

1. Force & Motion

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **1 trimester**
Status: **Published**

General Overview, Course Description or Course Philosophy

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

How can we compare the strengths of pushes/pulls on the motion of an object?
Can I improve the speed of an object by changing part of my investigation?

CONTENT AREA STANDARDS

SCI.K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
SCI.K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
SCI.K-PS2-2	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.
TECH.9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

LA.W.K.7	Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
LA.RL.K.1	With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how).
LA.RL.K.4	Ask and answer questions about unknown words in a text.
MA.K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
MA.K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.
MA.K-12.2	Reason abstractly and quantitatively.

EVIDENCE OF LEARNING

Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

Formative Assessments

Science workbook

Lesson assessments

Verbal assessments

Summative Assessments

Benchmark Assessments

- Multiple Choice Assessment administered at the end of each trimester (T1, T2, T3)

Alternative Assessments

- Questions for Comprehension
- Performance Tasks
- Scientific Journals/Notebooks
- Self-Assessment

RESOURCES (Instructional, Supplemental, Intervention Materials)

Mystery Science-online resource

<https://mysteryscience.com/docs/new-jersey>

BrainPop Jr

BrainPop

STUDENT LEARNING TARGETS

Refer to the 'Declarative Knowledge' and 'Procedural Knowledge' sections.

Declarative Knowledge

Students will understand that:

- Scientists use different ways to study the world.
- Pushes and pulls can have different strengths and directions.
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.
- When objects touch or collide, they push on one another and can change motion.
- A bigger push or pull makes things speed up or slow down more quickly.
- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.

Procedural Knowledge

Students will be able to:

- Plan an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- Conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

INTERDISCIPLINARY CONNECTIONS

Scientific writing

Personal Experience

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.