



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:

learn about structures and create a tall vertical structure using the engineering design process.



Supplies Required:

Graphic organizer
Paper
Masking Tape

Video

Watch this video and learn about structures: <https://tinyurl.com/y2cm4jsz>

Overview

We are surrounded by structures from chairs to buildings to vehicles. A structure is something that is load bearing, something that holds up or stay strong against weight or forces. Engineers need make sure they design and build strong structures that can support the weight of what uses it. For example a bridge needs to support the weight of all the cars and people who cross it, and it also needs to stand against wind and earthquakes. Thinking like an engineer, you will build a structure that is as tall as possible using only 6 sheets of paper and masking tape.



Instructions

1. **Problem** - What do we want to solve? How can you make a tall structure using only 6 sheets of paper and masking tape?
2. **Solutions** - What are some ways to solve the problem? Draw out your ideas and make a plan. Try drawing a few different designs for your structures. Talk about your designs!
3. **Model** - Build your design! Choose the design you want to test and build it.
4. **Test** - Does your model work? Place your structure on a flat surface, does your structure stand up without you holding it?
5. **Reflect & Redesign** - Was your model successful? Explain why the model was successful or unsuccessful. Does it need to be redesigned? If so, how?

Additional Resources

1. Check out some of the world's oldest structures built by humans: <https://tinyurl.com/y5xkh75z>
2. Watch this video from the Smithsonian Museum about the world's oldest stone structure: <https://tinyurl.com/y6yosbyy>

Share It Out

Share on social media: Take a picture of your paper structure and share it! Structures are everywhere, point them out when you see them and talk about how they were made. Be sure to use these hashtags.

#PaperStructureChallenge
#ProjectExploration
#STEMatHome

For more activities like this one, go to www.projectexploration.org/stemhome. If you're interested in learning more about Project Exploration and our free events, programs, and activities, please find us on social media and be sure to follow!



Call or text us for help: 312-772-6634

www.projectexploration.org