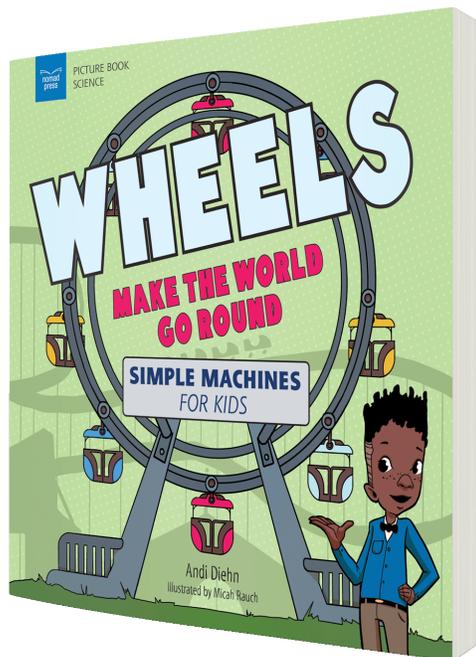


Nomad Press

CLASSROOM GUIDE



Learn how simple machines make work easier in these colorful nonfiction picture books all about science and engineering!

If you were designing a wheelbarrow, how would you make it move easily when you pushed it? Skis? Stilts? Springs?

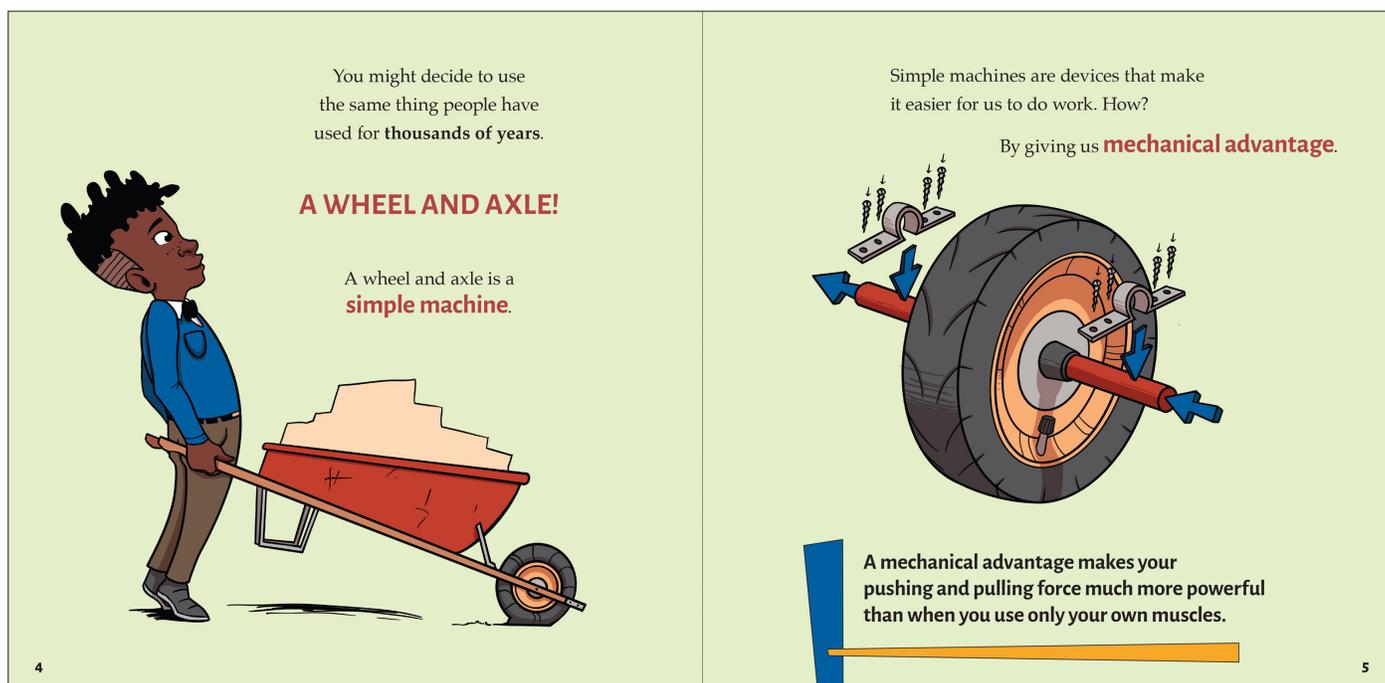
How about wheels? The wheel is a simple machine that has been used for centuries to make work easier for humans. Look at all the cars, trucks, trains, buses, and bikes around you. They all have wheels and axles! In *Wheels Make the World Go Round: Simple Machines for Kids*, readers ages 5 to 8 learn how wheels work along with axles and how they use mechanical advantage to make it easier to move heavy objects from one place to another.

Scientific concepts including forces and mechanical advantage come clear with engaging illustrations and lots of real-life examples that kids can spot in their home, schools, and neighborhoods.

