



Exploring 4-H at Home



Science and
Technology

Pillar: Science & Technology

Project: 4U Self Determined

Activity: Rube Goldberg Machines



CANADA
4-H Saskatchewan

**4U Self
Determined**

Reference and Activity
Guide

Rube Goldberg Machines

Materials:

Things that ROLL:

- Marbles
- Balls (tennis, soccer, basketball, etc)
- Toy cars
- Skateboard
- Roller-skates

Things that MOVE:

- Mousetrap
- Dominoes
- Toaster
- Fan

RAMPS:

- Train tracks
- Books
- PVC pipe
- Gutters
- Plastic tubing
- Straws

RECYCLABLES:

- Cardboard
- Cereal boxes
- Toilet paper rolls
- Paper towel rolls

EVERYDAY things:

- Chopsticks
- Popsicle sticks
- Ruler
- Wooden blocks
- Bowl
- String
- Tape
- Sand
- Pins
- Hammer
- Balloons
- Water
- Vinegar and Baking Soda

YOUR ideas:

List all the steps you used in your Rube Goldberg Machine

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

Step 6:

Step 7:

Step 8:

If you have more than 8 steps, list them on another page

Instructions:

1. Watch some videos on Rube Goldberg Machines to get inspired!
 - Links for some are provided however you can search the internet for others.
 - Make sure you watch all videos before showing them to explorers to make sure they are appropriate for them
2. Discuss with the Explorers what 'problem' you want to solve. Here are some ideas:
 - Turning on a light switch
 - Fill a cup with water
 - Start the toaster
 - Pop a balloon
3. Gather supplies. Some ideas are listed in this package
 - You can collect different things from house and make your machine

OR

 - You can plan your machine and find the supplies you need to make it happen
4. Build your machine!
 - Most Rube Goldberg machines have at least 8 steps to them, feel free to add more or less.

Tips for Success:

1. Success breeds enthusiasm, so keep the steps to a minimum. You can always add more as you go.
2. Failure is part of the process. It probably won't work on the first try and that's okay! We're learning.
3. Ask your Explorers for ideas and input.
4. Work collaboratively.
5. Aim to have fun.
6. Get the big, riskier mechanisms out of the way first (like things that are supposed to cut, break, or go splat) and then connect them.
7. To avoid a problem later, test each step 10 times in a row. If it's just not working and people are frustrated, make a significant change.

Links to some Rube Goldberg Machines:

Sesame Street: Rube Goldberg Machines!

<https://youtu.be/pMpmi5YMcg>

Rube Goldberg easy examples

<https://youtu.be/OHwDf8njVfo>

The Breakfast Machine

https://youtu.be/KVdqwD_bcPs

Discussion:

Who was Rube Goldberg?

Rube Goldberg was an American cartoonist and artists. Goldberg was known for his wacky drawings of elaborate contraptions that complete simple tasks. He was an engineer and used his knowledge of science and working parts to draw these chain reactions.

Rube’s drawings often comprised pulleys, ramps, levers and other simple machines.

What is a Rube Goldberg Machine?

A Rube Goldberg Machine is a series of chain reactions that make a simple task difficult and humorous. If you ever watched PeeWee’s big adventure, PeeWee’s breakfast machine is a great example of a Rube Goldberg machine.

Discussion and Evaluation Questions:

What problem did your machine solve?

List the supplies you used for your machine:

While building your machine, what didn’t work? Why?

What other problems could you solve?
