

Unit 3: Pushes and Pulls

Content Area: **Science**
Course(s): **Science K**
Time Period: **January**
Length: **15 Days**
Status: **Published**

Unit Summary

During this unit of study, students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. The crosscutting concept of cause and effect is called out as the organizing concept for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Standards

CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
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.
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.
TECH.8.1.2.A.CS1	Understand and use technology systems.

Student Learning Objectives

Students will learn to...

- compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- 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.
- analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Essential Questions

- How can you design a simple way to change the speed or direction of an object using a push or pull from another object?

Enduring Understandings

Students will understand that...

- you can change the speed and direction of an object.

Application

Students will be able to independently use their learning to...

- with guidance, design simple tests to gather evidence to support or refute ideas about cause-and-effect relationships.
- with guidance, plan and conduct an investigation in collaboration with peers.
- with guidance, collaboratively 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.
- analyze data from tests of an object or tool to determine if it works as intended.
- analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
- analyze data to determine whether a design solution works as intended to change the speed or direction of an object with a push or a pull.

Skills

Students will be skilled at...

- gathering evidence to support or refute ideas about cause-and-effect relationships.
- planning and conducting investigations.
- collaborating with peers.
- analyzing data from tests of two objects to revise thinking and solve problems.
- changing the speed or direction of an object with a push or a pull.