

Name: _____




Date: _____

Rube Goldberg Investigation

Per: _____

1. Using your notes from last class, a mechanism is a device that:

Mechanisms can change direction, speed, and force or torque. They can also be used to change the type of movement. There are four types of movement.

Rotary	Around in a circle	
Oscillating	Back and forth in an arc	
Linear	Straight in one direction	
Reciprocating	Back and forth in a straight line	

2. Give an example of each of the above movements in real life. For example, an example of rotary motion would be the wheel of a tire.

- Rotary –
- Oscillating –
- Linear –
- Reciprocating –

3. Read the following information about **RUBE GOLDBERG**:

Rube Goldberg (1883-1970) was a Pulitzer Prize winning cartoonist best known for his zany invention cartoons. He was born in San Francisco on the 4th of July, 1883 – and graduated from U. Cal Berkeley with a degree in engineering. His first job at the San Francisco Chronicle led to early success, but it wasn't until he moved to NYC and began working for Hearst publications that he became a household name. Rube Goldberg is the only person ever to be listed in the Merriam Webster Dictionary as an adjective. It's estimated that he did a staggering 50,000 cartoons in his lifetime.

Rube Goldberg - a comically involved, complicated invention, laboriously contrived to perform a simple operation. — *Webster's New World Dictionary* —

4. For the following Rube Goldberg cartoon, fill in the boxes below by identifying four different mechanisms in the cartoon and what their purpose are.

How to Get Rid of a Mouse



Drawn for *Newsweek* by Rube Goldberg

The best mousetrap by Rube Goldberg: Mouse (A) dives for painting of cheese (B), goes through canvas and lands on hot stove (C). He jumps on cake of ice (D)

to cool off. Moving escalator (E) drops him on boxing glove (F) which knocks him into basket (G) setting off miniature rocket (H) which takes him to the moon.

Mechanism Location	Purpose

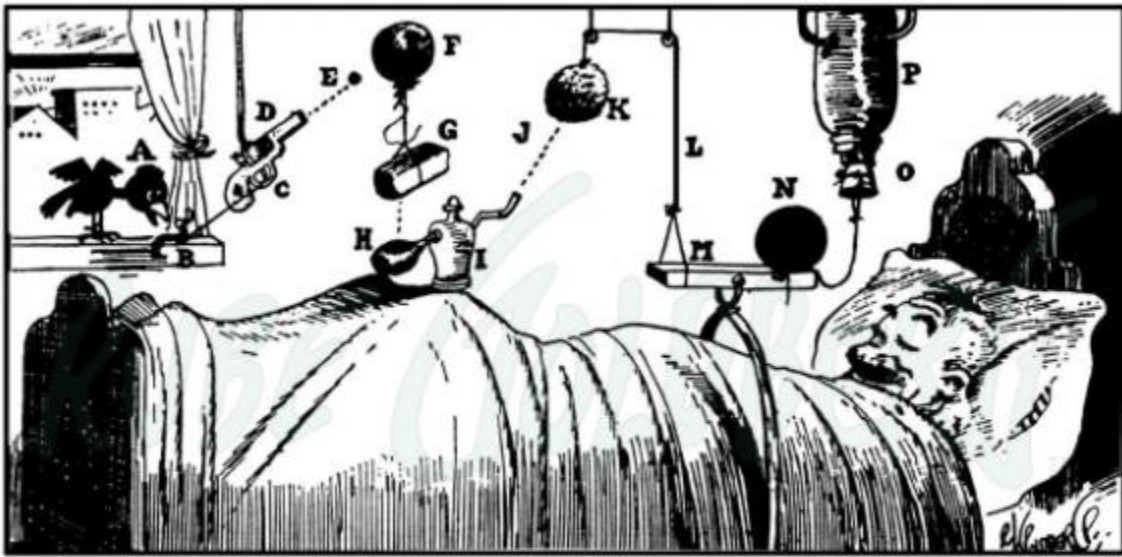
Some Rube Goldberg Follow-up Questions

1. What is the definition of Rube Goldberg? Search this packet for an answer.

2. Where was Rube Goldberg born? _____

3. How many cartoons did Rube Goldberg make in his lifetime? _____

4. Read what is happening in the following cartoon:



The early bird (A) arrives and catches worm (B), pulling string (C) and shooting off pistol (D). Bullet (E) busts balloon (F), dropping brick (G) on bulb (H) of atomizer (I) and shooting perfume (J) on sponge (K)—As sponge gains in weight, it lowers itself and pulls string (L), raising end of board

(M)—Cannon ball (N) drops on nose of sleeping gentleman—String tied to cannon ball releases cork (O) of vacuum bottle (P) and ice water falls on sleeper's face to assist the cannon ball in its good work.

