



# FORCES AND MOTION

Grade 2 | 60 Minutes

## Teacher's Guide

### Description

In this hands-on, inquiry based field trip, students will conduct experiments at investigation stations to learn about how changing forces changes the motion of objects.

**Adult chaperones recommended:** 4-6

### Content Standards

Subject	Gr	Standard	Objective/"I can" Statements
Physical Science	2	<ul style="list-style-type: none"><li>• Forces change the motion of an object.</li><li>• Motion can increase, change direction or stop depending on the force applied.</li><li>• The change in motion of an object is related to the size of the force.</li><li>• Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.</li></ul>	<ul style="list-style-type: none"><li>• I can demonstrate how magnetism changes the position of objects through attracting and repelling.</li><li>• I can demonstrate t how pushes and pulls change the position of objects.</li><li>• I can demonstrate how gravity pulls objects towards Earth's surface.</li><li>• I can demonstrate how wind changes the path and position of an object.</li></ul>

## Pre-Trip Activities

### Vocabulary

attract	motion
energy	pull
forces	push
gravity	repel
magnetism	wind

### Books

- Forces Make Things Move by Bradley. Harper Collins, 2005.
- Forces and Motion with Max Axiom by Sohn. Capstone Press, 2007.
- Forces: The Ups and Downs by Wendy Sadler. Raintree, 2006.

## Other Activities

Discuss the motion of a ball. Brainstorm ideas of how to get a ball to change its motion once it's in the air.

## Post-Trip Activities at School

Predict the changes in motion that a moving object or an object at rest experiences when acted on by a force (e.g., push, pull, gravity).

## Extension Activities

- Design and construct a device to move a matchbox car from one position to another without touching it.
- Plan and implement a scientific experiment to explore the effects some objects have on others even when the two objects might not touch (e.g., magnets).
- Lead a discussion around the types of careers that design vehicles or devices that respond to or are impacted by force (e.g. airplanes, boats, trucks). Students will explore a career related to various types of transportation, including those connected to the military, through available resources in the school or classroom library. Then, they will depict their findings in a drawing.