

FALMOUTH PUBLIC SCHOOLS

SCIENCE CURRICULUM

Unit Overview: Physical Science (PS) Energy

Grade 3

Suggested time frame:

Science Curriculum Goals

1. SCIENTIFIC LITERACY. Provide all students with science experiences that are appropriate to their cognitive stages of development and serve as a foundation for more advanced ideas that prepare them for life in an increasingly complex scientific and technological world.
2. INSTRUCTIONAL EFFICIENCY. Provide all teachers with a comprehensive, flexible, attainable science curriculum based upon current research on learning; including collaborative learning, student discourse, and embedded assessment, and uses effective instructional methodologies including: hands-on active inquiry-based learning, integration of disciplines and content areas, and multisensory methods.
3. SYSTEMIC REFORM. Aligned to the Massachusetts State Curriculum Frameworks Science Standards and societal expectations that will prepare students with the knowledge, skills and understandings to succeed in the 21st century.

Pedagogy

Young people need an understanding of basic scientific concepts and methods in order to comprehend the scientific issues that will shape their lives. It is equally important for students to develop and apply the concepts and process skills used in scientific inquiry so that they will be prepared to solve problems encountered in other areas of study and in dealings with the everyday world.

This unit emphasizes basic science concepts and skills presented through a range of engaging, inquiry-based, hands-on instructional experiences that focus on the processes and techniques of discovery. This unit is designed to promote scientific literacy and provide opportunities for students to satisfy their innate curiosity as they develop techniques for observing, questioning, and testing basic scientific concepts.

Unit Summary

Energy kit provides hands-on activities and readers that enable students to explore the complex world of energy. Students discover that energy is the ability to do work or to cause change. Not only is energy always in motion, it can be stored for later use. Students will build an electrical circuit and experiment with electromagnets.

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Curriculum Standards and Enduring Understandings

PS4 Identify the basic forms of energy (Light, sound, heat, electrical and magnetic).

- Energy is the ability to cause motion or create change.
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PS6 Understand that electricity in circuits requires a complete loop for an electrical current and can produce light, heat and sound.

PS7 Understand objects and materials can be conductors or insulators of electricity.

- As electrical energy moves, it produces electricity.

PS8 Create and use an electromagnet.

PS9 Demonstrate magnets have poles that repel and attract each other.

PS10 Demonstrate a magnet will attract some objects and materials but not others.

- Electricity produces force (magnetism) that pulls across a distance.

Essential Questions

- How does energy change?
- What does electricity need to create an electrical current?
- How do electromagnets attract objects?

Unit Vocabulary

attract	force	potential energy
conductor	insulator	repel
current	kinetic energy	
electricity	magnet	
electromagnet	magnetism	
energy	poles	

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Evidence of Scientific Method within Instruction

- ✓ Reading (shared, guided, independent) – *share information, collaborate*
- ✓ KWL – *activate, predict, analyze, hypothesize*
- ✓ Think – Pair – Share – *share information, collaborate*
- ✓ Modeling – *share information, observe, experiment*
- ✓ Participating in experiments - *share information, procedure, measure, record, compare, sort & classify*

Assessments

- ❖ Observations
- ❖ Anecdotal notes
- ❖ Class discussions
- ❖ Activity sheets
- ❖ Lab report(s)
- ❖ ORQ(s) from Essential Questions and Lesson Checkpoint, pg 361, Scott Foresman, *Energy*, Chapter 13
- ❖ Common Assessments: Potential and Kinetic Energy and Electricity: Conductor/Insulator Test