Rube Goldberg Machine

Rube Goldberg was a cartoonist who was famous for his depiction of extremely complicated inventions designed to complete simple tasks.

A sample description might be a golf ball rolls down a ramp otherwise known as an inclined plane (action), and lands in a paper cup attached to a pulley with a counter weight, that is tripped by the movement of the ball (reaction). The pulley transports the cup with the ball in it to a higher track made of PVC pipe where it is deposited (action) and rolls to another point where another component moves it further (reaction)

**The objective of this project is to design and build a Rube Goldberg Machine with at least five (5) distinctive steps.**

Rube Goldberg Requirements: (Check off before you turn project in)

Each of these parts of the project are to be turned in and will be graded.

  Problem Rube Goldberg addresses – what is it going to do? (raise a flag, ring a bell, etc)

Predicted design idea – plan for your project – (flow chart with descriptions, step-by-step directions with illustrations, etc)

  Action/Reaction table labeled for each step

  Conclusions

The Rube Goldberg must be freestanding and supported by its own base.

Electrical energy may not be used.

Open flames are not allowed.

**Conclusions**: An extended paragraph including the following information

What job is the Rube Goldberg performing?

What you did you have to do to get the Rube Goldberg to work?

What did you learn from the project?

What changes did you have to make to get your project to work?

*Action/Reaction Table (check off as you complete the table)*

Each step needs to include an action and a reaction. This means that each step in the Rube Goldberg has 2 parts.

Remember to include a title

Here is an example of the action reaction table:

Feed the Bank Rube Goldberg

|  |  |  |
| --- | --- | --- |
| ***Number of Step*** | ***Action*** | ***Reaction*** |
| 1 | Release Chitty Chitty car with mouse driving it | Bumps rubber ball |
| 2 | Ball knocks down the dominoes | Dominoes trigger the first mousetrap |
| 3 | Mousetrap pulls a string | String starts toy record player which plays Hickory Dickory Dock |
| 4 | Record player spins the gears | Gears slowly wind the string pulling up a paperclip |
| 5 | Paper clip detaches from other paperclip | Breaks the circuit of the electromagnet |
| 6 | Electromagnet releases mouse in a car down a ramp | Moving mouse pulls a string |
| 7 | The string pulls a hook (paper clip) | Hook releases a red parachute man who flies down an incline |
| 8 | Man pulls another string from tube that has a pencil at the end | The pulled pencil/string combination lets a heavy ball drop down a tube |
| 9 | The dropping ball pulls an attached string up | Attached string makes another mouse "go up the clock" |
| 10 | As mouse moves upward | 2 small ball-bearings are released from under mouse's tail |
| 11 | Ball bearings land on mousetrap | Mousetrap triggers the mechanical bank |
| 12 | Causing a tiny picture of Rube Goldberg who watches closely | A dog puts the coins into the bank |

|  |  |  |
| --- | --- | --- |
| **Number of Step** | **Action** | **Reaction** |
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Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Problem the Rube Goldberg is going to solve: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Simple machines we will use in the project:

Materials we will need to complete our project:

**Possible Website Resources**:

<http://www.anl.gov/Careers/Education/rube/index.html>

[http://www.rube-goldberg.com](http://www.rube-goldberg.com/)

\* <http://mousetrapcontraptions.com/cool-machines-3.html>

<http://outreach.rice.edu/~dgabby/science/simp_mach/>

 (This one will help with the understanding of simple machines)

Scoring Rubric:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 3 | 2 | 1 | 0 |
| Steps to complete the task | 5 or more steps are in the blueprint | 3 or 4 steps | 2 steps | 1 step |
| Types of simple machines | 3 or more simple machines are used in at least 5 of the steps | 3 simple machines are used in 3 different steps | 1 or 2 simple machines are used | No simple machines were used |
| Plan | Each step is clearly labeled. Materials used are also labeled. | Each step is labeled.  The design is clear and can be easily understood. | Most steps are labeled. The design is not clear. | Little or no labeling is present. |
| Creativity / Appearance | Blueprint is neat, and grabs the viewers attention | Blueprint is neat and interesting to a viewer | Blueprint is somewhat neat, is lacking in viewer appeal | Blueprint is sloppy or barely done |

\_\_\_ / 12 points

10 -12 pts     =    A

8 – 9 pts       =    B

6 – 7 pts       =    C

5 or below     =    Not passing