

# Plymouth Public Schools' Science and Technology/Engineering Program

## Grade 7 Integrated Science Course Syllabus

STE017 Science 7

Full year course intended for 7<sup>th</sup> grade students

### Course Description

This general science course is the second in a three-year sequence and is intended to extend and deepen student mastery of concepts in four strands of scientific study. 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 overarching theme of systems and cycles. Science and engineering practices will be woven throughout, with a focus on developing and using models and constructing explanations and designing solutions. This course will continue to build on the foundation established in grade 6 and also 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 systems (e.g., changes in Earth's surface, cycling of water) and obtaining and communicating information about Earth and human activity (e.g., forecasting future catastrophic events, impact of human population on natural resources)
2. Life Science – constructing explanations based on evidence for organisms' structures and processes (e.g., animal behaviors, plant structures) and developing and using models and analyzing and interpreting data from the interactions, energy, and dynamics of ecosystems (e.g., availability of resources, types of relationships, transfer of matter and energy, population shifts, changes to the biodiversity, ecosystem protection)

3. Physical Science – using evidence to support magnetic and electric forces and field strength (e.g., contact and noncontact forces) and planning and carrying out investigations with energy (e.g., kinetic energy, potential energy, thermal energy, energy transfer, heat transfer, energy conversions)
4. Technology/Engineering – evaluating engineering solutions (e.g., decision matrix, effectiveness, iterative testing, optimization, prototype construction) and obtaining, evaluating, and communicating information about technological systems (e.g., communication systems, transportation systems, systems engineering)

#### 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:

5% Homework

20% Class Work: lab participation, activities, etc.

75% Assessments: tests, quizzes, final versions of lab reports, projects, 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