Course Overview

Middle School | 5 | Science - *Last Updated on August 18, 2024*

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

The comprehensive K-12 science program aims to cultivate scientific thinking and logical reasoning skills by incorporating science and engineering practices. A challenging curriculum will enable students to acquire the ability to pose questions, identify problems, and execute investigations. Through collaborative experiences, students will be encouraged to construct explanations and devise solutions, engaging in evidence-based arguments.

In fifth grade, students explore science through an inquiry-based approach to investigate physical, life, and Earth science. In physical science, students will engage in phenomena dealing with matter and particles too small to be seen by investigating: mixtures; solutions; solubility; concentration; and chemical reactions. They will develop models and engage in engineering experiences to explain each phenomena and design solutions to problems. In life science, students will: explore the geosphere, atmosphere, hydrosphere, and biosphere; identify relationships among plants and animals in an ecosystem; and study the impacts of human activities on the environment. In Earth and Space science, students will study weather, water cycling, and the relationships and interactions between the Earth, Sun, and Moon. Students will end the unit with investigations that include the causes of seasons, shadows, and day and night. As part of the PA STEELS, students will become skilled in an array of Science and Engineering Practices and Cross Cutting Concepts in each investigation.

STANDARDS

Pennsylvania - Grade 5 - Science, Technology & Engineering, And Environmental Literacy & Sustainability Standards (STEELS) (2023)

3.1.5.A | 3.1.5.B | 3.2.5.A | 3.2.5.B | 3.2.5.C | 3.2.5.D | 3.2.5.E | 3.2.5.F | 3.2.5.G

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3.3.5.A 3.3.5.B 3.3.5.C 3.3.5.D 3.3.5.E 3.3.5.F 3.4.3-5.A 3.4.3-5.B 3.4.3-5.C

3.4.3-5.D 3.4.3-5.E 3.4.3-5.F 3.4.3-5.G 3.5.3-5.A 3.5.3-5.B 3.5.3-5.C 3.5.3-5.D

3.5.3-5.E 3.5.3-5.F 3.5.3-5.G 3.5.3-5.I 3.5.3-5.M 3.5.3-5.O 3.5.3-5.P 3.5.3-5.Q

3.5.3-5.R 3.5.3-5.T 3.5.3-5.U 3.5.3-5.W

COURSE OBJECTIVES

The objective of the course is to meet the performance expectations, science and engineering practices, and cross cutting concepts outlined in the STEELS standards.

ASSESSMENT TYPES

- 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 *The Framework for Teaching* by Charlotte Danielson
- Experiencing phenomena
- Posing questions for investigation
- Cooperative learning and collaboration
- Inquiry, engineering, and design processes
- Sense-making discussions
- Recording Observations
- Developing models

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RESOURCES

District Approved Program Resources
Student Text Resources: • Mixtures and Solutions: FOSS Science Resources. Delta Education/School Specialty, 2024. • Earth and Sun: FOSS Science Resources. Delta Education/School Specialty, 2024. • Living Systems: FOSS Science Resources. Delta Education/School Specialty, 2024. Teacher Resources: Investigations Guides and Teacher Resources for: • Mixtures and Solutions: Full Option Science Systems (FOSS), Pathways Version. Delta Education/School Specialty, 2 • Earth and Sun: Full Option Science Systems (FOSS), Pathways Version. Delta Education/School Specialty, 2024. • Living Systems: Full Option Science Systems (FOSS), Pathways Version. Delta Education/School Specialty, 2024. Other Resources: • FOSS (2024 Pathways version) Resource Kits for: ◦ Mixtures and Solutions ◦ Earth and Sun ◦ Living Systems • Teacher created Resources