

Forces and Motion

Grade 2

Teacher's Guide



Lake Erie Nature & Science Center

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.

Length: 60 minutes. **Adult chaperones recommended:** 4-6

Content Standards

Subject	Gr	Standard	Objective/"I can" Statements
Physical Science	2	<ul style="list-style-type: none">• Forces change the motion of an object.• Motion can increase, change direction or stop depending on the force applied.• The change in motion of an object is related to the size of the force.• Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.	<ul style="list-style-type: none">• I can demonstrate how magnetism changes the position of objects through attracting and repelling.• I can demonstrate how pushes and pulls change the position of objects.• I can demonstrate how gravity pulls objects towards Earth's surface.• I can demonstrate how wind changes the path and position of an object.

Pre-Trip Activities

Vocabulary

attract	motion
energy	pull
forces	push
gravity	repel
magnetism	

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.