

CS 3651 (simple) Rube Goldberg Machine contest

Rube Goldberg: n. a comically involved, complicated invention, laboriously contrived to perform a simple operation – Webster's New World Dictionary

Your task: Reveal and wave a GT flag.

The purpose of this assignment is to practice working as a team towards the scavenging of useful but inexpensive parts and their assembly into a unified “machine”. Instead of just “solving” the problem, students should make the solution as complicated and as convoluted as possible.

Team Specifications

- The team must have a minimum of two (2) members, and a maximum of five (5) members.
- The team must have a designated spokesperson, who interacts with the Judge, intervenes with the machine, and starts the machine.

Machine Specifications

- The machine must complete the task as described in the challenge.
- The machine must be no larger than 2 ft x 2 ft x 2 ft.
- The machine must have a minimum of five (5) steps. There is no maximum number of steps.
- The machine must run for no more than one (1) minute per run.
- Teams will have three (3) minutes before the first run to explain their machine.
- The machine will have a maximum five (5) minute reset time.
- No live animals may be used in the machine.
- The machine must not imply profane, indecent or lewd expressions.
- Any loose or flying objects must remain within the set boundaries of the machine. This includes, but is not limited to, drops of water, slivers of balloon, and other “small” objects. Steam and other gases are exempt from this rule.
- The machine may utilize one (1) power cord. No other cords may be run to or from the machine; however there is no limit to the number of hoses and cords utilized within the space of the machine.
- No flames may be used on or within the machine. Electrical arching may be used upon approval of the contest Judge.
- No hazardous materials or explosives can be used on or within the machine.
- The machine must be safe to the satisfaction of the Judge. The contest Judge must approve any questionable items prior to competition.
- Any destructive action against another machine is grounds for disqualification.
- Total budget for any purchased parts must not exceed \$30.
- Value of any “donated” or “borrowed” parts must not exceed \$100.
- Miscellaneous fasteners (nails/screws/washers/bolts) and adhesives (tape/glue) do not count against your cost limits.

Each team will have the opportunity to run their machine up to three times, two of which will be “graded”. A team spokesperson may “void” one run by saying “Void” to the Judge before the run is complete. If the team spokesperson allows the first two runs to be judged, they forfeit the third run of the machine.

Judging Criteria:

- Explanation / Description: 0-10 points
- Machine Documentation (webpage) 0-10 points
- Theme: 0-10 points
- Rube Goldberg Spirit: 0-10 points
- First run task completed (0-20 points)
- Second run task completed (0-20 points)
- Machine flow (0-10 points)
- Variety of construction techniques (0-10 points)

Penalties:

- Human intervention: -3 points each
- Object leaving machine: -5 points each

Bonus Points:

- 2 points for each unique change in energy that occurs (electrical to mechanical, mechanical to heat, heat to light, light to electrical, mechanical to chemical, etc.).
- 1 point for each new step over the minimum 5 required [5 point maximum.]
- 3 points for including a non-trivial digital circuit as part of your machine.

Judging Sheet:

Team Name: _____

Team Members: _____

- Explanation / Description: 0-10 points _____
- Machine Documentation (webpage) 0-10 points _____
- Theme: 0-10 points _____
- Rube Goldberg Spirit: 0-10 points _____
- First run task completed (0-20 points) _____
- Second run task completed (0-20 points) _____
- Machine flow (0-10 points) _____
- Variety of construction techniques (0-10 points) _____

Per Run Penalties:

- Human intervention: -3 points each 1st: _____ 2nd: _____
- Object leaving machine: -5 points each 1st: _____ 2nd: _____

Bonus Points:

- 2 points for each unique change in energy that occurs (electrical to mechanical, mechanical to heat, heat to light, light to electrical, mechanical to chemical, etc.). _____
- 1 point for each new step over the minimum 5 required [5 point maximum.] _____
- 3 points for including a non-trivial digital circuit as part of your machine. _____