

# Volunteer Reference Booklet for the Rube Goldberg Competition Long Beach



<http://www.makersville.net>



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## **Welcome Volunteer**

Thank you for being a part of today's activities. As a volunteer, you are testing the training curriculum for an apprenticeship program we are co-developing with the Long Beach - Qingdao Association (A Long Beach Sister City).

## **The purpose of today's training**

- Learn how to put on a Rube Goldberg Competition and Day of Inventing.
- Identify uses for the materials we have gathered.
- Create video examples of projects.
- Get hands-on practice in developing Rube Goldberg machines.
- Prototype the Rube Goldberg Handmade Carnival.
- Create video content that we can use for grant reporting and as promotion for the next, similar event. (please take videos of any projects and machines you build and send to us via email at [Patricia@makersvilleservices.org](mailto:Patricia@makersvilleservices.org). If you post online, send us a link. We will use them to make compilations for our channel properties.)

## Who was Rube Goldberg and What is the Rube Goldberg Machine Contest?



Photo of Rube Goldberg from Library of Congress collection, originally taken by National Photo Company

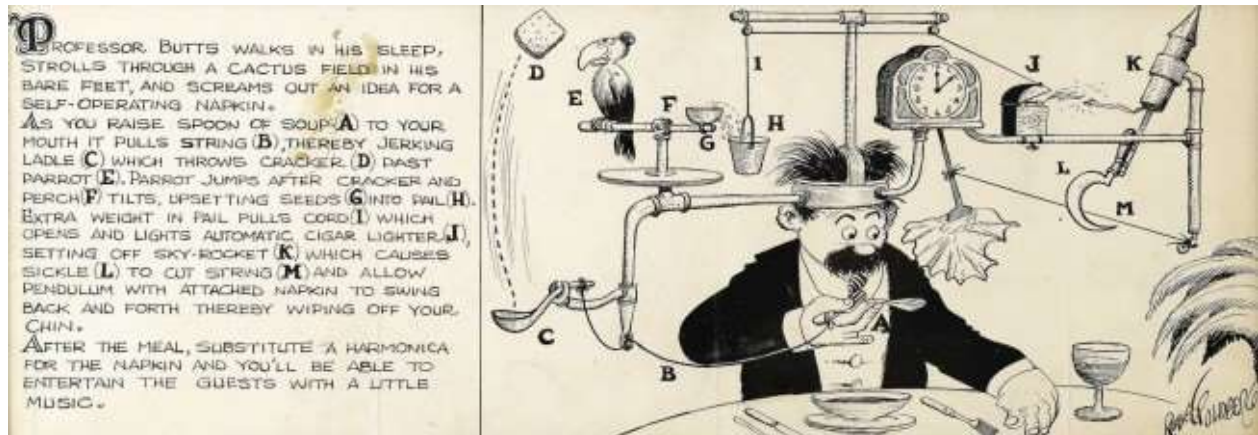
Formally known as Reuben Garrett Lucius Goldberg, Rube Goldberg was an American cartoonist, sculptor, author, engineer, and inventor. He is best known as an artist and specifically for his cartoons of machines that performed simple tasks, in complicated and impractical ways.

He is the inspiration for international competitions known as [Rube Goldberg Machine Contests](#), which challenge participants to create a complicated machine to perform a simple task.

