Forces and Motion

Grade 2
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.

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

Content Standards

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gr</th>
<th>Standard</th>
<th>Objective/”I can” Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Science</td>
<td>2</td>
<td>• Forces change the motion of an object.</td>
<td>• I can demonstrate how magnetism changes the position of objects through attracting and repelling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motion can increase, change direction or stop depending on the force applied.</td>
<td>• I can demonstrate how pushes and pulls change the position of objects.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The change in motion of an object is related to the size of the force.</td>
<td>• I can demonstrate how gravity pulls objects towards Earth’s surface.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.</td>
<td>• I can demonstrate how wind changes the path and position of an object.</td>
</tr>
</tbody>
</table>
Pre-Trip Activities

Vocabulary
- attract
- energy
- forces
- gravity
- magnetism
- motion
- pull
- push
- repel

Books

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.