

Names: _____

Rube Goldberg Device

Purpose: To go through a long complicated series of events to do a simple action.

Problem: John Adams Video Productions Company is looking to shoot a commercial. Their last big hit was a music video featuring the artists OK GO. Now this was no typical music video, they created a Rube Goldberg device to go off in the background. But here's the catch, you must create a Rube Goldberg device to go off in the background of this commercial using **recycled materials only!** The device must be able to do one of the following: *pop a balloon, put a candle flame out, or fill a Dixie cup with water.* The winning company will receive a stipend and their commercial played during the 2018 super bowl.

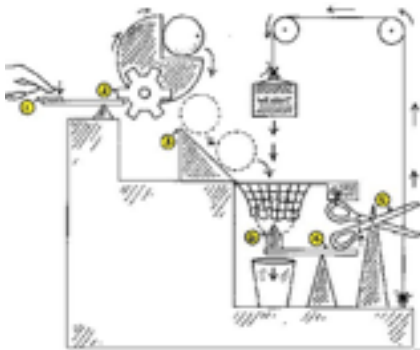
Group name: _____

Project task: _____

Theme: _____

Procedure

1. Research Rube Goldberg projects to get some ideas. Some popular ones may be found at <http://coolmaterial.com/roundup/rube-goldberg-machines/>. (Please research at home)
2. Practice a Rube Goldberg project by using an online simulator at <http://pbskids.org/zoom/games/goldburgertogo/rubegame.html> (you will need to do this on a non-iPad device)
3. Create a blue print of your device just like the one below and write down all laws / principles associated with your device.



*Get your teacher's approval before starting step 4.

4. Create a background scene for a commercial that will be filmed by John Adams Production Company and played during the 2015 super bowl.

Below are some of the choices you have for the device:

1. The final product will end with a *balloon popping*
2. The final product will end with a *candle flame being put out*
3. The final product will end with a Dixie cup filling with water.

If you have your own creative ideas for the presentation, please see me to get approval.

Devices must include...

Information (See rubric)

- a. A blue print
- b. Step -by step description
- c. Size
- d. Task is completed
- e. Time
- f. Theme
- g. Transfer of energy
- h. Energy conversion
- i. Simple machines

Presentation (See rubric)

- a. Must demonstrate a clear understanding of the laws and principles of physics.
- b. Working device that will solve the task selected.
- c. Device will flow on its own with only one push to begin.
- e. Must work within two tries.
- f. Theme is consistent throughout
- g. Final product replicates the blue print

Extensions: (5 pts. each)

- a. Make a marble fall into something, pop back out, and continue onto the regular path.
- b. Using more than one marble, demonstrate momentum to knock something over.
- c. Create a commercial to go along with your device.

Be prepared to present your final project to me and the John Adams Production Company to see whose commercial will be filmed and shown during the 2015 super bowl.

* You will be judged based on:

- a. completion of the task given
- b. number of energy transfers and energy conversions
- c. how long it takes your device to finish the task

Contraption Challenge: Blue Print

Diagram of group _____ Rube Goldberg Device

Contraption Challenge

Step- by-Step Description of group _____ Rube Goldberg Device

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

Teachers Approval _____

Important Project Dates:

Parent Signature _____

Date: Assignment Completed

3/31/2017

- Choose a partner, Theme, Group Name

- View Rube Goldberg machines online

- Complete online simulation

4/20/2017

- Bring in blue print for your device

5/11/2017

-Final product is due.

Rube Goldberg Device Rubric

Group Name: _____

- | | |
|--|-----------------|
| i. Contraption challenge blue print | _____ (2 pts.) |
| ii. Contraption challenge step- by- step description | _____ (4 pts.) |
| iii. Meets size requirements (100 cm x 60 cm x 60 cm) | _____ (5 pts.) |
| iv. Machine completes specified task | _____ (10 pts.) |
| v. Meets time requirements (10 sec – 5 min) | _____ (5 pts.) |
| vi. Machine has at least 6 distinct steps (5 pts. each) | _____ (30 pts.) |
| vii. Demonstrates 12 types of energy transfer (2 pts. each) | _____ (24 pts.) |
| viii. Demonstrates 12 types of energy conversion (2 pts. each) | _____ (24 pts.) |
| ix. Includes 3 simple machines (2 pts. each) | _____ (6 pts.) |
| x. Theme is consistent throughout the entire device | _____ (5 pts.) |

Extensions: Up to 10 points

SUBTOTAL _____ / 125

pts.

Self-assessment: On the side of the rubric, write the number of points you think you deserve.

