

Rube Goldberg Project

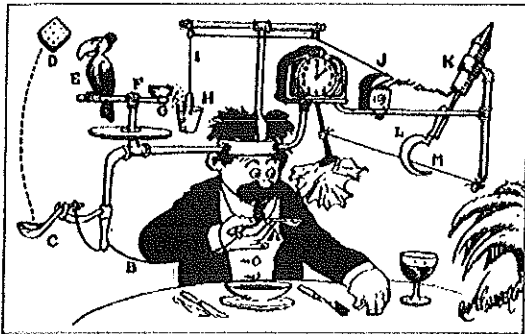
Video & Written Report Due Date: Monday, April 27

Presentation Day: Thursday, April 30, 1:30-2:45 (Parents welcome!)

Objective: To build a complex machine that will complete a simple task using at least 6 distinct steps.

Background Information: Rube Goldberg was a cartoonist that created elaborate ways to do simple things such as turning the pages in a book or stapling pieces of paper together.

Self-Operating Napkin



Rube Goldberg™ & © of Rube Goldberg, Inc.

Rube Goldberg walks in his sleep, strolls through a cactus field in his bare feet, and screams out an idea for self-operating napkin: As you raise spoon of soup (A) to your mouth it pulls string (B), thereby jerking ladle (C) which throws cracker (D) past parrot (E). Parrot jumps after cracker and perch (F) tilts, upsetting seeds (G) into pail (H). Extra weight in pail pulls cord (I), which opens and lights automatic cigar lighter (J), setting off sky-rocket (K) which causes sickle (L) to cut string (M) and allow pendulum with attached napkin to swing back and forth thereby wiping off your chin. After the meal, substitute a harmonica for the napkin and you'll be able to entertain the guests with a little music.

Requirements:

1. Your invention must accomplish a simple task.
Task Examples: • Kleenex Out Of The Box • Launch A Paper Airplane • Golf Ball In Hole • Ring A Bell • Toothpaste On Brush • Put An Ice Into A Cup • Hit A Target With Something • Turn On A Flashlight • Switch Something On • Staple Something
2. Your invention must execute at least 6 distinct steps. All steps must be clearly defined and separated. You may have a theme to your invention, but a theme is not required.
3. The machine must work on its own after being started.
4. Your need to include a written report and an illustration modeled after Rube's comics. (See the example above and the attached example.)
5. You may work independently, in partners, or trios. Each person will hand in his or her own written report to Google Classroom. You will receive two grades for this project: one for the invention and one for the report.
6. If you can set up your invention in **10 minutes** and it does not take up a space larger than 5ft x 3ft, you may bring it in on the presentation day; otherwise, please record a video of your invention. Computers will be set up in the hall to display your video on presentation day. You can email this video to Mrs. Cole, post it to YouTube, or bring in a copy on a flash drive. All videos need to be submitted by Monday, April 27.
7. Mrs. Cole's website has many helpful websites to get you started.

Important Note!!!

Please **DO NOT** spend money on this! You can find many of your supplies around your home. Use toys, blocks, sporting goods, recyclables etc.

INVENTIVE IDEA

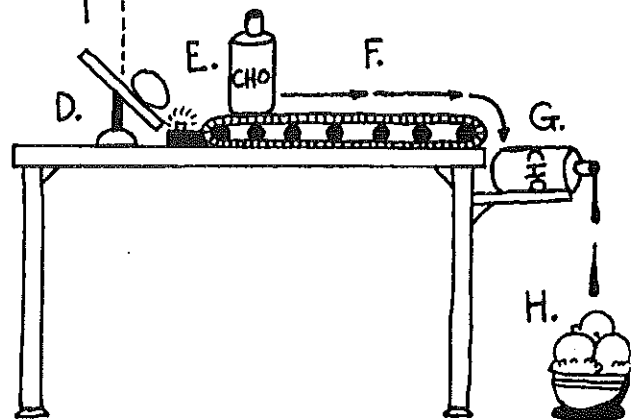
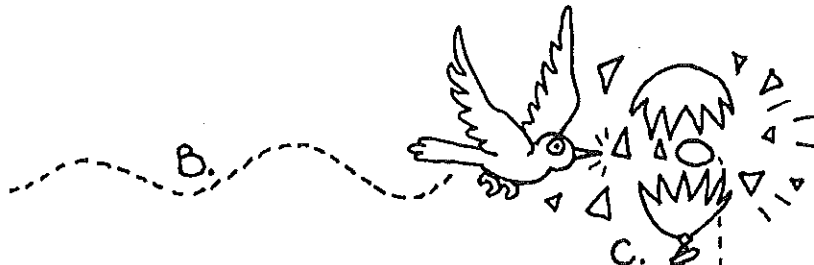
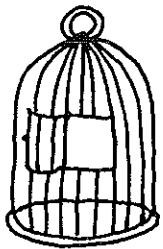
Rube Goldberg Invention