Learn more at nomadpress.net/nomadpress-books/wheels-make-the-world-go-round/

Softcover: 9781647411107, \$13.95
Hardcover: 9781647411077, \$20.95
eBook: all formats available, \$6.99
Specs: 9.5 x 9.5, 32 pages, color interior

Reading Level: Ages 5–8
Interest Level: Grades K–5
Focus: Technology / How Things Work-Are Made
GRL: M Lexile: 840L



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SAMPLE GLOSSARY

friction: a force that slows down objects when they rub against each other.

inclined plane: a sloped surface that connects a lower level to a higher level.

lever: a bar that rests on a support and lifts or moves things.

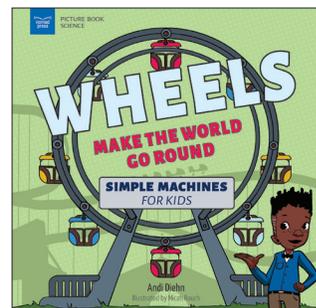
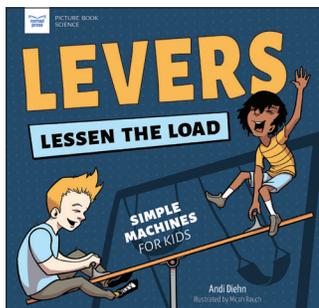
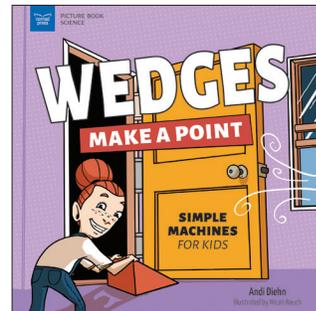
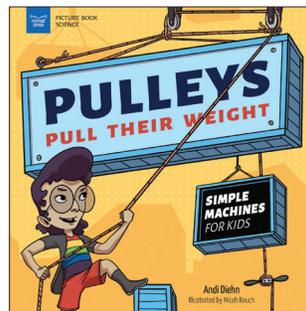
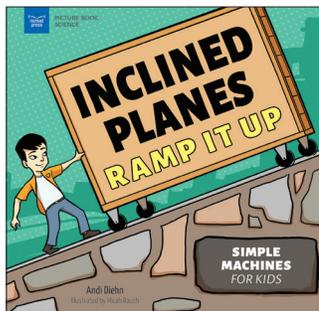
mechanical advantage: the amount a machine increases or changes a force to make a task easier.

pulley: a wheel with a grooved rim that a rope or chain is pulled through to help lift a load.

simple machine: a device that changes the direction or strength of a force. The six simple machines are the inclined plane, lever, pulley, screw, wedge, and wheel and axle.

wheel: a circular object that revolves on an axle and is fixed below a vehicle or other object to make it move easily over the ground.

Check out all the books in the Picture Book Science: Simple Machines set!



ESSENTIAL QUESTIONS

BEFORE READING:

Establish Background Knowledge

- What do you already know about simple machines such as screws, pulleys, wedges, wheels, levers, and inclined planes?
- Do you ever use any of these simple machines in your daily life?

Skill Introduction

- What do you do when you come to a word or phrase you do not know?
- How do illustrations and photographs help someone learn?
- How do hands-on activities help people learn?

CCSS.ELA-LITERACY.L.2.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CCSS.ELA-LITERACY.L.2.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.

CCSS.ELA-LITERACY.RF.2.4.C Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

DURING READING:

Check for Understanding

- What are the different parts of a wheel?
- What are some of the uses for wheels?
- Why does a wheel need an axle?

CCSS.ELA-LITERACY.L.2.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy that makes me happy).

CCSS.ELA-LITERACY.RI.2.2 Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.

AFTER READING:

Summary and Expansion

- Why do you think the first wheels were used to make pottery instead of for transportation?
- Why are wheels round?

- What is friction? What are some ways you can know you're feeling friction?
- What is the relationship between wheels and friction?
- How does a bicycle wheel work?
- What's the difference between bicycle wheels and car or truck wheels?
- What is the difference between a solid wooden wheel and a hollow wooden wheel? Which one is easier to use? Why?
- Why do we no longer use as many waterwheels to do work?
- How does the poem on the first page introduce the rest of the book?

CCSS.ELA-LITERACY.RI.2.8 Describe how reasons support specific points the author makes in a text.

CCSS.ELA-LITERACY.RI.2.10 By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

CCSS.ELA-LITERACY.RF.2.3 Know and apply grade-level phonics and word analysis skills in decoding words.

CCSS.ELA-LITERACY.SL.2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.2.6 Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 here for specific expectations.)



Waterwheel!

