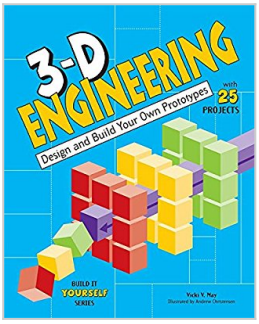

3-D Engineering: Design and Build Your Own Prototypes (Build It Yourself)

By Vicki V. May

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How did somebody come up with the idea for bridges, skyscrapers, helicopters, and nightlights? How did people figure out how to build them?

In *3D Engineering: Design and Build Your Own Prototypes*, young readers tackle real-life engineering problems by figuring out real-life solutions. Kids apply science and math skills to create prototypes for bridges, instruments, alarms, and more. Prototypes are preliminary models used by engineers—and kids—to evaluate ideas and to better understand how things work.

Engineering design starts with an idea. How do we get to the other side of the river? How do we travel long distances in short periods of time? Using a structured engineering design process, kids learn how to brainstorm, build a prototype, test a prototype, evaluate, and re-design. Projects include designing a cardboard chair to understand the stiffness of structural systems and designing and building a set of pan pipes to experiment with pitch and volume.

Creating prototypes is a key step in the engineering design process and prototyping early in the design process generally results in better processes and products. *3D Engineering* gives kids a chance to figure out many different prototypes, empowering them to discover the mechanics of the world we know.

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3-D Engineering: Design and Build Your Own Prototypes (Build It Yourself) By Vicki V. May Bibliography

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Editorial Review

Review

Praise for *3-D Engineering: Design and Build Your Own Prototypes*
School Library Connection, April 2016
“Author Vicky V. May has produced a procedural book for the 21st century. . . Recommended”

Booklist Online Exclusive: November 12, 2015
". . . . Part of the Build It Yourself series, this book will prove useful to middle-school science teachers."

Joseph J. Helble, dean, Thayer School of Engineering, professor of engineering, Dartmouth College
“3-D Engineering does a wonderful job of conveying the creative discovery and invention that are such important parts of engineering. The author nicely addresses the need for an engineer to not only use the tools of math and science to solve problems, but to experiment, tinker, and discover as a way to develop creative solutions to some of our most pressing problems.”

Amanda Burns, fifth-grade teacher
“This book brings engineering to the classroom in such a clear and concise way. Children and teachers learn about the many facets of the engineering world while engaging in fun, hands-on activities. This book provides an excellent overview of what it takes to think like an engineer. Every teacher interested in bringing STEM into the classroom needs a resource like this.”

Matt Buck, fifth-grade teacher
“This book nails it! A wonderful resource for the individuals in my classroom who want to take their learning a step further, and I can also use it with my whole class as we explore particular aspects of engineering. 3-D Engineering is engaging with its text and numerous opportunities for building and designing projects. A positive and engaging use of technology to link the learner to ‘Primary Source’ material!”

Praise for other books in the series:
Cities: Discover How They Work with 25 Projects
Winner of a 2014 Silver Moonbeam Award

School Library Journal
“According to the 2010 Census, 80% of Americans live in urban areas. But do they know what it takes to make a city run? From this well-organized and engaging text, readers will learn how cities developed and grew. . . this is a worthy title for any library collection.”

Booklist
“Propounding the emerging interdisciplinary paradigm of STEAM (science, technology, engineering, art and design, and mathematics), this hands-on informational book discusses how cities’ complex structures and systems function together in an interdependent way. Through appealing illustrations, reader-friendly text, and fun hands-on experiments suitable for home and classroom, Reilly helps foster an appreciation for the way that cities function almost as organisms with vibrant systems and interdependent structures.”

Bridges and Tunnels: Investigate Feats of Engineering with 25 Projects
Winner of a 2012 Gold Moonbeam Award

National Science Teachers Association Recommends
"This book is a treasure trove of information, experiments, and building challenges, and is an excellent, exciting, and easy way to incorporate STEM education into your classroom, science fair, or after school engineering club."

Skyscrapers: Investigate Feats of Engineering with 25 Projects
National Science Teachers Association Recommends
". . . *Skyscrapers* would make an excellent resource for the history or science teacher desiring to try a project based learning (PBL) unit. With its timeline, glossary, and interesting prose, the teacher could challenge students with the question, 'Would a skyscraper make a good school?' In fact, this book would make a good springboard for a number of short engineering units. *Skyscrapers* is a terrific book, especially for elementary teachers looking for ideas to inject more engineering into their classroom."

School Library Journal
"Large font and an open layout make this title accessible to reluctant readers . . . A useful title to supplement lessons on architecture, mathematics, or physics for classroom teachers or homeschoolers, and it's an appealing initiation to the subject."

Kristine E. Barnes, PE, Structural Engineer
"*Skyscrapers* is a fantastic introduction to the world of civil/structural engineering and the history of some really big projects and tall buildings. The projects help reinforce ideas and give kids a wonderful hands-on learning experience."

Kenton D. Wesby, Art Specialist & STEAM Educator, SECME Master Teacher
"This book is awesome. *Skyscrapers* effectively navigates the basic principles of STEM, at the same time making connections with language arts, social studies, and visual arts. A must have for any teachers' professional library."

About the Author
Vicki V. May holds a BS in engineering from the University of Minnesota and MS and PhD degrees in engineering from Stanford University. She is a professor at the Thayer School of Engineering at Dartmouth College and is also involved in various outreach projects that bring the challenge of engineering to middle and high school students. Vicki was named Teacher of the Year for Dartmouth and Thayer in 2012 and Professor of the Year for the State of New Hampshire in 2013.
Andrew Christensen is the illustrator of "Canals and Dams: Investigate Feats of Engineering" and "Skyscrapers: Investigate Feats of Engineering" for Nomad Press and is an art director at a hobby game company. He lives in Minneapolis, Minnesota.

Users Review

From reader reviews:

Kevin Ostby:

Book is to be different for every single grade. Book for children till adult are different content. As we know that book is very important for all of us. The book 3-D Engineering: Design and Build Your Own Prototypes (Build It Yourself) ended up being making you to know about other expertise and of course you can take

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