Describe what is going on in the invention below. What is its purpose?

5. Come up with your own idea for a Rube Goldberg below. Write at least 5 sentences describing your idea for a Rube Goldberg, why you chose it, how it works, and the different mechanisms that are a part of it.

Read the following about Rube Goldberg contests!

The Rube Goldberg Machine Contest (RGMC) is named after the late cartoonist Reuben Lucius Goldberg. Having died in 1970, he lives on in the RGMC as puzzling machines with crazy mechanisms are built in the spirit of his illustrations.

For 55 years the award-winning engineer turned cartoonist drew machines and contraptions that satirized the new machines and gadgets being built. His drawings, using simple gadgets and household items already in use, were incredibly complex and wacky, but had an ingenious, logical progression to them. Goldberg's inventions became so widely known that Webster Dictionary added the term "Rube Goldberg" to its listings, defining it as "accomplishing by extremely complex, roundabout means what seemingly could be done simply." In the words of the inventor, the machines were a "symbol of man's capacity for exerting maximum effort to achieve minimal results." He believed that most people preferred doing things the hard way than using a more simple and direct path to accomplish a goal.

In 1949, at the peak of the Goldberg era, the two engineering fraternities at Purdue University, Phi Chapter of Theta Tau Fraternity and Triangle Fraternity, developed their own version of the Rube Goldberg Machine Contest. The contest was held as part of the Engineer's Ball, also sponsored by the two fraternities. The contest died out with the Engineer's Ball in 1955, when the two fraternities no longer sponsored the event.

In 1983, some members of the Phi Chapter of Theta Tau Fraternity became interested in an old trophy that they found while cleaning one day. It was the original traveling trophy from Purdue's first RGMC. After diligently searching out information on the contest, they resurrected the event. They also made it a point to produce a guide for others to follow in order to successfully start a competition.

All the attention finally paid off in 1988 when the first National Rube Goldberg Machine Contest was launched. Nationwide television, radio and printed media attention promotes the growth of the contest to make it bigger and better each year. In 1992, the first contest appeared on television when Beyond 2000 came to Purdue to film the contest.

Past national contest winners have been featured on Newton's Apple, The History Channel, The Tonight Show Starring Johnny Carson, Late Night With David Letterman, ABC's Jimmy Kimmel Live!, NBC's Today Show, CBS's This Morning, The CBS Evening News, CNN and Good Morning America.

The RGMC contest was expanded to the high school level in 1996 with the support of the US Department of Energy's Argonne National Laboratory. In 2012, RGI launched The International Online Rube Goldberg Machine Contest for Ages 11-14®. As of 2015, RGI offers both Live and Online contests in all 3 Divisions, covering ages 11 through 18+.

Past Contests:

2016 Open An Umbrella

2015 Erase A Chalkboard

2014 Zip A Zipper

2013 Hammer A Nail

2012 Inflate A Balloon and Pop It!

2011 Watering A Plant

2010 Dispense an Appropriate Amount of Hand Sanitizer into a Hand

2009 Replace an Incandescent Light Bulb with a More Energy Efficient Light Emitting Design

2008 Assemble a Hamburger

2007 Squeeze the Juice from an Orange

2006 Shred 5 Sheets of Paper

2005 Change Batteries and Turn on a 2-battery Flashlight

2004 Select, Mark and Cast an Election Ballot

2003 Select, Crush and Recycle and Empty Soft Drink Can
2002 Select, Raise and Wave a U.S. Flag
2001 Select, Clean and Peel an Apple
2000 Fill and Seal a Time Capsule with 20th Century Inventions
1999 Set a Golf Tee and Tee Up a Golf Ball
1998 Shut Off An Alarm Clock
1997 Insert and Then Play a CD Disc
1996 Put Coins in a Bank
1995 Turn on a Radio
1994 Make Cup of Coffee
1993 Screw a Light Bulb into a Socket
1992 Unlock a Combination Padlock
1991 Toast a Slice of Bread
1990 Put the Lid on a Ball Jar
1989 Sharpen a Pencil
1988 Adhere a Stamp to a Letter

6. What were the contests for the following years:

- 1991 –
- 2007 –
- 2008 –
- 2010 –
- 2015 –

7. Which contest would you be most interested in? _____