Young Inventors' Program®
Judging Information

The experience of being evaluated at the Young Inventor's Program Annual Celebration may be the culmination of months of effort on the part of student inventors. This experience should be a rewarding, enjoyable and significant one for all participants.

Each judge will be part of a team of judges. It is important that you stay with your group. Different judges may ask questions that will give varying perspectives of the inventions.

Each team will be assigned a team leader – the team leader is responsible for turning in the names of each category winner. Student inventions are awarded in the following categories, ***if possible.***

Environmental

Special Needs

Fun & Leisure Time

Practical & Useful

Original & Unique

Most Marketable

Best in Grade

Student Rube Goldberg® Machines are awarded in the following categories, ***if possible.***

Best Individual Effort

Best Team Effort

Most Original & Unique

Most Complex

Judges should keep the following in mind when judging at the event

- All participants are winners, having already won at their local level.
- The participants include some first-time inventors. Keep in mind that they may be nervous and may need gentle encouragement.
- Please end the judging process with a positive statement about the invention or the student's idea.
- We are encouraging the process of inventing. Please make this experience a pleasant and meaningful one that will encourage the inventors to invent again.

Questions you may want to ask to assist in your decision:

- How did you come up with your idea?
- Did you work on the first idea you thought of?
- What disappointments/hurdles did you have while working on your invention?
- Did you build any prototypes before this invention?

- What was more fun for you - thinking up your invention idea or building it and making it work?
- Where did you get your materials or supplies?
- Have you thought of ways to make your invention even better?
- If you could have this invention built using any material, what would you choose and why?
- Did you have fun inventing? If this your first time? Will you invent again?
- What else would you like to tell us about your invention or the process?

Inventions are Judged on the Following Criteria

- ***Originality (15 points)***
  - Does the invention represent original, creative thought?
  - Is the invention a novel or unique solution to an identified problem?
  - Does the overall presentation of the invention reflect creative or original work?
- ***Written Description/Presentation (10 points)***
  - Does the content of the written description clearly express the purpose of the invention and how it accomplishes its purpose?
  - Is the written description complete and appropriate for the inventor's grade level (includes the name of the invention, its function, operation and a list of materials used for construction?
- ***Model/Illustration (10 points)***
  - Is the illustration complete, will all parts neatly labeled, and is a clear, attractive, visual explanation of the invention?
  - Is the model an accurate replica of the idea?
- ***Usefulness (10 points)***
  - Does the invention solve a problem or need?
  - Does the invention have marketable value?
- ***Research Performed (5 points)***
  - Was time and effort given to see if this invention had already been invented?

Rube Goldberg® Machines

Reuben Lucius Goldberg (Rube Goldberg®) was born in San Francisco in 1883. His father, a practical man, insisted he go to college to become an engineer. After graduating from the University of California, Rube did a short stay with the City of San Francisco Water and Sewers Department. He continued drawing and soon got a job as a sports cartoonist for a San Francisco newspaper. An outstanding success, he soon moved to New York, drawing daily cartoons for the *Evening Mail*.