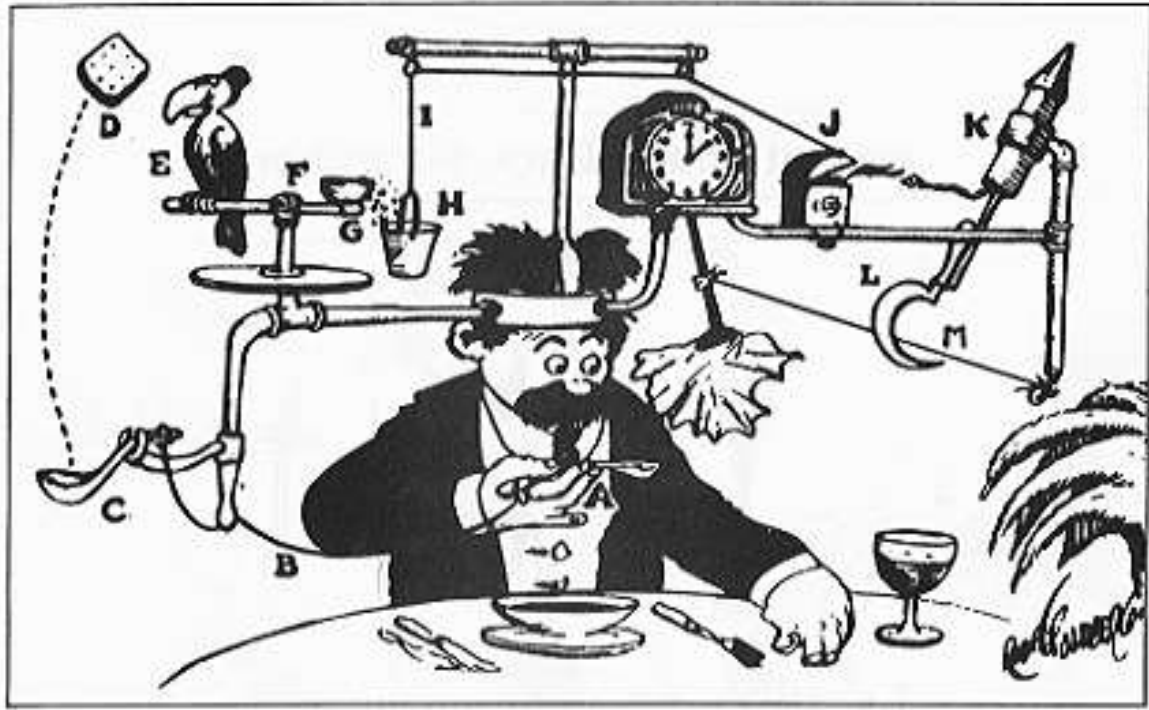
The Rube Goldberg Institute, run by the descendants of Rube Goldberg, annually announces a Rube Goldberg Machine Contest. The task is simple, it is up to the contestants to make it complex. More information on the contest, and a number of related contests, is available on the Rube Goldberg website: <http://rubegoldberg.org>

## The Rube Goldberg Machine

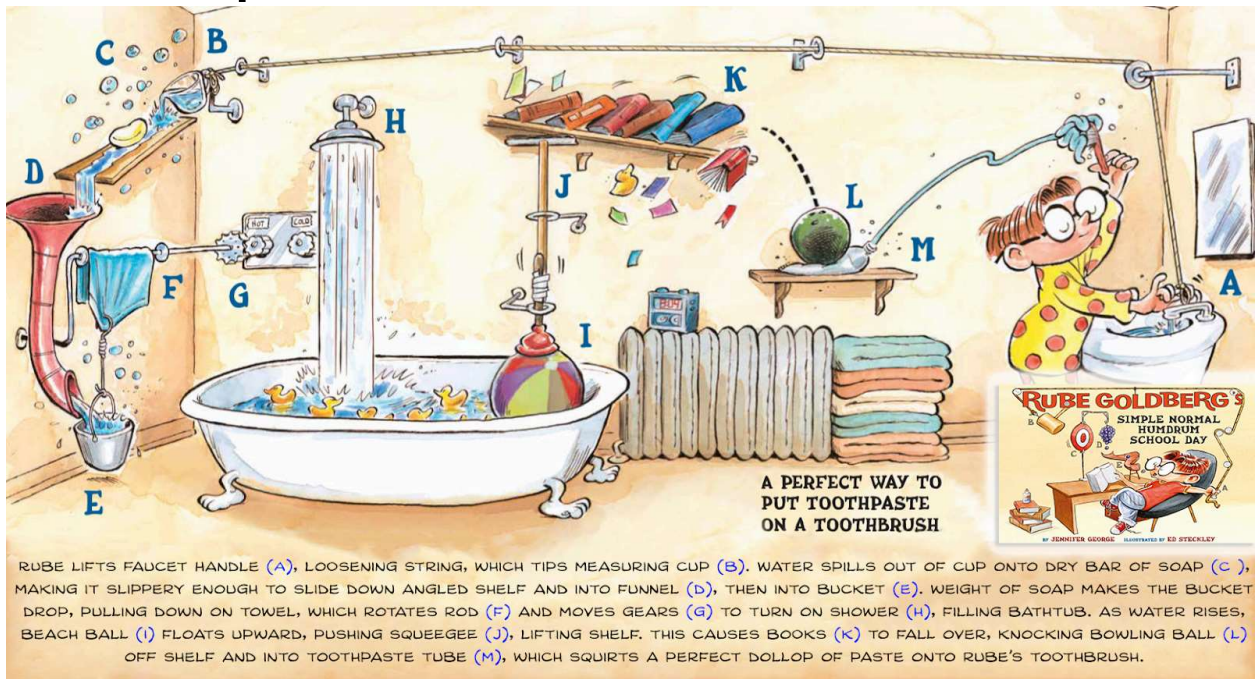
Below is an example of the Rube Goldberg style of engineering drawing.



