



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:

Explore chain reactions, learn about Rube Goldberg, and use simple objects to create your own Rube Goldberg Machine.



Supplies Required:

- Small basket or trash can
- Tennis ball or smaller ball
- Roll of tape
- Marble(s)
- Craft sticks or LEGOs or blocks
- Scrap cardboard from paper towel rolls or boxes
- Books
- Scissors - not required but may be useful

Video

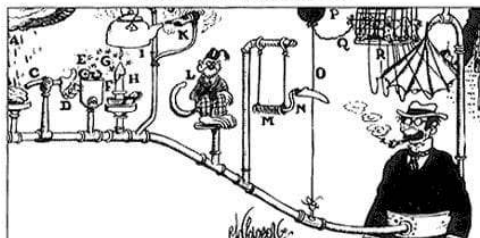
Listen to the story [Just Like Rube Goldberg](https://tinyurl.com/y7fqc4lb) before completing the activity: <https://tinyurl.com/y7fqc4lb>

Watch this Rube Goldberg Trash Machine in action! <https://tinyurl.com/ycls158mw>

Overview

The story talks about a man who had a background in engineering. An engineer is a person who designs or builds products, machines and structures. Goldberg later became a cartoonist and used his engineering skills to make fun, complicated machines, using a lot of objects. The end goal of a Rube Goldberg Machine is to make a complicated or difficult machine that uses a chain reaction to carry out a simple task. A chain reaction is when a series of events take place. Each event triggers the next one. You will create your own version of the Rube Goldberg Machine using everyday objects, to create a chain reaction to get the ball in the trash. Using quick logic and your imagination, this fun and crazy machine will be amazing!

Self-Opening Umbrella



Instructions

1. Watch the video and gather supplies
2. You can change your mind by adding or leaving out things as you go
3. Find a workspace, such as the table or floor
4. Start by dropping a marble down a paper towel tube so that it knocks over what is next in line
5. You can set your marble to knock down a series of cereal boxes or paper towel tubes. You can also use the tubes to make a ramp. If you need to cut your tubes don't forget to ask for help!
6. Use the video as your guide and be creative!
7. Test your machine!
8. If the tennis ball didn't fall into the trash, try again and remember to have fun with it!

Additional Resources

Think About It! How many trials did you do before you completed the task? What other machines could you make to complete a task? Have you ever invented something that has solved a problem?

1. There are even Rube Goldberg machines in music videos! <https://tinyurl.com/4x9rcms>
2. Here is cool Rube Goldberg machine where a cell phone starts the chain reaction: <https://tinyurl.com/yba97hfr>
3. Find out more about how to make your own Rube Goldberg: <https://tinyurl.com/yd8o7fwq>

Share It Out

How can simple machines combine to affect motion? Take a video of your machine and tag OK Go to show them what you have done! Use the hashtags:

#RubeGoldbergReadAlong
#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 114. Learn more at www.projectexploration.org/explore-store

Join PE's character contest!

Design a STEM character who will lead kids through activities and be featured on our website and in our STEMbooks. Cash prizes will be awarded to the top 3 finalists. Learn more at: www.projectexploration.org/character-contest.



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

www.projectexploration.org