

Science
Updated

Science
Updated

Forces and Motion

by Arlene Block

Genre	Comprehension Skill	Text Features	Science Content
Nonfiction	Put Things In Order	• Labels • Glossary	Forces and Motion

Scott Foresman Science 2.10



scottforesman.com

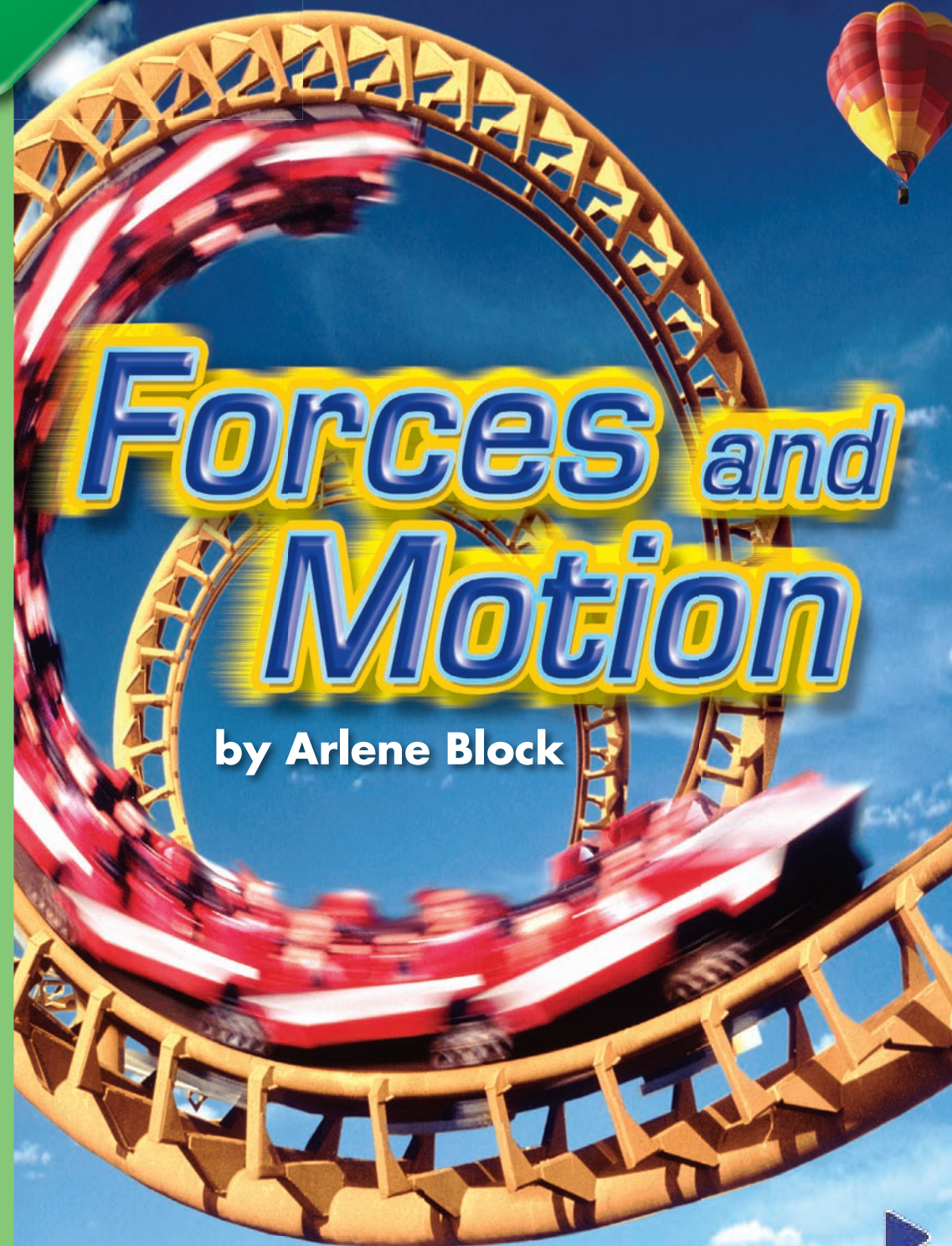
ISBN-13: 978-0-328-34223-5
ISBN-10: 0-328-34223-8



