

Activity Idea

Make Your Own Rube Goldberg Machine

Recommended for Ages 12 – 16

What is a Rube Goldberg Machine?

A Rube Goldberg machine, named after American cartoonist Rube Goldberg, is a machine intentionally designed to perform a simple task in an indirect and overly complicated way. Usually, these machines consist of a series of simple chain reactions; the action of each triggers the next and so on, eventually resulting in achieving a desired goal. Each part is usually a simple machine.

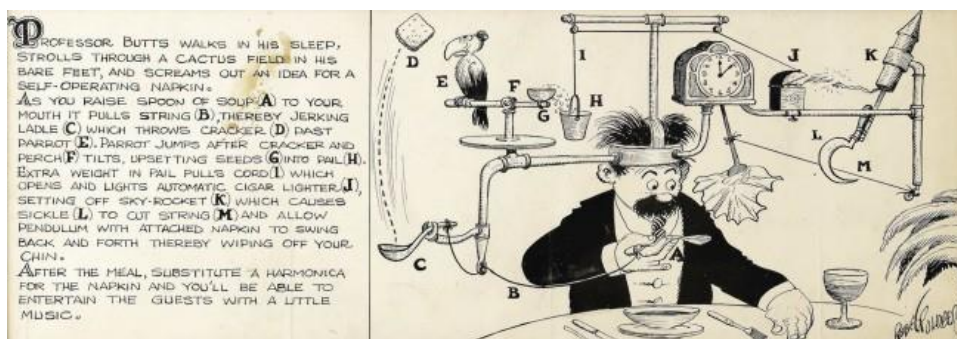


Image from Wikimedia Commons

What is a Simple Machine?

A simple machine is a device with few or no moving parts that are used to modify motion and force in order to perform work. The simple machines are the inclined plane, lever, wedge, wheel and axle, pulley, and screw. Each of these simple machines use a small amount of force to perform the action.

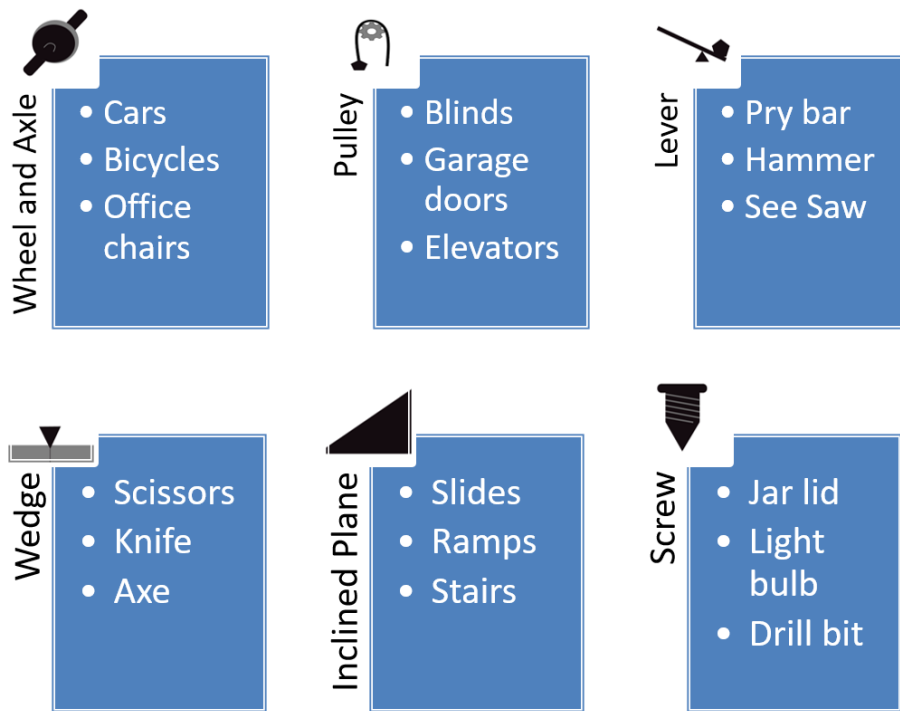


Image from Wikimedia Commons

Inclined plane – Otherwise known as a ramp, this machine make use of a downward or upward slope.

Wedge- A triangular shaped tool, it can be used to separate two objects or portions of an object, lift up an object, or hold an object in place.

Lever - A beam or rigid rod pivoted at a fixed hinge, or fulcrum. A lever is a rigid body capable of rotating on a point on itself.

Wheel and Axel - A wheel attached to a smaller axle so that these two parts rotate together in which a force is transferred from one to the other.

Screw – A cylindrical shaft with helical grooves or ridges called threads around the outside.

Pulley - A wheel on an axle or shaft that is designed to support movement and change of direction of a taut cable or belt or transfer of power between the shaft and cable or belt.

How to Get Started

First come up with a desired goal. What do you want your machine to do? Flip a switch? Open an umbrella? Toast a slice of bread? Water a plant? The task has to be simple but your design on how to complete the task needs to be complex. Draw out your plan first. On a piece of paper, try to figure out each step of your machine, just like the above comic example of a Rube Goldberg machine.



Once you have planned it out, gather the necessary materials and begin building. You might encounter some steps that just will not work. Revise those steps. Try something else if that part does not work.

Your Rube Goldberg machine can be as simple as one or two steps or can be as complicated as 10 – 20 steps.

Look at other Rube Goldberg machines for inspiration.

Want even more of a challenge?

Try the Bar of Soap Rube Goldberg Video Challenge. Go to rubegoldberg.com for more information on the contest going on until May 31st, 2020.

Online Resources

Build Your Own Chain Reaction Machines: How to Make Crazy Contraptions Using Everyday Stuff—Creative Kid-Powered Projects! by Paul Long

<https://tinyurl.com/y9b9wus9>

Build Your Own Chain Reaction Machines invites you into the wonderful world of crazy contraptions inspired by the amazing artwork of renowned cartoonist, engineer, and inventor Rube Goldberg, whose wacky, imaginary machines accomplished a simple task by taking a hilariously complicated route.

Be a Maker by Katey Howes and Elizabet Vuković

<https://tinyurl.com/yd3fajdn>

How many things can you make in a day? A tower, a friend, a change? Rhyme, repetition, and a few seemingly straightforward questions engage young readers in a discussion about the many things we make, and the ways we can make a difference in the world. This simple, layered story celebrates creativity through beautiful rhyming verse and vibrant illustrations with a timely message.