



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at www.projectexploration.org/stemathome.

In this activity, you will:

Explain what engineering is and the purpose behind the engineering design process. Apply the engineering and design process to solve a problem and build a model.

Supplies Required:

- Graphic organizer
- 1 roll of Masking tape
- 50 sheets of Construction paper
- 1 Newspaper
- 100 Popsicle sticks

Video

What is engineering? <https://tinyurl.com/y9tjhwmf>

Overview

Engineering is the process of creating and building structures, products and systems by using math and science. Anything that is built must be planned out. An engineer is a person who designs and builds complex products, machines, systems and structures. Engineers want to know why and how things work. The engineering design process is a series of steps that engineers use to guide them as they solve problems.

Problem: What do we want to solve?

Solution: What are some ways to solve the problem?

Model: Build your design!

Test: Does your model work?

Reflect and Redesign: Was your model successful? Does it need to be redesigned.

Think about the story of The Three Little Pigs. What did the pigs do? What were their homes made of? (straws, sticks and bricks) What happened to each home as force was applied by the wolf? Fast forward to now: The Three Little Pigs have a problem. Now that they are living in their brick house, they've realized that they built the cabinets too high and cannot reach them. They need a stool! Using ONLY tape, popsicle sticks, newspaper, and construction paper, build a 1 foot high, and 1 foot wide stool. You will make three stools, one of each material.

Instructions

1. Walk through the graphic organizer
2. STEP 1 Problem: How do we build a stool the pigs can use?
3. STEP 2 Solution: What are some ways to solve the problem?
4. STEP 3 Model: Build your design!
5. STEP 4 Test: Does your model work? Apply pressure and weight to the stool!
6. Does it hold up?
7. STEP 5 Reflect & Redesign: Was your model successful? Does it need to be redesigned ? If so , how?

Additional Resources

1. Here is 10 fun and exciting facts about engineering! <https://tinyurl.com/gvn6toa>
2. Watch this cool video on how to solve problems, and be an engineer! <https://tinyurl.com/yyo3wv2b>

Share It Out

Share on social media: Share the results of your design with your friends and family on social media! Explain the steps of the engineering design process in a video! Use the hashtags:

#EngineeringDesign
#ProjectExploration
#StemAtHome

Share via PE's website: Students who complete STEM@home activities and share what they learned with the PE team via our website will earn points which can be traded in for cash prizes at the Explore Store. Your project number is 305. Learn more at www.projectexploration.org/explore-store.



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