fires.

Conceptually and mathematically relate potential difference, resistance, and current.

Identify the key difference between parallel and series circuits.

Explain and calculate electric power and electric energy.

Discuss the origin and characteristics of the three main types of fossil fuels.

Describe the need and methods for energy conservation.

Outline the pros and cons of nuclear reactors.

Assess the advantages of breeder reactors.

Analyze the need for alternative energy sources and discuss pros and cons of alternate options.

Term Academic Vocabulary