## Self-Operating Napkin



## The 2024 Rube Goldberg Challenge Put Toothpaste on a Toothbrush



# Today's Activities will Focus on Creating a Rube Goldberg Machine (RGM) that Puts Toothpaste on a Toothbrush

## Station 1: Introduction to Rube Goldberg contraptions.

*Review books on Rube Goldberg, watch 2 or more YouTube videos of Rube Goldberg machines, and consider the question*

Suggested Videos of Rube Goldberg Machines:

OK Go : This Too shall pass Joseph's Human Car Wash

<https://www.youtube.com/watch?v=qybUFnY7Y8w>

<https://www.youtube.com/watch?v=ISX9fOSJ0KI>



Zach Umperovitch's Zach's Contraptions (Rube Goldberg National Competition Host)

<https://www.youtube.com/watch?v=kxhgxyPExl0>



Write 5 observations about Rube Goldberg Machines

1/

2/

3/

4/

5/

Brainstorm answers to the question

*How Might I put Toothpaste on a toothbrush without interacting directly with the toothpaste or the toothbrush?*

Using the post-its and markers, write 5 ideas on what you might do and stick them to the large post it pad. Circle back periodically to see what others have written.



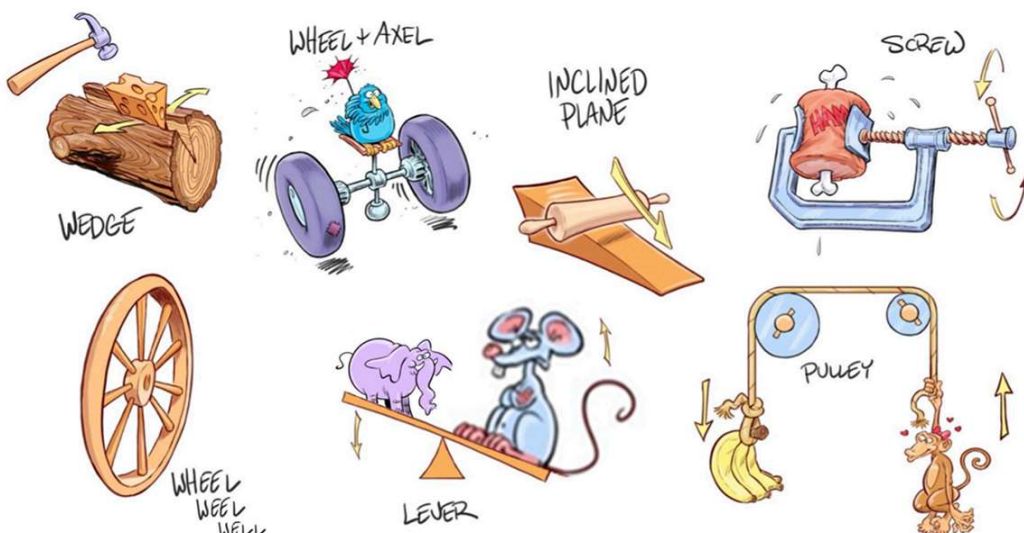
## Station 2: Simple Machines, Tools and Materials

*We have gathered a number of tools and materials for your use. Learn about/ consider the six simple machines and consider what you might do with these materials that are usually considered junk to implement a simple machine. Consider combining two or more materials to make a component of a Rube Goldberg Machine.*

A simple machine is a basic mechanical device that aids in the application of a force. Simple machines are combined to make tools, and compound machines.