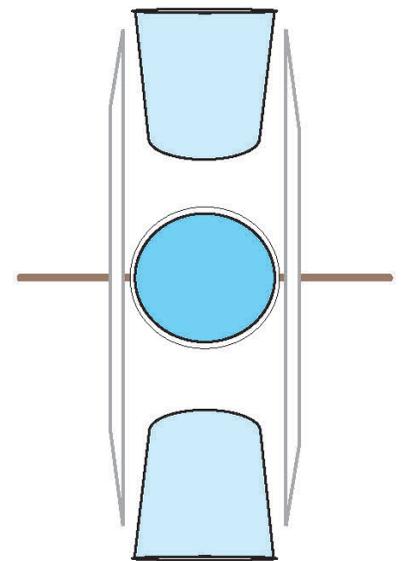
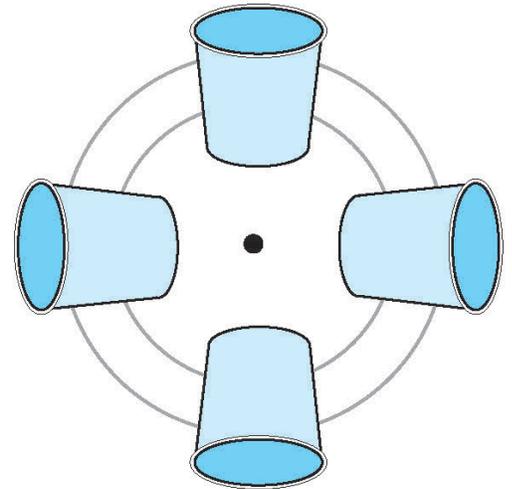
What You Need

*a sturdy straw - two paper plates -
four paper cups - tape*

What You Do

- Poke holes through the center of each paper plate.
- Tape the paper cups on one of the plates so the openings point out in four different directions. Leave the hole open in the middle.
- Tape the other plate to the other side of the cups, so it looks like a sandwich with the cups in the middle.
- Thread the straw through the holes.

Try It! Holding onto each side of the straw, hold your waterwheel under running water. What happens? What force is moving your waterwheel?



AUTHOR INTERVIEW



HOW DID YOU GET STARTED WRITING FOR KIDS?

I used to write for adults, and then I had kids and discovered that writing books for children is far more fun! I love letting my imagination take a far-flung journey and bringing readers along for the ride.

WHY ARE SO MANY OF YOUR BOOKS ABOUT SCIENCE?

When I was a kid, I loved to read mysteries, fairy tales, realistic stories about children having different kinds of adventures—all fiction. I found nonfiction books boring. And to be honest, back then, many science books for kids were pretty dull! The print was small and there were hardly any pictures—those books made me feel like science just wasn't my thing.

Then, I got a job editing science books for kids and a whole world opened up. I had no idea science could be so fun! And important to my own life! I couldn't believe it took me until I was in my thirties to learn how electricity really works. Or how our bodies transform food into energy. Or how climate change is going to alter our lives.

I still love to read (and write) fiction, but now I also love to write (and read) about science.

WHAT'S THE BIG DEAL ABOUT SIMPLE MACHINES?

Simple machines are evidence of human innovation! Since our earliest ancestors, we've been figuring out how to make work easier, and sometimes that involves creating devices that magnify our strengths—ramps to make it easier to push heavy loads, levers that make it easier to lift boulders, pulleys that amplify our muscles so we can lift heavier things.

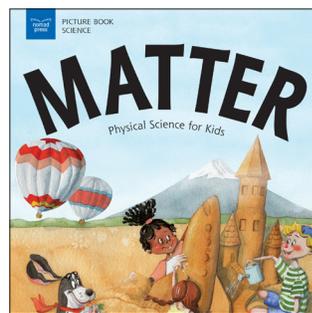
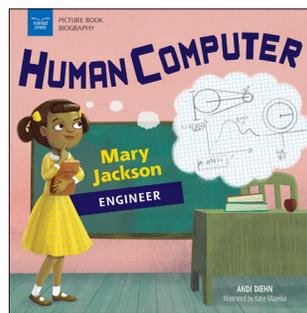
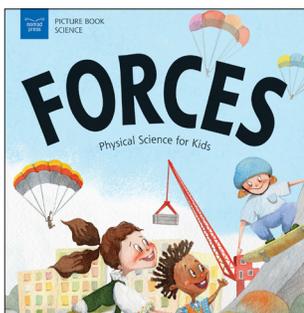
Simple machines are foundational to our understanding of physics. They are what we use to build our cities, our homes, our factories. They are found in every culture and are an integral part of human history. And I got to write about them!

DO YOU DO AUTHOR VISITS?

Yes! Visiting kids in classrooms and libraries is one of my favorite parts of the job. My own children are all ancient now and I have to bake them cookies to get them to talk to me about pulley systems and inclined planes and waves and matter. It's a joy to hang out with kids who have lots of questions about science and writing!



More picture books from Andi Diehn and Nomad Press



For more information, contact Nomad Press:
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