

TryEngineering.org Popular Lesson Titles

Find dozens of free lesson plans including:

- Design Your Own Robot Arm
- Series and Parallel Circuits
- Build a Big Wheel
- Cracking the Code
- Pulleys and Force
- Popsicle Bridge
- Ohm's Law
- Wind Tunnel Testing
- Clipper Creations
- Adaptive Devices

And many more!

For a complete listing visit

www.tryengineering.org/lesson.php

About TryEngineering.org

TryEngineering.org is a free online engineering education resource for pre-university students, teachers, parents, and school counselors around the world.

A joint project between IEEE, IBM, and the New York Hall of Science, resources on TryEngineering.org include:

- information about engineering disciplines and careers
- profiles of practicing engineers and engineering students
- opportunities for students
- university finder
- free lesson plans; peer reviewed and approved by teachers and engineers
- frequently asked questions answered by engineers and engineering students
- interactive games
- TryEngineering Today news feed

TryEngineering.org

445 Hoes Lane
Piscataway, NJ 08854
W: www.tryengineering.org
E: tryengineering@ieee.org



TryEngineering.org

Educator's Lesson Plan
Guide



TryEngineering.org Lesson Plans for Educators

TryEngineering.org offers free high-quality hands-on lesson plans for students ages 8-18. These lessons can be used or adapted for use in:

- classroom settings
- afterschool programs
- summer camps
- career days
- at-home settings

Lesson Plan Features

Each lesson includes:

- Educational objectives & outcomes
- U.S. education standards alignment
- Recommended age level
- Simple materials list
- Step by step instructions
- Background information & resources
- Reproducible student worksheets

Lesson Plan Categories

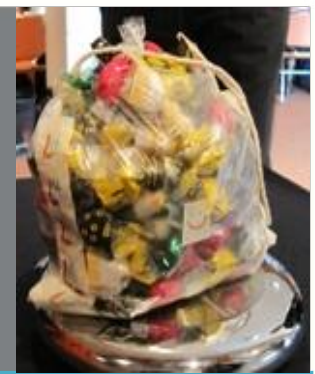
- Buildings and structures
- Electricity and magnetism
- Energy
- Engineering design
- Environments and resources
- Human body
- Light and heat
- Mathematical applications
- Motion and forces
- Properties of materials
- Robotics
- Simple machines
- Structure of matter
- Technology
- Weather

The TryEngineering.org Advantage

TryEngineering.org lesson plans support the teaching and learning of engineering by:

- engaging students with intrinsically motivating, hands-on engineering design activities
- encouraging students to utilize higher order thinking skills such as problem solving and analyzing
- reinforcing student learning in other subject areas
 - **Science:** e.g. designing devices using simple machines, designing and testing electrical circuits
 - **Math:** e.g. measuring, graphing, conducting cost/benefit analyses
 - **Technology:** e.g. applying the engineering design process, working with criteria and constraints, troubleshooting
 - **Language arts:** e.g. explaining plans and results, documenting, researching
 - **History/social studies:** e.g. examining the history of engineering and its impact
- inspiring creativity and innovation
- facilitating cooperative learning and teamwork

Featured Lesson: Design and Build a Better Candy Bag



Lesson Focus - Students work in pairs to evaluate, design, and build a better candy bag.

Age Levels: 8-18

Lesson Highlights

The Design and Build a Better Candy Bag lesson:

- Facilitates:
 - open inquiry
 - observations and predictions
 - exploration of the properties of materials
 - mathematical applications, such as calculating volume
 - troubleshooting
 - engaging in the engineering design process
 - documenting/ communicating results
- Promotes problem-solving and critical thinking skills
- Encourages students' creativity and cognitive flexibility
- Has students working collaboratively in teams
- Encourages student reflection/ discussion