Reuben Lucifer Goldberg (1883-1979) drew a famous cartoon strip for which he was awarded a Pulitzer Prize in 1948. The main character in his cartoon was Professor Lucifer Gorgonzola Butts. Professor Butts was a wacky inventor who made the most simple task (such as cracking an egg or brushing your teeth) overly complicated with his inventions. In these cartoons, Rube Goldberg was pointing out that new ideas aren't always better. These cartoons are humorous, but they also make clear that the best inventions serve a purpose. Webster's dictionary defines a Rube Goldberg as "a device or method to accomplish by extremely complex and roundabout means a job that actually could be done simply."

Look at the example of a Rube Goldberg type invention below. Then design your own Rube Goldberg invention. Be sure to label and describe each part of your invention similar to the way that the example is labeled. Use a large sheet of paper to draw your cartoon so that it will be easily seen when it is on display

RUBE GOLDBERG CARTOON

"How to put chocolate syrup on your ice cream"



- A. ... The alarm rings. The bird is frightened and ...
- B. ... flies out of its cage. It then flies into ...
- C. ... the balloon and pops it. The egg then falls out and ...
- D. ... rolls down the balance until it ...
- E. ... turns on the conveyor belt. Next the ...
- F. ... chocolate syrup moves down the conveyor belt until it falls off onto ...
- G. ... a ledge. The chocolate then drips onto the ...
- H. ... bowl of ice cream.

Name(s) _____

Rube Goldberg Rubric

	Excellent (4 points)	Good (3 points)	Poor (2 points)	Needs Improvement (1 points)
Design	Includes at least 6 distinct and separate steps to accomplish the task.	Includes at least 6 steps to accomplish the task, but a few steps seem to blend together.	Includes less than 6 steps and/or many steps seem to blend together.	Little effort was given to make sure the invention included 6 distinct steps.
Illustration	Each step is neatly and clearly labeled with an explanation of each step. Color was added to make the illustration "pop".	Each step is labeled but the explanation is incomplete or there were issues with neatness, color, etc.	Each step is not labeled, the illustration was not neat, and/or the explanation is significantly incomplete.	Little effort was given for the illustration.
Creativity	Rube Goldberg Master! A novel and amusing idea!	A Rube Goldberg Apprentice! Interesting, but no "wows!"	A straightforward implementation.	Little effort was given to create an original machine.
Scientific Terminology	Student(s) can accurately explain where they observed the following: Newton's Laws of Motion, zero net force, non-zero net force, contact force, and non-contact force.	Student(s) can accurately explain where they observed the following but with 1-2 mistakes: Newton's Laws of Motion, zero net force, non-zero net force, contact force, and non-contact force.	Student(s) can accurately explain where they observed the following but with 3-4 mistakes: Newton's Laws of Motion, zero net force, non-zero net force, contact force, and non-contact force.	Student(s) made 5+ errors in their explanation.
Effort	The appropriate amount of effort was put into this project and the project was handed in on time.	A little more effort could have been put into this project and/or the project was not handed in on time.	Much more effort could have been put into this project and/or the project was not handed in on time.	The project was handed in late and little effort was put into this project.

Total Points: _____ / 20 Grade: _____

Rube Goldberg Written Report Requirements

DUE: Monday, April 27

You will be writing this report in Google Docs and handing it in to Google Classroom. This portion should be done independently.

- ❖ Include a title for your report.
- ❖ First Paragraph (Introduction):
 - Explain the task and steps that your invention accomplished. Also, describe the simple machines that your invention included.
- ❖ Second Paragraph (Scientific Terminology):
 - Explain where you observed the following in your invention: Newtons Three Laws of Motion, zero net force, non-zero net force, contact force, and non-contact force.
- ❖ Third Paragraph (Reflection):
 - Explain what went well (or didn't go well) with this project. What would you do differently if you were able to build an invention again? Does your machine have a practical application to the real world? Why or why not?

Partner Choice/Parent Signature Form

This form is due by Friday, April 10.

Student Name: _____

Homeroom: _____

I have decided to work on the Rube Goldberg Project:

_____ on my own.

_____ with a partner(s).

Partner name(s): _____

I understand my responsibilities and requirements for this project. I understand that the project is due Monday, April 27.

Student Signature: _____

I have read the information regarding the Rube Goldberg Project. I am aware that parents are welcomed to attend the presentation day on Thursday, April 30, 1:30-2:45pm.

Parent Signature: _____