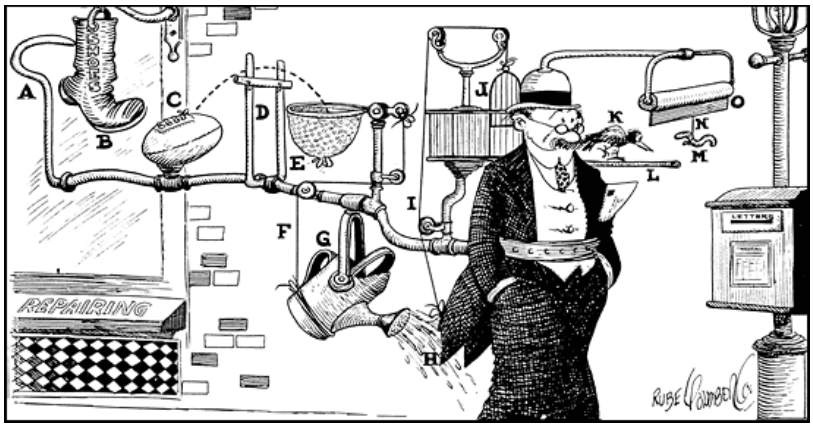
Name: _____

Q3 Honors Project- Rube Goldberg Machine



Background: Rube Goldberg was a cartoonist (New York Post) that became famous for drawing very complicated machines that performed very simple tasks. A typical Rube Goldberg device could not perform a job as straightforward as turning on a faucet without the assistance of pulleys, fulcrums, mousetraps, cables, and gears. By the time the cartoonist retired, the term "Rube Goldbergian" had been enshrined in the language to describe anything characterized by excess complexity.

*****Your honors project for GVC 8.2 and 3rd quarter is to design and build a Rube-Goldberg Machine that uses multiple steps to complete a simple task. There will also be prizes for favorite machine in the 8th grade.**

Due Date: Feb. 21st (A day) Feb. 24th (b day)

Assignment Requirements:

1) Machine Construction:

a. Your machine must have a minimum of 8 different energy transfers

b. At least 4 different simple machines must be used

c. The final step must accomplish one of the following tasks

*** Ring a bell * Break a pencil * Pop a balloon * Roll a pair of dice**

d. Completed Machines will need to be videotaped and turned into your teacher by the due date! Late projects will be marked down by 20%.

Ways to turn in your video: Upload to youtube and share link with your teacher (preferred method), email video to teacher, bring video on a disc or thumb drive.

e. **YOU MUST BE IN THE VIDEO** (Or your voice). We will be watching these videos in class, so make it appropriate.

f. No animals or people can be part of the Rube Goldberg machine.

h. Your video needs to show the completed Rube-Goldberg machine **in action**.

Video Completion _____/15 pts.

2) Written Assessment: You must also complete this Rube Goldberg written assessment packet.

Rube-Goldberg Written Assessment

Part 1: Sketch

Draw a sketch of your Rube Goldberg Machine that shows the step-by-step operation of your machine. Make it neat and easy to follow. **Label each energy transfer with a number (1-8)**. These numbers should be the same numbers used in the explanations of energy transfers on the next page. On the sketch, **label the types of energy** (**t**hermal, **r**adiant, **s**ound, **c**hemical, **n**uclear, **m**echanical, **g**ravitational, **e**lectrical). **Label the simple machines in your sketch**.

How many energy transfers did you have? _____

_____**/6 pts.**

<u>Explanation of Energy Transfers:</u> Explain each energy transfer in a complete sentence. (Example: A human pushes the ball (transfer 1), the balls knocks down the dominos (transfer 2), a hammer breaks a pencil (transfer 3), etc.

Transfer 1-

Transfer 2-

Transfer 3-

Transfer 4-

Transfer 5-

Transfer 6-

Transfer 7-

Transfer 8-

_____/4 pts.

Circle Finishing Task(s) **(Ring a bell) (Break a pencil) (Pop a balloon) (Roll a pair of dice)**

_____/1 pts.

<u>Part 3: Simple Machines (Pully, Lever, Inclined Plane, Screw, Wheel & Axel, Wedge)</u>
Label the simple machines in your sketch. Also provide an **explanation** for each simple machine. (ex: in step 1 we rolled a ball down a wrapping paper tube. This is an inclined plane). You must have at least 3 simple machines in your design.

Simple Machine 1-

Simple Machine 2-

Simple Machine 3-

Simple Machine 4-

_____/4 pts.

Written Assessment Total _____/15 pts.
Video Completion _____/15 pts.
Grand Total _____/30 pts.

Honors Credit Yes/No

***In order to receive Honors Credit for 8th grade science for Quarter 3, students must achieve "Mastery" on this project of 80%. A mastery score on this project is 24/30 or higher. The score for this project does not go on the student's grade. Achieving mastery on this project will give the student "8th Grade Honors Science" credit on their transcript.