

# Forces and Motion & Electrical and Magnetic Forces

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

## Unit Overview

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How do equal and unequal forces on an object affect the object? Students are able to determine the effects of balanced and unbalanced forces on the motion of an object. The crosscutting concepts of patterns and cause and effect are identified as organizing concepts for these disciplinary core ideas. In the third-grade performance expectations, students are expected to demonstrate grade-appropriate proficiency by planning and carrying out investigations. Students are expected to use these practices to demonstrate understanding of the core ideas.

## Enduring Understandings

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Understand the strength and direction of a force can change the motion of an object  
Understand balanced and unbalanced forces.  
Understand the forces of objects when they are not in contact with each other.  
Understand that unbalanced forces affect the motion of an object.

## Essential Questions

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What are forces?  
What forces act from a distance?  
What is motion?  
What are some patterns in motion?  
How can you unlock a door using a magnet?  
What do magnets do?

## Learning Objectives

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Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.  
Include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.  
Determine cause and effect relationships of magnetic interactions between two objects not in contact with each other.  
Understand when a net force of zero happens (balanced force).  
Understand when there will not be a net force of zero (unbalanced force).  
Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Identify motion with a predictable pattern.

Explain magnetic attraction and repulsion.

How to explain that friction is an invisible contact force that opposes motion or makes it difficult for an object to travel across a surface.

Engage in the engineering design process to test and improve designs

Career Exploration - Explore careers related to science and engineering.

## **Standards: Content**

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SCI.3-PS2-1	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
SCI.3-PS2-2	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
SCI.3-PS2-3	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
SCI.3-PS2-4	Define a simple design problem that can be solved by applying scientific ideas about magnets.

## **Standards: Interdisciplinary**

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### **Assessment Evidence**

Formative	Teacher observations, Class discussions, Lab Activities, Key concepts and vocabulary quizzes, Science Starter's/Do Nows, Open Ended Responses, Modeling, Simulations, Innovators Monthly Research, Lab Activities, Vocabulary Responses, Exit Questions, Interactive Digital Assessments embedded in Exploring Science Digital Book
Summative	Projects, Tests, Quizzes, lab skills demonstrations, projects, and vocabulary quizzes.
Alternative & Benchmark	Alternative - Read to the student and chart oral responses. Word banks, sentence frames, oral responses, graphic organizers, observations, portfolios of student work, orally administered assessments, and anecdotal notes. Benchmark – LinkIt Benchmark Assessment, Teacher Generated Assessments
<a href="#"><u>Assessment Evidence Resource</u></a>	

### **Instructional Resources**

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Smartboard, Computers, Websites and digital interactives/models, Multi-media presentations, Video

Streaming, Brain Pop, Middle School Science, Generation Genius Digital Curriculum, Mystery Science Digital Curriculum, Amplify Digital Curriculum, Microsoft 365, Primary and Secondary Source Documents, Assorted lab materials, crayons, colored pencils, markers, graph paper, charts, tape, scissors, magnets, cotton, wool, fur, leather [Third Grade Science Course](#)

[Instructional Resource List](#)

**Curricular Mandates**

*Below are the curricular requirements as defined in NJ Administrative Code and Statute*

	Amistad	Diversity, Equity, and Inclusion
	Holocaust	LGBT and Disabilities (Grades 6-12)
X	Climate Change	Asian American & Pacific Islander

**Social Emotional Learning (SEL) Competencies**

[NJ Social and Emotional Learning Competencies & Sub-Competencies](#)

	Self-Awareness	Relationship Skills
X	Responsible Decision-Making	Social Awareness
	Self-Management	

**21st Century Skills & Themes**

X	Global and Cultural Awareness	Technology Literacy	Planning and Budgeting
X	Creativity and Innovation	Financial Institutions	Risk Management and Insurance
X	Information and Media Literacy	Digital Citizenship	Economic and Government Influences
X	Critical Thinking and Problem Solving	Credit Profile	X Career Awareness and Planning

	Civic Financial Responsibility	Financial Psychology		
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