

Rube Goldberg Project
6th grade Science 2015-2016

A Rube Goldberg Machine is a machine that uses a series of complicated steps to perform a simple task. These machines have a strong connection to science, technology, engineering and math (STEM) because of the use of simple machines, energy, energy transformations, measuring and controlling work output, and the design/redesign process.

Our current science unit focuses on energy, energy transformations, and work. Students will be required to show mastery of this content through designing their own Rube Goldberg Machine. The Rube Goldberg Machine that students will design **must complete the task of turning off a light**. We have viewed several examples in our textbook as well as through video links in class. **Students will be expected to begin the process of creating this project on _____.** **The completed project is due _____.**

Step One: Take home the project announcement form and return it the next class period with the signature of a parent or guardian.

Step Two: Fill out the Rube Goldberg Planning sheet *for each class period that a new form of energy is introduced, reviewed and completed*. ***This sheet will be reviewed regularly and points will be given or deducted based on completeness.**

Step Three: Complete all portions of the project and turn them in, along with the rubric sheets on the required due dates to avoid point deductions. ***Late projects will receive a maximum score of 60%.**

Project Component	Point Value	Date Due
Announcement with Signature	10	November 18 th -A Day November 19 th -B Day
Planning Sheet	25	Daily/ Weekly/ Un-announced
Poster or Prototype	50	January 6 th – A Day January 7 th – B Day
Presentation (Prezi ,Power Point, or Google Presentation)	35	January 6 th – A Day January 7 th – B Day
Additional Item	30	January 6 th – A Day January 7 th – B Day

*Cut on dotted line and return bottom portion to school. Top portion should be left at home.

Return this portion to school on _____ for 10 points.

I _____ and my parent or guardian have received and reviewed all of the project information. I understand that any amount of plagiarism (using steps from Rube Goldberg's that already exist) will cause me to receive a failing grade on the project. I/ we also understand that if any portion of the project is turned in late, the highest score I can receive is 60%.

Signature of Student _____ Date _____

Signature of Parent/ Guardian _____ Date _____

Required Items and Additional Important Information

This project is worth a total of 150 Formal Assignment Points

Criteria for the project (things you must do/things your machine must do);

1. Rube Goldberg machine must turn off a light.
2. Must have at least 5 steps.
3. Must use at least 3 forms of energy and energy transfers/ transformations.
4. Must be logical (make sense and be able to happen in the real world).

Constraints for the project (things you must use to achieve your goal);

1. Must use household items (even if you are just creating a poster).
2. Must be safe (even if you don't build it).
3. Cannot use Potential or Kinetic energy as main forms of energy. *We consider Potential and Kinetic energy to be categories of energy, not main forms.

Students may choose to create a poster of their Rube Goldberg Machine or they may build a prototype/ the actual machine. **Students are strongly encouraged to build the Rube Goldberg** they design.

However, because financial limitations may prevent some students from building the machine, no extra credit will be given to students who do actually build it.

If a student does build the Rube Goldberg Machine, it should be small enough to be transported by the student in a car or on the bus on the day the project is due. The student may also choose to record a video to present in class on the due date which shows the student building and running the machine.

The project is due 6 weeks after it is assigned. The due date

is _____ . The teacher

will remind students often of when the project is due especially when we are close to the due date. **If any portion of the project is late the maximum project score will be 60%.**

Rube Goldberg Project Rubric Sheet

Project Announcement (Total Value 10 points)

- | | |
|--|--|
| <input type="checkbox"/> <i>On time</i>
<input type="checkbox"/> <i>With student's name/signature</i>
<input type="checkbox"/> <i>With parent/guardian signature</i>
<input type="checkbox"/> <i>Dated form</i>
<input type="checkbox"/> <i>Dated signatures</i> | <input type="checkbox"/> <i>Late</i>
<input type="checkbox"/> <i>Missing student's name/ signature</i>
<input type="checkbox"/> <i>Missing parent/guardian signature</i>
<input type="checkbox"/> <i>Form not dated</i>
<input type="checkbox"/> <i>Signatures not dated</i> |
|--|--|

Total points earned _____

Planning Sheet (Total Value 25 points)

CATEGORY	5	4	3	2	1
Availability	Always available in class.	Mostly available in class.	Sometimes available in class.	Rarely available in class.	Never available in class.
Completeness	All sections complete.	Most sections complete.	Some sections complete.	Few sections complete.	No sections complete.
Explanations	All explanations are reasonable.	Most explanations are reasonable.	Some explanations are reasonable.	Few explanations are reasonable.	No explanations are reasonable.
Scientific Terminology	All scientific terms are properly used to describe forms of energy and transformations.	Most scientific terms are properly used...	Some scientific terms are properly used...	Few scientific terms are properly used...	No scientific terms are properly used...
Time	Turned in on time.	Turned in 1 day/period late.	Turned in 2 days/periods late.	Turned in 3 days/ periods late.	Turned in 4 or more days/ periods late.

Rube Goldberg Presentation Rubric (Total Value 35 points)

CATEGORY	7	5	3	2
Preparedness	Student is completely prepared and has obviously rehearsed.	Student seems pretty prepared but might have needed a couple more rehearsals.	The student is somewhat prepared, but it is clear that rehearsal was lacking.	Student does not seem at all prepared to present.
Speaks Clearly	Speaks clearly and distinctly all (100-95%) of the time, and does not mispronounce words.	Speaks clearly and distinctly all (100-95%) of the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or cannot be understood OR mispronounces more than one word.
Content	Shows a full understanding of the topic.	Shows a good understanding of the topic.	Shows understanding of portions of the topic.	Does not seem to understand the topic very well.
Time-Limit	Presentation is 5-6 minutes long.	Presentation is 4 minutes long.	Presentation is 3 minutes long.	Presentation is less than 3 minutes OR more than 6 minutes.
Technology	Presentation is presented using a Prezi or Power Point <u>without</u> assistance.	Presentation is presented using a Prezi or Power Point with <u>little</u> assistance.	Presentation is presented using a Prezi or Power Point with <u>some</u> assistance.	Presentation is not presented through Prezi or Power Point or <u>student required assistance throughout the presentation.</u>

