

Physics

<p style="text-align: center;">Standard #1 Scientific Investigation</p> <p>Students applied the process of scientific investigation and design, conducted, communicated about, and evaluated investigation.</p>
<p style="text-align: center;">Standard # 2 Physical Science</p> <p>Students understood common properties, forms and changes in matter and energy.</p>
<p style="text-align: center;">Standard #3 Life Science</p> <p>Students understood the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p>
<p style="text-align: center;">Standard # 4 Earth and Space Science</p> <p>Students understood the processes and interactions of Earth's systems and the structure and dynamics of Earth and other space objects.</p>
<p style="text-align: center;">Standard # 5 Scientific Method</p> <p>Students understood that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>

Description

This course introduces equations and theories concerning motion and vectors, dynamics, work and power, waves and energy transfer, light, electricity and circuits. Laboratory experiments and projects accompany work being completed in the classroom.

Time Allocation
Ninety minutes daily

Texts/References
Physics Fundamentals, Coletta, Physics Curriculum & Instruction, CD
PBwiki class website (pchs-physics.pbwiki.com)

Themes /Topics

Units and Problem Solving	Kinematics: Description of Motion
Motion in Two Dimensions	Force and Motion
Work and Energy	Momentum and Collisions
Circular Motion	Gravitation
Thermodynamics	Sound
Vibrations and Waves	Geometrical Optics
Reflections and Refraction	Mirrors and Lenses
Elec. Charge, Forces, Fields	Elec. Potential, Energy, Capacitance
Electric Current/ Resistance	Basic Electric Currents
Magnetism	

Assessments
Performance Assessments – inquiry lab reports
Formative Assessments – daily quizzes
Summative Assessments – teacher constructed tests

Grades and Achievement Levels
Grades are based on class activities, quizzes, tests, and projects. Performance levels are based on standards assessments.

Essential Learning Physics

<p>Standard # 1 Scientific Investigation Students applied the process of scientific investigation and design, conducted, communicated about, and evaluated investigation.</p>	<p>Standard # 2 Physical Science Students understood common properties, forms and changes in matter and energy.</p>	<p>Standard # 3 Life Science Students understood the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p>	<p>Standard # 4 Earth and Space Science Students understood the processes and interactions of Earth's systems and the structure and dynamics of Earth and other space objects.</p>	<p>Standard # 5 Scientific Method Students understood that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>
<p>Concepts of the scientific method, deductive and inductive reasoning, and communication of results</p>	<p>Common properties of substances (for example, electrical charge, electrical conductivity, radioactivity)</p> <p>Quantitative relationships involved with energy forms (for example, heat transfer in a system involving mass, and change in temperature of matter)</p> <p>Qualitative and quantitative relationships associated with energy transfer or energy transformation (for example, changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation, voltage, current)</p> <p>Physical and chemical changes involving the conservation of matter and energy (for example, oscillating pendulum/spring, chemical reactions, nuclear reactions)</p> <p>Physical interactions of matter using conceptual models (for example, conservation laws of matter and energy particle model for gaseous behavior)</p>			<p>Process of building scientific knowledge through critique and consensus</p>

Expectations Physics

Standard #1	Standard #2	Standard #3	Standard #4	Standard #5
<p>Apply the scientific method to a variety of situations and problems</p>	<p>Examine, describe measure, classify, and predict common properties of substances (for example, electrical charge, electrical conductivity, and radioactivity)</p> <p>Identify measure, calculate, and analyze quantitative relationships involved with energy forms (for example, heat transfer in a system involving mass, and change in temperature of matter)</p> <p>Identify, measure, calculate, and analyze qualitative and quantitative relationships associated with energy transfer or energy transformation (for example, changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation, voltage, current)</p> <p>Identify, describe, and explain physical changes involving the conservation of matter and energy (for example conservation of matter and energy (for example, oscillating pendulum/spring, chemical reactions, and nuclear reactions)</p> <p>Described and explained physical interactions of matter using conceptual models (for example, conservation laws of matter and energy particle model for gaseous behavior)</p>			<p>Utilize graphs, equations and models to explain and analyze geologic systems</p> <p>Demonstrate the interrelationships between science and technology (for example, building a bridge)</p> <p>Explain the use of technology in an occupation (engineer, physicist) demonstrating that the scientific way of knowing uses a critique and consensus process (for example, peer review, openness to criticism, logical arguments, skepticism)</p> <p>Explained an exponential model (for example, decibel scale)</p>