

Children's Books About Machines and Design

Fiction

Brinley, Bertrand R. **The Mad Scientists Club**. Purple House Press 2001. ISBN 978-1930900103. This reissue of the classic book has inspired quite a few people to go into science. Lots of problem solving based on science. *Upper elementary*

Burton, Virginia Lee. **Mike Mulligan and His Steam Shovel**. Houghton Mifflin, 1939. ISBN 978-0395169612. This is the classic tale of old versus new, with steam being replaced with gasoline . It's a classic primary read, but could be a discussion starter with elementary age students working on simple machines. *Primary +*

Dougal, Alistair. **James Bond: The Secret World of 007**. DK Children, 2000. ISBN 978-0789466914. As an fun engagement piece on inventing, I think this is worth having in the line-up. Inventing tools and secret devices involves design creativity and science. *Elementary*

Hicks, Clifford B.. **The Marvelous Inventions of Alvin Fernald**. Purple House Press 2006. ISBN 978-1930900219. In this classic reissue, Alvin is always thinking up another marvelous invention. Maybe it's the Foolproof Burglar Alarm for his bedroom door, or a Sure Shot Paper Slinger for delivering newspapers from his bike. A great book for aspiring inventors. *Upper elementary*

McCloskey, Robert. **Homer Price**. Puffin, 2005. ISBN 978-0142404157. Homer and the doughnut machine is a classic, but the other stories are terrific as well. The stories are a bit serendipitous, where the invention fails, but the problem is solved anyway. *Upper elementary*

Selznick, Brian. **The Invention of Hugo Cabret (Hardcover)**. Scholastic, 2007. ISBN 978-0439813785. Twelve-year-old orphan Hugo lives in the walls of a Paris train station at the turn of the 20th century, where he tends to the clocks and filches what he needs to survive. Hugo's recently deceased father, a clockmaker, worked in a museum where he discovered an automaton: a human-like figure seated at a desk, pen in hand, as if ready to deliver a message. *Upper elementary +*

Wyss, Johann and Alberto, Daisy. **Swiss Family Robinson**. Random House, 2006. ISBN 978-0375875250. I think this classic has the potential as a read-aloud and thought initiator for inventions. The tree house is full of inventions using rainforest products and salvaged items from the shipwreck. How about a challenge where students invent items to make life easier for the Robinsons? This is only one of several versions of the classic – pick your own favorite! *Read aloud or upper elementary*

Non-fiction

Douglas, Lloyd. **What Is a Pulley? (Welcome Books) (Paperback)**. Childrens Press 2002. ISBN 978-0516240244. This is a very introductory illustrated series for beginning readers. *Gr. 1-3*

also: **What is a Screw?** Childrens Press 2002. ISBN 978-0516240251

What is a Plane? Childrens Press 2002. ISBN 978-0516240237

What is a Wedge? Childrens Press 2002. ISBN 978-0516240268

What is a Wheel and Axle? Childrens Press 2002. ISBN 978-0516240275

Glover, David. **Pulleys and Gears**. Heinemann, 1997. ISBN 978-1403485939.

Ramps and Wedges. Heinemann, 1997. ISBN 978-1575720838.

Levers. Heinemann, 1997. ISBN 978-1403485922.

Screws. Heinemann, 1997. ISBN 978-1403485953.

This is a great illustrative series for use in simple research. *Elementary*

Hodge, Deborah. **Simple Machines (Starting with Science) (Paperback)**. Kids Can Press, 1997. ISBN 978-1550743999. This book is one of the better ones for doing simple machine experiments at the elementary level. It is perfect for third grade science classrooms. The directions are simple to follow and the results of the experiments are easy to understand. The

function of each simple machine was clear. Students are able to collect the materials from home and the experiments are designed for them to work together. *Grade 3/4*

Jones, Charlotte. **Mistakes That Worked.** Doubleday 1994. ISBN 978-0385320436. A reminder that serendipity is behind many inventions. *Upper elementary +*

Macaulay, David. **The New Way Things Work.** Houghton Mifflin , 1998. ISBN 978-0395938478. Follow the mammoth in your search for the answers to how things work, from parking meters to computers. *Upper elementary to adult*

*Also recommended by Macaulay: **Pyramid, Underground, Castle, and Building Big.** All of these books illustrate elements of design and use of machines.*

Sullivan, Otha R.. **Black Stars: African American Women Scientists and Inventors.** Jossey-Bass, 2001. ISBN 978-0471387077. This book is a fine supplement to units on inventors and inventions. It would be a resource text for teachers and upper elementary students. *Upper elem. through middle school*

Thimmesh, Catharine. **Girls Think of Everything : Stories of Ingenious Inventions by Women.** Houghton Mifflin, 2002. ISBN 978-0618195633. An outstanding set of biographies about women inventors. *Upper elementary*

Tomacek, Stephen M. **What A Great Idea! Inventions That Changed The World (Hardcover).** Scholastic Reference 2003. ISBN 978-0590681445. Tomecek puts significant inventions and discoveries in a historical context. Dividing the text into five broad time periods, he offers a series of essays on important advances that occurred in each "age." This would be a great research reference for students. *Upper elementary +*

Walsh, Tim. **The Playmakers: Amazing Origins of Timeless Toys.** Keys Publishing, 2004. ISBN 978-0964697348. A good place to engage students in the art of design is the toy box. This book is written for adults, but would satisfy the interests of an advanced elementary reader or teacher looking for background. *Advanced elementary to adult*

*Also by Walsh: **Timeless Toys***

Wells, Robert E. **How Do You Lift a Lion? (Paperback)**. Albert Whitman, 1996. ISBN 978-0807534212. An introduction to the basics of simple machines in a fun context. Not too exacting in definitions/execution. *Gr. 2/3*

Woods, Michael. **Ancient Machines: From Wedges to Waterwheels (Ancient Technology)**. Runestone Press, 1999. ISBN 978-0822529941. Woods discusses the invention and use of six simple machines, establishing a connection between ancient and current technology. Full-color photographs and drawings depict artifacts, sites, and some different mechanisms. *Upper elem.*

Van Cleave, Janice. **Janice VanCleave's Machines: Mind-boggling Experiments You Can Turn Into Science Fair Projects (Paperback)**. Jossey-Bass, 1991. ISBN 978-0471571087. This volume presents a "cookbook" style recipe for an activity, with simple steps and guaranteed results. The explanations in the "Why?" section are appropriate for the intended audience, and the very clear glossaries neither oversimplify nor talk down to readers. *Upper elementary*