

FALMOUTH PUBLIC SCHOOLS

SCIENCE CURRICULUM

Unit Overview: Physical Science (PS) Balance & Motion

Grade 2

Suggested Timeframe: 6 sessions + assessment(s)

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

Balance & Motion introduces students to the global phenomena we experience in a dynamic world where everything is in motion, or so it seems. But not everything is moving the same way. Some things move from one place to another. Other things go around and around in a rotational motion. Still other things are stationary, stable for a time, balanced in a thin line between stop and go. Students will develop abilities to do and understand scientific inquiry and technological design and an understanding of the position and motion of objects.

(adapted from lhsfoss.org)

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Curriculum Standards and Enduring Understandings

PS3 Understand objects can move in various ways.

- An object's position or motion can be changed by a force (a push or a pull.)

PS4 Demonstrate how applying force can change the motion of an object.

- An object's motion is described by tracing its position over time.

PS5 Describe how objects can be balanced under some conditions.

- The position of an object is described by relating its location to another object or the background.

Essential Questions

- How many ways can a shape/object be at balance?
- How can counterweights help us balance other shapes/objects?
- How can you change a spinning object's motion?
- How can a spinning object be kept in motion?
- How does a change in a wheel-and-axle system affect its path and /or motion?
- Can we predict the behavior of a rolling cup?

Unit Vocabulary

balance

balance point

center of gravity

counterweight

force

linear motion

motion

rotational motion

stable - stability

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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
- ❖ (Choose) Summative Assessment No. 4 OR No. 5&6.