9

780328342235

9 0 0 0 0 >



Vocabulary

attract

force

friction

gravity

motion

repel

simple machine

work



Forces and Motion

by Arlene Block



Photographs: Every effort has been made to secure permission and provide appropriate credit for photographic material. The publisher deeply regrets any omission and pledges to correct errors called to its attention in subsequent editions. Unless otherwise acknowledged, all photographs are the property of Scott Foresman, a division of Pearson Education. Photo locators denoted as follows: Top (T), Center (C), Bottom (B), Left (L), Right (R) Background (Bkgd)
Opener: (Bkgd) ©Lester Lefkowitz/Corbis, (TR) ©Photographer's Choice/Getty Images, (Bkgd) NASA Image Exchange; Title Page: ©Taxi/Getty Images; 2 ©First Light/Corbis; 3 ©Joyce Choo/Corbis; 4 (BR) ©Stone/Getty Images, (TR) ©Chris Carroll/Corbis; 6 ©Wally McNamee/Corbis; 7 ©Stone/Getty Images; 9 ©Chapman/NewSport/Corbis; 10 (T) ©Mike Brinson/Getty Images, (B) ©Thinkstock/Superstock; 11 ©Taxi/Getty Images; 12 Getty Images; 13 ©Juergen & Christine Sohns/Animals Animals/Earth Scenes

ISBN 13: 978-0-328-34223-5; ISBN 10: 0-328-34223-8

Copyright © Pearson Education, Inc.

All Rights Reserved. Printed in the United States of America. This publication is protected by Copyright and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form by any means, electronic, mechanical, photocopying, recording, or likewise. For information regarding permissions, write to: Permissions Department, Scott Foresman, 1900 East Lake Avenue, Glenview, Illinois 60025.

1 2 3 4 5 6 7 8 9 10 V010 13 12 11 10 09 08 07



How do objects move?

Motion is the act of moving.

Objects can move in different ways.

This swing moves back and forth.

A merry-go-round moves in a circle.



Force

How can you make objects move?

You can push or pull them.

A push or pull is a **force**.

A force changes the way objects move.

Use more force!

The object will move faster.





Gravity

Throw leaves in the air.

They fall down.

Gravity pulls the leaves down.

Gravity is a force.

Gravity pulls things down to Earth.



Jump up!

Gravity will pull you down.

Toss a ball in the air!

Gravity will pull the ball down too.





What is work?

Push a crayon across a desk.

You use force to move it.

Work happens when a force moves something.

It takes little work to move a crayon.

It takes a lot of work to move this bobsled!



When an object does not move, work does not happen.

Look at the picture.

The people cannot make the rock move.

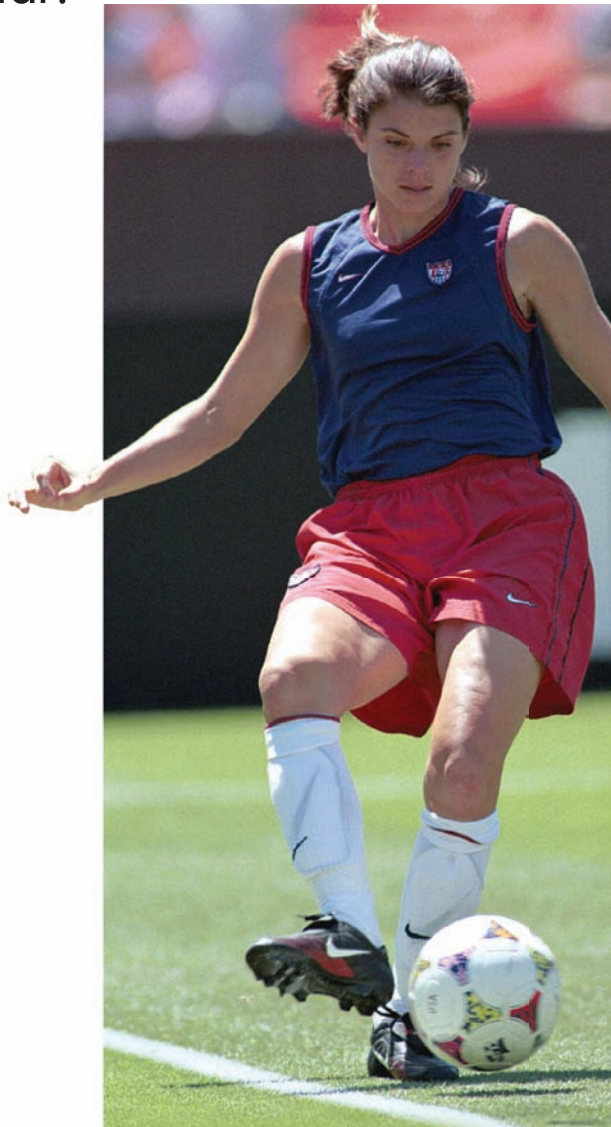
They are not doing work.