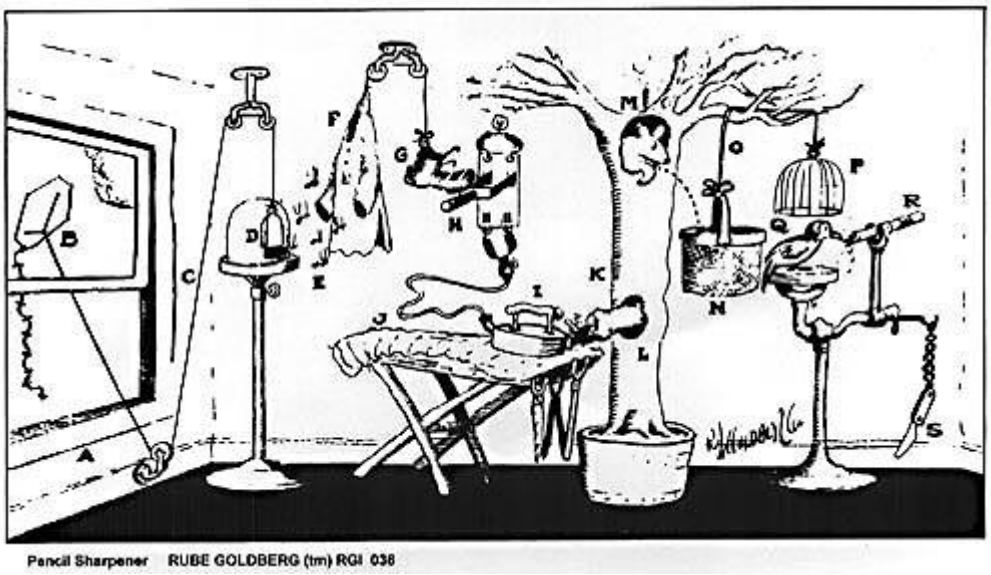
Through his inventions, Rube Goldberg® discovered harder ways to achieve easy results. His cartoons compressed time and were as he said, symbols of man's capacity for exerting maximum effort to accomplish minimal results. Rube believed that there are two ways to do things, the simple way and the hard way, and that a surprisingly large number of people preferred doing things the hard way.

Rube Goldberg's® work will endure because he gave priority to simple human needs and treasured basic human values. He was sometimes skeptical about advanced technology and big science. While most machines work to make difficult tasks simple, his inventions made simple tasks amazingly complex. Dozens of arms, wheels, gears, handles, cups, and rods were put in motion by balls, canary cages, pails, boots, bathtubs, and paddles.

Goldberg's drawings of absurdly-connected machines accomplishing a simple task in an extremely roundabout way, has meant that his name, Rube Goldberg®, has become associated with any convoluted solution to perform a simple task.

Example of a Rube Goldberg® Machine

Visit www.rubegoldberg.com for more machines



Rube Goldberg gets his think-tank working and evolves the simplified pencil-sharpener.

Open window **(A)** and fly kite **(B)**. String **(C)** lifts small door **(D)** allowing moths **(E)** to escape and eat red flannel shirt **(F)**. As weight of shirt becomes less, shoe **(G)** steps on switch **(H)** which heats electric iron **(I)** and burns hole in pants **(J)**. Smoke **(K)** enters hole in tree **(L)**, smoking out opossum **(M)** which jumps into basket **(N)**, pulling rope **(O)** and lifting cage **(P)**, allowing woodpecker **(Q)** to chew wood from pencil **(R)**, exposing lead. Emergency knife **(S)** is always handy in case opossum or the woodpecker gets sick and can't work.

Rube Goldberg® Machines are Judged on the Following Criteria

A good "Rube" incorporates everyday devices. The machine must use a certain number of individual steps to complete an assigned task. It may take some time to put together, and may undergo months of strategy and planning; others are put together in a few days.

Each machine is designed in its own way. Some machines are planned before the building takes place; others are assembled spontaneously. Maybe the best way is to use a little of both approaches. In the end, a numbered, detailed description of each step is needed.

The materials that are used are the most important components of the machine – items you find around the house, parts of broken appliances, etc. Anything goes when you are building a Rube Goldberg® Machine!

- ***Understanding and demonstration of simple machines;*** Pulley (5 points), Wheel (5 points), Inclined Plane – includes screw or wedge (5 points), Lever (5 points) – Total 20 points
- ***Construction/Complexity;*** Does it match the design? (5 points), Is it safe and reasonably well constructed? (10 points), Does the task use at least 6 steps? (10 points) – Total 25 points
- ***Written/Oral Presentation;*** Detailed diagram with tasks described at each step – at least 6 steps labeled neatly and in order (15 points), Oral description of steps and knowledge of the mechanics of simple machines (15 points), Successful completion of task in one or two tries (15 points) – Total 45 points
- ***Creativity;*** Creativity and overall appearance of the completed contraption and the task it accomplishes – Total 10 points