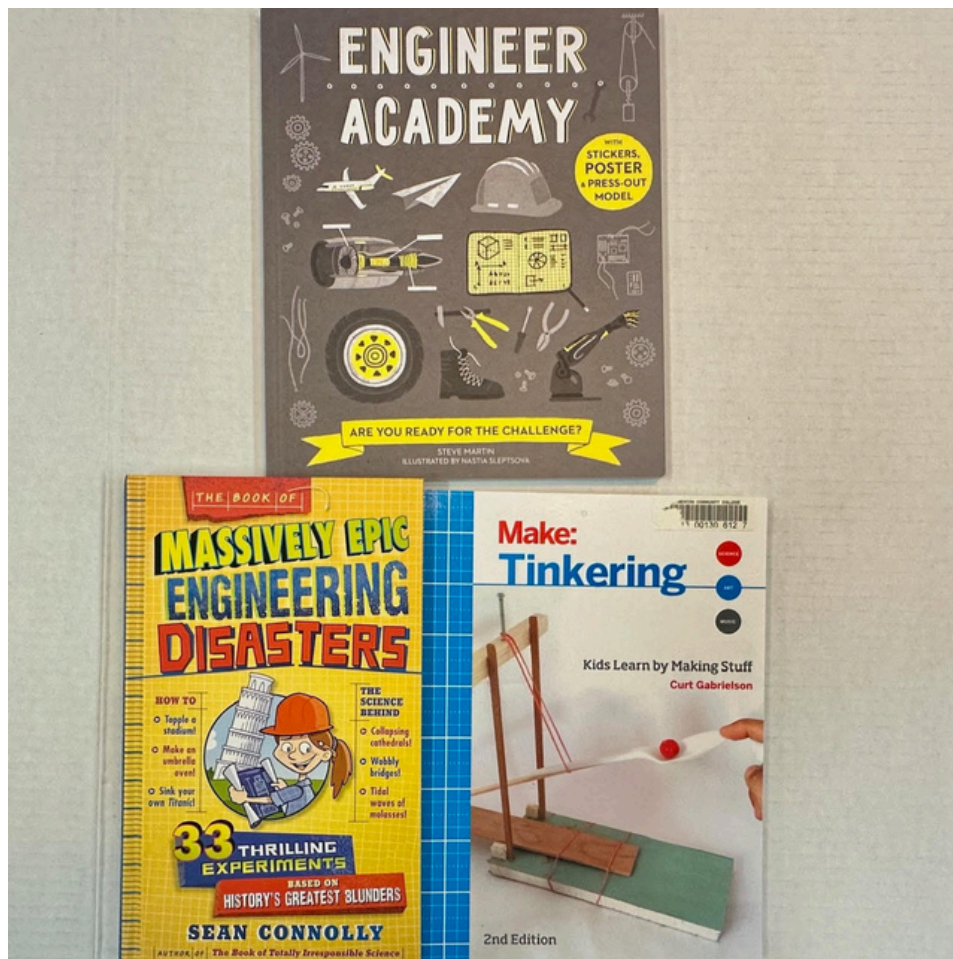


# Engineering Projects Book Collection



Mid-Valley  
STEM-CTE HUB



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# Engineering Projects Book Collection

The Engineering Projects Book Collection inspires students to explore the exciting world of engineering through hands-on activities, real-life problem solving, and fascinating stories of engineering triumphs and disasters.

This kit encourages curiosity by guiding young readers through practical projects in mechanics, robotics, aerospace, materials science, and more. Students will not only build models and conduct experiments, but also learn how to think like engineers by tinkering, testing, and troubleshooting.

The collection shows that failure can be a valuable part of the learning process, helping students develop resilience and adaptability. Perfect for classrooms, makerspaces, and STEM programs, this kit promotes active, creative learning where kids discover, build, and explore.

**Grade Level**

3<sup>rd</sup> - 7<sup>th</sup>

**Reading Level**

Beginner - Intermediate



## Contents of Kit

- **Engineer Academy by Steve Martin & Nastia Slwptsova** - Learn the essential skills to start your own engineering journey with this fun and engaging title. Packed full of great illustrations, fun facts, and absorbing activities, this book guides readers through each strand of engineering science - Mechanics, Aerospace, Robotics, Energy, and Materials. Practical projects, each carefully designed to introduce skills of the sort required by real-life engineers, help kids pick up the basics in a fun, hands-on way. Design a robot, learn how to construct a simple car, create your own levers and pulleys, and build paper planes, plus many other educational and inspirational activities
- **Massively Epic Engineering Disasters by Sean Connolly** - Each engineering disaster includes a simple, exciting experiment or two using everyday household items to explain the underlying science and put learning into action. Understand the Titanic's demise by sinking an ice-cube-tray ocean liner in the bathtub. Stomp on a tube of toothpaste to demonstrate what happens to non-Newtonian fluids under pressure—and how a ruptured tank sent a tsunami of molasses through the streets of Boston in 1919.
- **Make Tinkering by Curt Gabrielson** - How can you consistently pull off hands-on tinkering with kids? How do you deal with questions that you can't answer? How do you know if tinkering kids are learning anything or not? Is there a line between fooling around with real stuff and learning? The idea of learning through tinkering is not so radical. From the dawn of time, whenever humanity has wanted to know more, we have achieved it most effectively by getting our hands dirty and making careful observations of real stuff.



# Learning Extensions

## STEAM Connections: Engineering - Math - Science

### Learning Objectives:

- Students will explore core engineering principles through interactive, hands-on projects and experiments.
- Students will develop skills in design, testing, and problem-solving using basic materials and household items.
- Students will investigate real-world engineering successes and failures to understand the importance of trial and error.
- Students will foster creativity and curiosity through tinkering and self-directed exploration.

### Career Connections:

- **Mechanical Engineer** – Through projects like building levers, pulleys, and simple machines.
- **Robotics Engineer** – Introduced through hands-on robot design and coding basics.
- **Aerospace Engineer** – Connected through paper airplane construction and exploration of aerodynamics.
- **Civil Engineer** – Through understanding structural design and engineering failures like the Titanic and the molasses flood.

### Essential Employability Skills:

- Problem Solving
- Critical Thinking
- Creativity and Innovation
- Collaboration and Communication



# Resources and Accessibility

## Safety Guidelines

- **Avoid Food and Drinks Near Books** - Encourage clean, dry reading areas to prevent spills, stains, or water damage.
- **Handle Books Gently** - Model how to turn pages carefully, avoid bending spines, and store books upright or flat.
- **Use Clean Hands** - Have students wash or sanitize hands before handling shared books to keep materials in good condition.
- **Designate a Safe Storage Spot** - Store books in a sturdy, dry, and clearly labeled bin or tote to protect them from wear and tear between uses.

## Accessibility

- **Use Book Stands or Holders** - Provide angled book holders or clipboards to support independent reading for students with mobility or motor challenges.
- **Pair Audio with Print** - Use audiobooks or teacher-read recordings when available to support students with reading disabilities or visual impairments.
- **Incorporate Read-Alouds and Peer Reading** - Offer opportunities for shared or buddy reading to help students who benefit from auditory learning or support with decoding.
- **Offer Visual Aids and Discussion Prompts** - Supplement books with images, models, or key vocabulary cards to reinforce understanding and engagement.

## Library Catalog



## Library Resources



## Feedback

QR to feedback survey

