Course Overview

High School | Physics First! - *Last Updated on April 4, 2025*

DESCRIPTION

K-12 Content Area | Mission & Philosophy Statement

- Young people are born investigators, with natural curiosities about the physical, biological, and social worlds they experience. Anchoring science learning in real-world phenomena connects curiosities to core conceptual understandings.
- Students actively construct understanding through inquiry, experimentation, and analysis to develop science and engineering practices such as asking questions, planning and carrying out investigations, and constructing explanations.
- Integration of crosscutting concepts such as patterns, cause and effect, and systems thinking promote interdisciplinary understanding and sense-making of the natural world.
- Science learning occurs alongside other disciplines to foster holistic understanding and application of knowledge.

Course Description

Physics First! is an engaging, hands-on course designed to introduce students to the foundational principles of physics through inquiry-based learning and real-world application. As the most fundamental of the sciences, physics provides the conceptual backbone for understanding the natural world and supports learning in all other scientific disciplines. This course is ideal for building strong scientific thinking and process skills, as students actively explore core topics such as motion and forces, work and energy, electricity and magnetism, sound, light, and waves. Through daily use of the scientific method and collaborative investigation, students will develop a practical and conceptual understanding of the physical world around them.

Designed as a first-year physics experience, this activity-rich course emphasizes experimentation, observation, and analysis to help students construct knowledge through guided inquiry. Students will learn to measure, model, and predict physical phenomena while building a toolkit of scientific skills applicable across all STEM subjects. A calculator is required, and successful completion of 8th grade science is recommended to ensure readiness for the course. Physics First! sets the stage for success in future science courses by fostering curiosity, precision, and confidence in scientific problem-solving.

STANDARDS

Pennsylvania - Grade 10 - Science and Technology and Engineering

3.2.10.B1 | 3.2.10.B2 | 3.2.10.B4 | 3.2.10.B3 | 3.2.10.B5 | 3.2.10.B6 | 3.2.10.B7

Pennsylvania - High School - Physics

3.1.P.A9. 3.2.P.B1.a 3.2.P.B1.b 3.2.P.B1.c 3.2.P.B2.a 3.2.P.B2.b 3.2.P.B2.c

3.2.P.B4.a 3.2.P.B4.b 3.2.P.B5.a 3.2.P.B5.c 3.2.P.B6.

COURSE OBJECTIVES

The objectives are the course are to meet the Pennsylvania State Standards in Science and Technology.

ASSESSMENT TYPES

The following assessment types will be used during the course:

- Curriculum-based Measures
- Formative Assessments
- Summative Assessments
- Performance Based Assessments

SUGGESTED METHODS OF INSTRUCTION

A science program demands the use of a variety of instructional strategies to foster scientific thinking. Below is a list of suggested strategies for high-quality instruction:

- Instructional components outlined in Framework for Teaching by Charlotte Danielson
- Hands-on learning
- Posing questions for investigation
- Cooperative learning and collaboration
- Inquiry, engineering, and design

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RESOURCES

District Approved Program Resources	District Approved Supplemental Resources	District Approved Technology Resources
Resources Student Text Resources: Hsu, T. (2007). *Foundations of Physical Science with Earth and Space Science.* CPO Science. • Student Edition Print Version Hsu, T. (2007). *Foundations of Physical Science with Earth and Space Science Investigations.* CPO Science. • Student Edition Print Version • Student Edition Electronic Version - Schoology Teacher Text Resources: Hsu, T. (2007). *Foundations of Physical Science with Earth and Space Science.* CPO Science. • Teacher Edition Print Version	Other Resources • Teacher Created Resources • District approved supplemental resources and labs	Technology • District approved supplemental technology • Explore Learning Gizmo Virtual Labs