

Physical Science

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
PS.1	The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which		
PS.1.a	chemicals and equipment are used safely;	Scientific Inquiry	Safety During Investigations
PS.1.b	length, mass, volume, density, temperature, weight, and force are accurately measured;	Scientific Nature	Units of Measurement
PS.1.c	conversions are made among metric units, applying appropriate prefixes;	Scientific Nature	Unit Conversions
PS.1.d	triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, probeware, and spring scales are used to gather data;		
PS.1.e	numbers are expressed in scientific notation where appropriate;		
PS.1.f	independent and dependent variables, constants, controls, and repeated trials are identified;	Scientific Inquiry	Experimental Design
PS.1.g	data tables showing the independent and dependent variables, derived quantities, and the number of trials are constructed and interpreted;	Scientific Inquiry	Tutorial: Constructing Tables and Graphs
PS.1.h	h) data tables for descriptive statistics showing specific measures of central tendency, the range of the data set, and the number of repeated trials are constructed and interpreted;		

Physical Science

PS.1.i	frequency distributions, scatterplots, line plots, and histograms are constructed and interpreted;		
PS.1.j	valid conclusions are made after analyzing data;	Scientific Inquiry	Drawing Conclusions
PS.1.k	research methods are used to investigate practical problems and questions;		
PS.1.l	experimental results are presented in appropriate written form;	Scientific Inquiry	Unit Project: Scientific Inquiry
PS.1.m	models and simulations are constructed and used to illustrate and explain phenomena; and	Scientific Nature	Models
PS.1.n	current applications of physical science concepts are used.	Covered throughout the course	
PS.2	The student will investigate and understand the nature of matter.		

Physical Science

PS.2.a	the particle theory of matter;	Matter, Energy and Change	Kinetic Theory of Matter
PS.2.b	elements, compounds, mixtures, acids, bases, and salts;		
PS.2.c	solids, liquids, and gases;	Matter, Energy and Change	The States of Matter
PS.2.d	physical properties;		
PS.2.e	chemical properties; and		
PS.2.f	characteristics of types of matter based on physical and chemical properties.	Matter, Energy and Change	Characteristic Properties of Matter
PS.3	The student will investigate and understand the modern and historical models of atomic structure.		
PS.3.a	the contributions of Dalton, Thomson, Rutherford, and Bohr in understanding the atom; and	Elements, Compounds and Mixtures	Atomic Theory

Physical Science

PS.3.b	the modern model of atomic structure.	Elements, Compounds and Mixtures	The Wave Mechanical Model of the Atom
PS.4	The student will investigate and understand the organization and use of the periodic table of elements to obtain information.		
PS.4.a	symbols, atomic numbers, atomic mass, chemical families (groups), and periods;	Elements, Compounds and Mixtures	The Periodic Table
PS.4.b	classification of elements as metals, metalloids, and nonmetals; and	Elements, Compounds and Mixtures	Tutorial: Trends on the Periodic Table
PS.4.c	formation of compounds through ionic and covalent bonding.	Elements, Compounds and Mixtures	Ionic Bonds Covalent Bonds
PS.5	The student will investigate and understand changes in matter and the relationship of these changes to the Law of Conservation of Matter and Energy.		
PS.5.a	physical changes;	Matter, Energy and Change	Physical and Chemical Changes
PS.5.b	chemical changes; and	Matter, Energy and Change	Physical and Chemical Changes

Physical Science

PS.5.c	nuclear reactions.	Chemical Reactions	Nuclear Reactions
PS.6	The student will investigate and understand forms of energy and how energy is transferred and transformed.		
PS.6.a	potential and kinetic energy; and	Matter, Energy and Change	Kinetic and Potential Energy
PS.6.b	mechanical, chemical, electrical, thermal, radiant, and nuclear energy.	Matter, Energy and Change	Forms of Energy
PS.7	The student will investigate and understand temperature scales, heat, and thermal energy transfer.		
PS.7.a	Celsius and Kelvin temperature scales and absolute zero;		
PS.7.b	phase change, freezing point, melting point, boiling point, vaporization, and condensation;	Matter, Energy and Change	Changes in State Solubility, Boiling Point, and Freezing Point
PS.7.c	conduction, convection, and radiation; and	Matter, Energy and Change	Heat Transfer

Physical Science

PS.7.d	applications of thermal energy transfer.	Matter, Energy and Change	Heat Transfer
PS.8	The student will investigate and understand the characteristics of sound waves.		
PS.8.a	wavelength, frequency, speed, amplitude, rarefaction, and compression;	Waves	Modeling Waves The Behavior of Waves Hearing Sound
PS.8.b	resonance;	Waves	Resonance
PS.8.c	the nature of compression waves; and	Waves	Hearing Sound
PS.8.d	technological applications of sound.	Waves	Acoustic Applications
PS.9	The student will investigate and understand the characteristics of transverse waves.		
PS.9.a	wavelength, frequency, speed, amplitude, crest, and trough;	Waves	Modeling Waves

Physical Science

PS.9.b	the wave behavior of light;	Waves	The Wave Properties of Light
PS.9.c	images formed by lenses and mirrors;		
PS.9.d	the electromagnetic spectrum; and	Waves	The Electromagnetic Spectrum
PS.9.e	technological applications of light.	Waves	Project: Fiber Optics
PS.10	The student will investigate and understand the scientific principles of work, force, and motion.		
PS.10.a	speed, velocity, and acceleration;	Energy in Motion	Speed Velocity Acceleration
PS.10.b	Newton's laws of motion;	Energy in Motion	Newton's Laws of Motion
PS.10.c	work, force, mechanical advantage, efficiency, and power; and	Machines	Work and Power Simple Machines

Physical Science

PS.10.d	technological applications of work, force, and motion.	Machines	Simple Machines
PS.11	The student will investigate and understand basic principles of electricity and magnetism.		
PS.11.a	static electricity, current electricity, and circuits;	Electricity and Magnetism	Electricity Electric Current and Circuits
PS.11.b	relationship between a magnetic field and an electric current;	Electricity and Magnetism	Electric Currents and Magnetic Fields
PS.11.c	electromagnets, motors, and generators and their uses; and	Electricity and Magnetism	Motors Generators Lab: Electromagnet
PS.11.d	conductors, semiconductors, and insulators.		