For each simple machine, write down 5 examples of a tool that uses that simple machine. You can get ideas from the examples on the table and do research on your computer.

### The Six Simple Machines



Wedge

Wheel and Axle

Inclined Plane

Screw

Lever

Pulley

We have gathered materials for you to use today. Consider how you might use each material, and what part of a rube goldberg machine you might make with it and how. Write your idea down on a post-it and put it onto the Materials Idea Board. Experiment with the materials to put your idea into action.

Here are some videos of some projects we think are cool. Can you make one inspired by it?

Magnets



Archimedes Screw



Make a video of what you make and send the link to us for inclusion on our YouTube channel. We'll be sure to give you credit! [Patricia@makersvilleservices.org](mailto:Patricia@makersvilleservices.org)

### **Station 3: Outside Forces**

There are a few additional devices that you can use in your machine to apply forces to affect the trajectory of your moving object.

Try using one or more in your device. Please be aware of the number of people who may be wanting to use these, as we just have a few.

## **Station 4: LEGO Area**

In the LEGO Area you will be able to build your Rube Goldberg Machine with LEGO. There are many parts that are chosen for their ability to be used in making something move.

## **Station 5: Team Areas and RGMC Working Areas**

In this area are 15' x 15' marked areas.

### **The Established Teams Area**

Established Teams arrive with their own setup. A table and two chairs are placed in each of these areas

Established teams should occupy open 15' x 15' areas.

### **RGMC Free Play Working Areas**

There are 15' x 15' working areas with structures in them and other areas without structures.

You are free to work with the structures or to build independently at an open area using the additional materials provided. Additional materials may also be used by the prepared teams. Everyone should be considerate and share.

The goal is for you to have fun. While you play, perhaps you might care to create a team and compete. If you get a solution, you can enter the competition alongside those who have come prepared.

## Station 6: The Competition Rules

If you are thinking about joining the competition and need a buddy, ask anyone also working in your area.

At this station are the competition rules. Feel free to look at the rules and check in with the folks at this table.

The Zach's Contraptions YouTube channel has a judging video                      Taking luck out of the equation



### **Do you do Other Events? Can I Help?**

YES! We work with companies, event managers, schools and private parties to develop customized experiences. No funding? We coach you in grantwriting to help you to bring our events to you. To volunteer for, participate in or sponsor our Practical Microfactory project, please contact

Squigglemom, Trish Tsoiasue at

[Patricia@makersvilleservices.org](mailto:Patricia@makersvilleservices.org) or at 562-225-9589.

## Where else can I find Makersville?

Tuesdays/Thursdays 3-5 PM at 419 Shoreline Village Drive, Suite Q, Long Beach, CA 90802 (above the Pirate's Cove Gift Shop).

Event Date	Name	Lead
<b>March 24th 2024</b>	<b>Rube Goldberg Competition/ LBCC</b>	<b>Onyx and Morgan - Rube Goldberg, Practical Microfactory and Handmade Carnival</b>
<b>April 2, 2024</b>	<b>2x4 Day/LBLUG meeting</b>	<b>Trish Makersville Studio</b>
April 6th 2024	City of STEM/LA Makerfaire/ LA State Historic Park	Trish Rube Goldberg, Practical Microfactory and Handmade Carnival
April 14th 2024	RoboTech Fest / LBCC	Trish,2x4 Day Onyx and Morgan - Practical Microfactory and Handmade Carnival (paid setting) Rube Goldberg Skills Learning.
What date	Disability Festival	LEGO something.
April 27th 2024	Children's Day / Rec Park	Rube Goldberg, Practical MicroFactory and Handmade Carnival (free setting).Onyx Arts Council Grant.
<b>May 2024</b>	<b>Long Beach Spring Festival / City Hall</b>	<b>Onyx - Practical Microfactory and Handmade Carnival</b>
June 23 2024	Planning for a Maritime Symposium / LBCC and Studio	Gloria and Morgan (Rube Goldberg) and Onyx (Practical Microfactory/handmade carnival) Trish. Tools for Creative Problem Solving. Arts Council Grant.
<b>July / August 2024</b>	<b>Multi-National Creativity Conference for Educators</b>	<b>Trish and Morgan and Onyx. School Makerfaire, Rube-A-Thon, Practical Micro-Factory and Handmade Carnival</b>