

“Experiencing something so close to what real engineers go through every day to get a product or a project right was a very cool experience.

—Engineer Your World Student

Engineers are **shaping the future**. Whether making renewable energy affordable, providing access to clean drinking water, or engineering better medicines, engineers are **taking on the world's biggest challenges**. In **Engineer Your World** students explore the greatest engineering achievements of the 20th century, the grand engineering challenges of the 21st century, and the many engineering professions that make our modern world possible.

The **Engineer Your World** classroom is a place where students engage in **authentic engineering practices** in a **project-based environment** (80 percent hands-on; 20 percent documentation, reflection, direct teach and student presentations). Student learning is scaffolded over a series of **engaging and socially relevant design challenges** that require the purposeful application of engineering principles and relevant science, technology, engineering and mathematics (STEM) concepts.

The President's Council on Jobs and Competitiveness has called for American universities to graduate **10,000** more engineers every year.

Engineer Your World responds to a national need for a **high-quality, low-cost**, broadly based high school engineering curriculum. Developed by **University of Texas faculty** and **NASA engineers**, this year-long, hands-on course teaches engineering habits of mind as students discover engineering's role in the world.

Engineer Your World aligns with Texas state learning standards for engineering science and college and career readiness, Next Generation Science Standards for engineering, and evolving standards for Advanced Placement[®] in engineering.

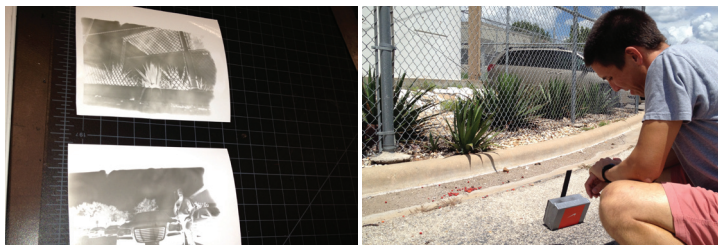
The **Engineer Your World** network has grown from a small group of Texas pilot schools in 2011–12 to a network of almost 100 campuses nationwide. Contact us to learn more about how your school can join.

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Engineering Design and Problem Solving
 from The University of Texas at Austin

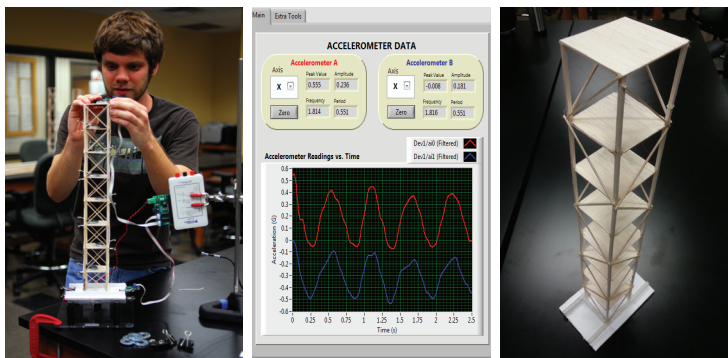
Themes & Units of “Engineer Your World”



Discovering Design

Engineers design products to meet customer needs. In *The Evolution of Imagery* students discover the design process as they create pinhole cameras to meet the special requirements of artists with disabilities. Core engineering skills acquired include

- » Analyzing/interpreting requirements
- » Generating concepts
- » Embodying design
- » Verifying performance
- » Creating technical documentation



Data Acquisition & Analysis

Engineers improve lives. In *Designing Safe Buildings*, students test and redesign structures for human safety and earthquake resistance while learning about

- » Instrumentation and experimentation
- » Data acquisition and analysis
- » Modeling
- » Design modification
- » Data representation for decision making

“ I think my students’ biggest sense of satisfaction has come through designing and building actual devices that have utility in the real world... They are busy, actively engaged in learning, and happy!
—Engineer Your World Teacher

Reverse Engineering & Redesign

Engineers design the products of our everyday lives. In *Reverse Engineer Your World* students explore the functionality of common objects and think like the engineers who designed them. This unit emphasizes

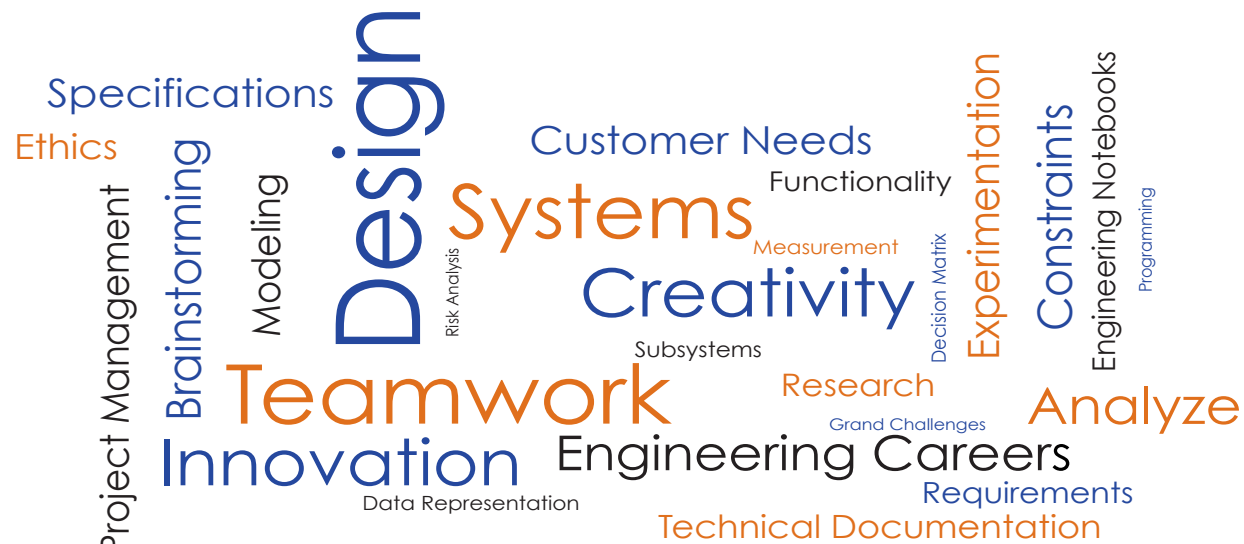
- » Product design
- » Interpreting customer needs
- » Developing design constraints
- » Patents and intellectual property



Automation & Control

Engineering opens frontiers. Automation and control systems let engineers meet challenges in extreme environments. In *The Search for Lunar Ice* students design, build and program a robotic vehicle for lunar exploration. Through this challenge students learn about

- » Automation
- » Control
- » Programming



Systems Engineering

Engineers work in teams to solve complex design challenges. In *Aerial Imaging* students design and deploy an aerial imaging system to learn about

- » System decomposition
- » Project management
- » Concept selection
- » Risk analysis
- » Ethics and safety



Explorations

Engineering includes many disciplines and offers diverse career opportunities. Between long units, students complete shorter engineering activities to discover the variety of disciplines and careers that comprise the field of engineering.