

## Kindergarten Forces and Motion Resources

### Next Generation Science Standard: K-PS2 “Motion and Stability: Forces and Interactions”

PS2.A: Forces and Motion

Pushes and pulls can have different strengths and directions.

PS2.B: Types of Interactions

When objects touch or collide, they push on one another and can change motion.

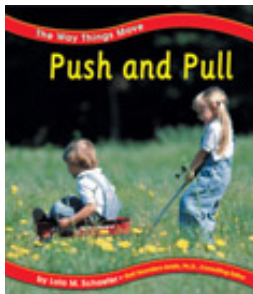
PS3.C: Relationship Between Energy and Forces

A bigger push or pull makes things speed up or slow down more quickly.

### Books:

*Push and Pull* by Lola M. Schaefer (2000)

Includes bibliographical references (p. 23) and index. Simple text and photographs describe and illustrate push and pull movement.



Guided Reading: E

24 Pages

*Back and Forth* by Lola M. Schaefer (2000)

Using simple text appropriate for young readers, books in this series explain the basic concepts of motion. Colorful photos show examples of movement and where we see it every day.



Guided Reading: E

24 Pages

*Push and Pull* by Charlotte Guillain (2008)

Includes index. Motion -- Pushing and pulling -- Speed and distance -- Stopping -- Springs -- Gravity -- Checklist -- Glossary. An exploration of force and energy that discusses motion, pushing, pulling, speed, distance, stopping, springs, and gravity.



Guided Reading: K

32 Pages

*Forces Make Things Move* by Kimberly Bradley (2005)

Simple language and humorous illustrations show how forces make things move, prevent them from starting to move, and stop them from moving.



Guided Reading: M

33 Pages

*Going From Here to There* by Sarah Hoffman (2013)

Simple text and photographs show different things that move from one place to another.



Guided Reading: C

7 Pages

*Pushes and Pulls* by Helen Gregory (2013)

Includes index. Simple text and photographs introduce the forces of pushing and pulling.



Guided Reading: G

20 Pages

*Push and Pull* by Patricia Murphy (2002)

Includes index. Simple text and photographs describe and illustrate push and pull movement.



Guided Reading: L

31 Pages

*Stop and Go Fast and Slow: Moving Objects in Different Ways* by Buffy Silverman (2012)

Includes bibliographical references (p. 24) and index. Simple text and photographs introduce the concepts of force and energy by showing objects being moved in different ways.



Guided Reading: F

24 Pages

*Energy* by Kay Manolis (2011)

Includes bibliographical references (p. 23) and index. Explains introductory physical science concepts about energy through real-world observation and simple scientific diagrams.



Guided Reading: M  
24 Pages

*Give it a Push, Give it a Pull: Look at Forces* by Jennifer Boothroyd (2011)

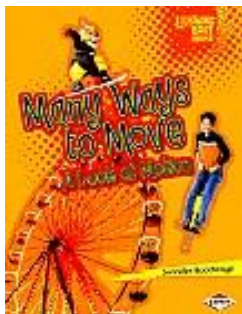
Includes bibliographical references (p. 31) and index. An introduction to forces that discusses pushes, pulls, motion, direction, speed, and friction, and provides everyday examples and instructions for an activity.



Guided Reading: J  
32 Pages

*Many Ways to Move: A Look at Motion* by Jennifer Boothroyd (2011)

Includes bibliographical references (p. 31) and index. An introduction to motion that discusses force, gravity, speed, direction, and other related topics, and provides everyday examples and instructions for an activity.



Guided Reading: I  
32 Pages

*How Things Move: Changing Direction* by Sian Smith (2009)

Includes index. An introduction to simple forces, focusing on how things move and how they change direction.



Guided Reading: E

24 Pages

*How Things Move: Fast* by Sarah Shannon (2009)

Includes index. An introduction simple forces, focusing on how things move and the concept of fast and faster.



Guided Reading: E

24 Pages

*How Things Move: Pulls* by Sarah Shannon (2009)

Includes index. An introduction simple forces, focusing on the idea of pulling things to make them move.



Guided Reading: E

24 Pages

*How Things Move: Pushes* by Sarah Shannon (2009)

Includes index. An introduction simple forces, focusing on the idea of pushing things to make them move.

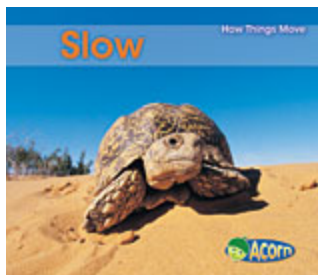


Guided Reading: E

24 Pages

*How Things Move: Slow* by Sarah Shannon (2009)

Includes index. Moving -- Moving slowly -- Pushes and pulls -- Moving slower -- Slow things -- What have you learned? -- Picture glossary. Simple text and illustrations depict the concept of slow and slower, focusing on the movement of things such as turtles, hot air balloons, bicycles, and cars, and forces such as pushing and pulling.



Guided Reading: E

24 Pages

*Making Things Move* by Sian Smith (2009)

Includes index. Moving fast and slow -- How do things move? -- How fast? How far? -- Stopping -- Changing direction -- Push or pull? Looks at how things move, explaining the concept of push and pull, and discussing the speed at which things move, as well as the ideas of faster and farther.