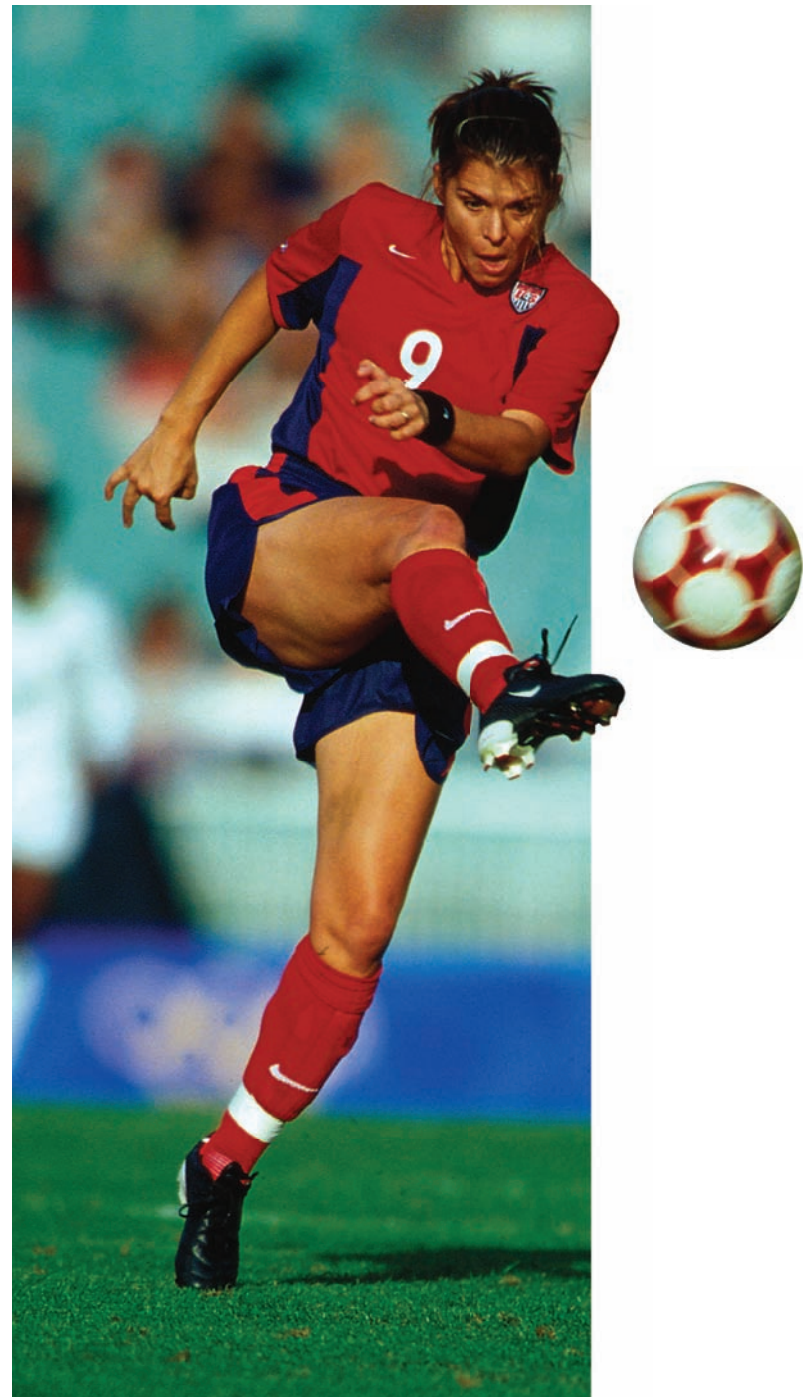
How can you change the way things move?

You can change how things move.
Use more or less force.

Tap a ball.
It will not move far.



 Use more force.
Kick the ball hard.
It will go far!





Friction

Friction is a force.

Friction makes things move slowly.

Friction makes things stop.

This bike moves on the smooth road.

The bike moves fast.



This bike moves on the grass.

The bike moves slowly.

The tires rub against the grass.

Friction makes the bike slow down.



How can simple machines help you do work?

A **simple machine** is a tool.
A simple machine has few or no moving parts.
It can help you do work.
It can help you move things.

These are simple machines.



Animal Body Parts

Some animal body parts are like simple machines.
Animals use them to do work.



Look at the bird's beak. Its beak works like two levers.



Look at this badger's claws. It uses them like a wedge.

What are magnets?

Magnets **attract** some metal objects.

Attract means to pull toward.

Magnets **repel** other magnets.

Repel means to push away.

The ends of magnets are called poles.

Magnets have north and south poles.



Opposite poles attract. They move toward each other.



Like poles repel. They push away from each other.

What a Magnet Can Attract

Magnets attract some metal objects.

Iron and copper are two metals.

Some nails are made of iron.

A magnet will attract a nail.

A penny is made of copper.

A magnet will not attract a penny.

Try using a magnet. See how it works!





Glossary

attract	to pull toward something
force	a push or a pull
friction	a force that makes moving objects slow down or stop
gravity	a force that pulls things down to Earth
motion	the act of moving
repel	to push away
simple machine	a tool with few or no moving parts
work	what happens when a force makes an object move

What did you learn?

1. How can you make objects move?
2. What is gravity?
3. **Writing in Science** You can change how things move. Write to tell about some things you can do. Use words from the book as you write.
4.  **Put Things In Order** How could you make a magnet attract and then repel another magnet? Tell, in order, what you would do.

