

Plymouth Public Schools' Science and Technology/Engineering Program

Grade 6 Integrated Science Course Syllabus

STE016 Science 6

Full year course intended for 6th grade students

Course Description

This general science course is the first in a three-year sequence and is intended to extend and deepen student mastery of concepts introduced in elementary grades. Classroom investigations will develop students' understanding of disciplinary core ideas in Earth and space sciences, life science, physical science, and technology/engineering. Emphasis will be placed on reading, writing, problem solving, critical thinking, and the crosscutting concept of structure and function. Science and engineering practices will be woven throughout, with a focus on analysis and constructing arguments. This course will provide the necessary foundation for sequential courses in grades 7 and 8 and help prepare students in demonstrating proficiency on the MCAS exam in Science and Technology/Engineering administered in grade 8.

Instructional Objectives

Students will independently and collaboratively:

1. Engage in scientific inquiry and engineering design through the use of science and engineering practices.
2. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to answer a question or solve a problem.
3. Draw evidence from literary or informational texts to support analysis, reflection, and research.
4. Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.
5. Demonstrate proficiency in phenomena related to Earth and space science, life science, physical science, and technology/engineering.

Themes and Topics

1. Earth and Space Sciences – modeling Earth's place in the universe (e.g., lunar phases, solar and lunar eclipses, the universe, relative ages of rock formations) and analyzing and interpreting Earth's systems (e.g., Earth's moving plates)
2. Life Science – providing evidence for microscopic and macroscopic organisms' structures and processes (e.g., unicellular/multicellular organisms, cellular functions necessary for cellular processes, interactions of body systems) and constructing arguments for unity and diversity among organisms and their environments (e.g., changes to life forms over time, comparisons between fossil organisms and modern organisms)

3. Physical Science – carrying out investigations with matter and its interactions (e.g., exothermic and endothermic reactions, density, mixtures and pure substances), using evidence to support gravitational forces between objects, and asking questions about waves and their applications in technologies for information transfer (e.g., light rays, mechanical waves, digitized signals)
4. Technology/Engineering – designing solutions in engineering (e.g., criteria, constraints, visual representations, communication) and analyzing and interpreting materials, tools, and manufacturing data (e.g., properties of materials, selecting appropriate materials, choosing appropriate tools)

Text and Instructional Materials

1. OpenSciEd Developers Consortium, *OpenSciEd*. Dubuque, IA: Kendall Hunt, 2018.
2. *Prentice Hall Science Explorer*. Needham, MA: Pearson Prentice Hall, 2009.
3. Hacker, Michael, and Dave Burghardt. *Technology Education: Learning by Design*. Upper Saddle River, NJ: Pearson/Prentice Hall, 2004.
4. [Web-based application that accompanies Prentice Hall Science Explorer textbooks](#); see teacher for access.

Cheating/Plagiarism

The excerpt from the Plymouth Public Schools' Student Handbook on plagiarism and copyright infringement states, "Existing copyright law will govern the use of material accessed through network. The user will not plagiarize works found on the Internet. Plagiarism is taking the ideas or writings of others and presenting them as if they were yours. All copyrighted material used must have the express written permission of the person or organization that owns the copyright. Any student who has cheated on any academic exercise will receive no credit for that exercise. Plagiarism is a form of cheating. A parent/guardian will be notified by the involved teacher in all instances of cheating. The investigation of the claim of cheating and plagiarism will involve the student, teacher, and administration."

Grading Policy and Assessment

Levels of proficiency on various tasks and assignments determine student grades. During each grading term, students' grades will be based upon the following:

25% Class Work and Homework: labs, activities, etc.

75% Assessments: notebooks, projects, quizzes, reports, tests, etc.

The final year average will be calculated as follows:

25% Term 1 Grade

25% Term 2 Grade

25% Term 3 Grade

25% Term 4 Grade