

Rube Goldberg Project Guidelines

Instructions:

1. Provide a list of the members that make up your group.
2. Together your group will choose a task that your machine will complete (i.e. pop a balloon, turn on/off a light switch, drop food in a dog dish/cat dish/bunny dish, etc.)
3. Before you build your machine you need to make a plan for your machine which needs to include the following.
 1. A list of materials
 2. Your machine must fit on a flat, level and sturdy 2 ft. x 4 ft. board
 3. A drawn diagram or "blue print" of your machine which has each step numbered and labeled
 4. There needs to be a **written description for each STEP** which describes:
 1. what is happening during the step which links it to the next step
 2. the type of simple machine(s) it uses
 3. the type of energy conversion or transfer it shows. (i.e. from gravitational potential to kinetic energy, from electrical energy to mechanical energy, from mechanical energy to sound energy, etc.)
4. After you build and test your machine, you may need to modify the original plan of your machine. **DO NOT THROW AWAY YOUR OLD PLANS!**
 1. Before your final test, you should have **3 successful consecutive test runs** of your machine.

Project Guidelines

- You are to work in a group of 3-4 students.
- Your machine must be at least 5 steps long (have 5 transfers).
- You must include at least 3 simple machines.
- You must include at least 2 different energy conversions/transformations.

Building and presenting your machine

- You have the opportunity to build your machine in class

Extra Credit Opportunities

- Link your group's machine with that of another group after your initial presentation
- Calculate the ideal mechanical advantage for your simple machines
- See Rubric for others

Grading Rubric

Student Name(s): _____

Machine Test				
Category	4	3	2	1
Presentation Style - verbal	Clearly explains steps; uses scientific vocabulary	Clearly explains steps	Explanation lacks some detail	Doesn't explain process or steps
Function	Structure/device functions well and is sturdy.	Structure functions well; may be wobbly but still held together.	Structure functions pretty well, but is very wobbly and may not hold together.	Fatal flaws in function and falls apart.
Steps/ Transfers	Has 5 or more clearly visible steps or transfers.	Has 4 clearly visible steps or transfers.	Has 2-3 steps or transfers that are clearly visible.	Has only 1 step or transfer that is clearly visible.
Simple Machines		Has 3 or more different types of simple machines that function properly.	Has 1-2 simple machines that function properly.	Has no simple machines that function properly.

Written Plan / Design				
Category	4	3	2	1
Steps/ Transfers	Has 5 or more clearly visible steps or transfers.	Has 4 clearly visible steps or transfers.	Has 2-3 steps or transfers that are clearly visible.	Has only 1 step or transfer that is clearly visible.
Simple Machines		Has 3 or more different types of simple machines that function properly.	Has 1-2 simple machines that function properly.	Has no simple machines that function properly.
Energy Conversions/ Transformations	3 or more different energy transfers are identified, labeled & explained clearly & correctly.	2 energy transfers are identified, and labeled correctly.	1 energy transfer is identified, and labeled correctly.	No energy transfers are identified or labeled.
Blueprint/Sketch	Plan is neat with labeling for all components or parts.	Plan is neat with labeling for most components or parts.	Plan provides labeling for most components or parts.	Plan is inadequately labeled.

Final Grade	
Deductions	Was the project finished on time? Did the group share responsibilities evenly? Other...
Extra Credit	Additional Steps? Combining Projects? Measure and calculate ideal mechanical advantage?
Total Points (60 points)	Comments