



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:

Use the Engineering Design Process to build your own roller coaster.



Supplies Required:

- 5 - 7 Toilet paper tubes
- 2 Paper towel tubes
- Scissors
- Tape
- Marbles

Video

Watch this video to learn about roller coaster and how they work: <https://youtu.be/VcRFh-dCxWE>

Overview

A roller coaster is a type of amusement ride that uses some sort of track with tight turns, steep hills, and sometimes they even turn upside down! The first roller coasters are believed to have originated in Russia in the 16th century, built on hills made of ice.

People who design roller coasters use the Engineering Design Process to make sure their creations are safe and fun. In this engineering challenge you will design, build, and test your own roller coaster using marbles and recycled paper tubes.

Instructions

1. Cut several toilet paper tubes in half lengthwise.
2. Stand up your paper towel roll and tape it to the table. You can cut the paper towel tubes to change the height of your roller coaster.
3. Tape your cut up toilet paper tubes together to create the roller coaster track.
4. Tape the track that you created to the paper towel tubes.
5. Test your roller coaster by rolling your marbles down the track
6. Does your roller coaster work how you want it to work? Does the marble roll all the way down the track?
7. Redesign and build your roller coaster. Test it again to see if it works better.



Additional Resources

1. Check out this roller coaster made entirely out of Legos: <https://youtu.be/82Ms1FHZXP4>

Share It Out

Share on social media: Record a video or take a picture of your activity and post the results online using the hashtags:

#MarbleCoaster
#ProjectExploration
#StemAtHome

Tag a friend and challenge them to do it, too!

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