

Rube Goldberg Machine Project

for High School Participants



Background Information:

Rube Goldberg is best known for his “Invention” cartoons, which use a string of outlandish tools, people, plants and steps to accomplish everyday simple tasks in the most complicated way. Wackiness! Rube saw the humor in every situation. His ludicrous cartoons were a satire on the American public for their complicated methods for solving a problem. Rube Goldberg’s drawings point out that people are often overwhelmed by over complicating their lives.

Purpose:

By performing this project, the student will gain a better understanding of each type of simple machine. The student will also learn how simple machines create useful devices we use in our daily lives. To bring the discovery all together, students will design and build a Rube Goldberg type machine used to crush an aluminum soda can.

Procedure:

The student will design and build a machine that can be used to crush a 12oz. aluminum soda can standing upright. After being crushed, the can should be no taller than 4 cm. at its highest point. The dimensions of the machine can be no larger than 80cmX 80cmX310cm (height) (or 2’x2’x10’). Your creativity is being challenged to design a motion machine. It must move and perform the above mentioned task. How it moves and what it does is up to you. Your machine must include eight simple machines. Of the eight machines used, two must be pulleys, and two must be levers. The remaining four simple machines should be chosen from wheel and axle, screw, wedge, and inclined plane. All eight machines must be hand-made (i.e. no store bought pulleys) and six must work independently.

Materials:

All students must provide their own materials. No live animals may be used in this project. Remember, all simple machines used in this project must be hand made.

Lab Notebook:

Each group will compile a lab notebook for their project.

Parts of the Lab Notebook:

- **Cover Sheet:**
The first sheet of the notebook is the cover sheet. The coversheet should have the following information:
Names of the Team Members
Date
Rube Goldberg Project
“Title of the Project”
- **Problem:**
The student will state the problem/question.
- **Materials:**
The student will write down a list of materials used in the construction of their machine.
- **Work Log:**
The student will keep a work log. Each time the student makes an entry, note the date, location and brief description of what work is accomplished on the project.
- **Diagram:**
On typing paper, the student must include a diagram of their machine, on which each simple machine is labeled.
- **Simple Machine Description:**
The student will write a separate paragraph for each simple machine explaining how that simple machine functions to complete the task.

Presentation:

In the presentation, the student will describe how the machine works pointing out the function of each of the simple machines. The presentation can be no longer than 2 minutes.

Rube Goldberg Project Scoring Rubric For High School Participants

Team # _____

Name(s) of Students: _____

School: _____

LAB NOTEBOOK: (20 points)	Possible Points	Actual Points
Cover Sheet	2	
Problem	2	
List of Materials	2	
Work Log	5	
Diagram (labeled/neat)	5	
Simple Machine Description	4	

PRODUCT: (Max. of 70 points)	Possible Points	Actual Points
Includes 8 working simple machines:		
Lever #1 (Simple Machine #1)	5	
Lever #2 (Simple Machine #2)	5	
Pulley #1 (Simple Machine #3)	5	
Pulley #2 (Simple Machine #4)	5	
Simple Machine #5	5	
Simple Machine #6	5	
Simple Machine #7	5	
Simple Machine #8	5	
Height of the can after being crushed (choose 1)		
11.1 cm. – 12 cm.	0	
8.1 cm. – 11 cm.	8	
4.1 cm. – 8 cm.	14	
0 cm. – 4 cm.	20	
Creative Neatness	10	

PRESENTATION: (10 points)	Possible Points	Actual Points
Describe how the machine works	5	
Describe the function of each simple machine	5	

TOTAL POINTS EARNED:	Possible Points	Actual Points
	100	