Guided Reading: H

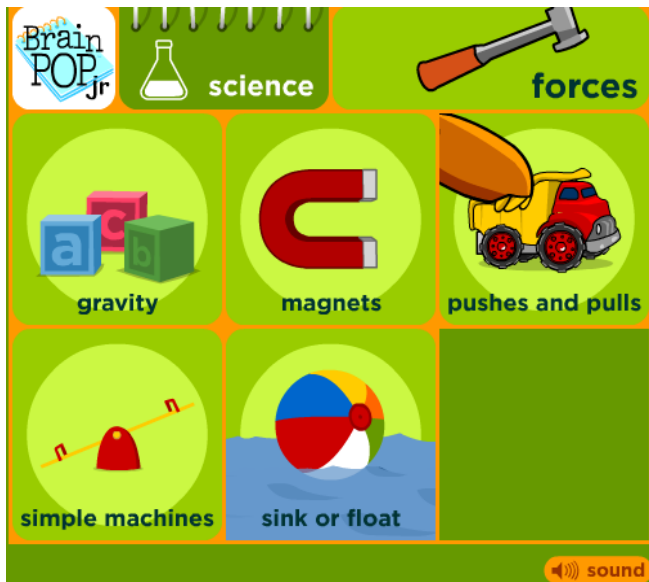
24 Pages

## Digital Resources

**Databases:** (To access these databases remotely, ask your librarian for your school's username and password.)

**Brainpop Jr.:** *Brainpop, Jr. is a database that provides a 3-6 minute video on informational topics followed by a comprehension quiz. The database includes activities and lesson plans as well. It is geared towards grades K-3.*

These videos align with kindergarten Next Generation Science Standards on forces and motion.



Two different online quizzes are offered after each video to check for understanding. They are entitled "Easy" and "Hard" with 5 questions each.

A screenshot of an "Easy Quiz" interface. At the top, it says "Easy Quiz" in large yellow letters, with "Click on the best answer." below it. On the left, a question number "2." is displayed next to a vertical line of dots. The main area features an illustration of a hand using a hammer to drive a nail into a wooden board. Below the illustration, the question reads: "Moby is building a birdhouse. What happens when he hammers a nail?" There are four multiple-choice options, each in a circle: (a) He is pulling the nail into the wood. (b) He is pushing the nail into the wood. (c) He is spinning the hammer to move it. (d) He is making the nail lighter to push it.



## World Book Web:

The World Book Web is a suite of online research tools that includes encyclopedia articles, primary source collections, educator tools, student activities, pictures, audio, and video, complemented by current periodicals and related Web sites. Most all of these World Book Web research tools include options where text can be read aloud to the user. All Ithaca elementary school libraries currently subscribe to **Worldbook Kids**, **Worldbook Student**, **Worldbook Discover**, **Worldbook Timelines** and **Worldbook Classroom: Early World of Learning**. For specific training in how to use these amazing tools consult Worldbook's training website or ask your school's librarian. <http://www.worldbookonline.com/training/>

Worldbook Kids has an article called "Force" which aligns with Next Generation Science Standards for Kindergarten on Forces and Motion. You can use this link to access the article on force: <http://www.worldbookonline.com/kids/article?id=ar830496> OR you can simply type in

"force" in World Book Kids and choose the first article.



### Tools

[Print](#)

[E-mail](#)

[Save](#)

[Translate this text](#) ▼

[Hear text read aloud](#) Double-click to define a word

### Learning Learning Standards

[View Learning Standards](#)

## Force

A force is something that changes the motion or the shape of something else. For example, when you push a cart, you put force on the cart to make it move. When you squeeze a piece of soft clay, the force you put on it changes the shape of the clay.

Many forces affect the speed of a moving object. When you roll a ball across a rug, the friction, or rubbing, between the ball and the rug acts against the movement of the ball. So it slows the ball down.



Mechanical forces act when objects touch each other. Your body uses mechanical force when you pedal a bicycle or



Picture

[When you put force on a cart by pushing it, the cart moves.](#)



## Websites:

### ***Pushes and Pulls: BBC Science Clips for Kids***

[http://www.bbc.co.uk/schools/scienceclips/ages/5\\_6/pushes\\_pulls\\_fs.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/5_6/pushes_pulls_fs.shtml)

This game allows students to practice hard and soft pushes and hard and soft pulls with a toy horse on a track. They can drag objects to the track to see what happens when the force of the moving horse comes into contact with the stationary object. There is a quiz that checks for understanding on the concepts of pushes and pulls.

### ***Forces and Movement: BBC Science Clips for Kids***

[http://www.bbc.co.uk/schools/scienceclips/ages/6\\_7/forces\\_movement\\_fs.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/6_7/forces_movement_fs.shtml)

This game allows students to test forces and gradients on a rolling toy car on a track. It includes an online quiz that checks for understanding on the concept of forces and movement.

### ***First School Years: Forces and Motion***

<http://www.firstschoolyears.com/science/forces/forces.html>

This website includes sorting activities, flash cards and lessons that can be printed and used on the subject of forces and motion. There are also some embedded activities that can be used online by clicking and dragging objects into sections of “pushes” and “pulls.”

## iPad apps:

### ***Newton and Me - by Arbordale Publishing, LLC***

**Cost: \$0.99**

A story where Newton, a young boy, discovers the laws of force and motion in his everyday activities. Told in rhyme. Focuses on pushes and pulls.