*Name*_____
*Number*_____
*Date*_____

CREATING A RUBE GOLDBERG CONTRAPTION REQUIREMENTS

Goal:

Build a device that will automatically ring a bell.

Requirements:

1. The minimum number of steps for the contraption is six.
2. Electricity, fire, explosives, chemicals, and knives may not be used. Batteries may be used.
3. Once it is set in motion, the Rube Goldberg contraption should work from start to finish without any human intervention.
4. Students may work alone or in pairs. (Groups of three or more are not allowed.)
5. Parents may help.
6. Students will write a report of how their machine demonstrated principles of science and what simple machines they incorporated. The report will also explain the sequence of steps. A labeled diagram of your contraption on 8.5 x 11 paper will be included with your report.
7. The contraption must be no larger than 2 feet square and 3 feet high.
8. Because I lack storage for the projects, they must come to school and go home the same day.

Project Hints:

1. Decide on a goal for your machine. This year's goal is to ring a bell. Consider how the bell is to be rung. Do you want to hit it with a mallet or swing the clapper against the bell? What kind of bell do you want to use? Do you want to use a doorbell, a bicycle bell, a school bell or a dinner bell? Accomplishing the goal is the last step of your machine.
2. Gather a few things from around the house, in your toy box, junk drawer, or garage. Balls, marbles, dominoes, string, toy cars, magnets, cardboard tubes, rubber bands, etc.
3. Now play with the things! What can the car bump into or knock down? Can the string pull something up? What can push the ball down the cardboard ramp? Can the rubber band be used to wind something up?
4. Get a piece of paper and start writing down any idea that pops into your head. This is called brainstorming.
5. Once you get a few good ideas for your contraption, make a list, in order, of the steps, or draw a simple picture of the steps.
6. Plan on making quite a few changes to your machine as you build it. It may look different from your original drawing. Try not to get frustrated, this is part of learning what works best.
7. If you get stuck at a certain step of your contraption, try working backwards. Start at the last step and connect the part to it that triggers it.
8. Be wacky! A true Rube Goldberg machine contains common household items (old toys, toilet plunger, egg beater, mousetrap, clothespins, key chains, etc.).

*Name*_____
*Number*_____
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PLANNING SHEET FOR REPORT ON RUBE GOLDBERG CONTRAPTION

Briefly answering the following questions about your contraption will help you gather information to write your report. **Do not just write the questions and answers as your report**. Remember a labeled diagram of your contraption on **8.5 x 11 paper** must be included with the report.

- What is the goal of your contraption?
- How is this last step accomplished?
- What are the steps, in order, used to accomplish this goal?
- What items are used?
- What principles of science are demonstrated?
- Do Newton's Laws of Motion apply anywhere in your contraption?
- What forces are acting on your contraption?
- What simple machines are incorporated?
- What classes of levers, if any, are used?

Use the above as a guide to write a one to two page report about your contraption. A labeled diagram of your contraption on 8.5 x 11 paper must be included with the report.

*Name*_____
*Number*_____
*Date*_____

Rube Goldberg Contraption Checklist

Report ***60 points possible*** _____

_____ Clarity (20)
Project is well explained
Written material is neat and well prepared
Diagram is included

_____ Thoroughness (20)
Contraption is described completely
Simple machines are identified
Principles of science explained

_____ Grammar (20)
Report well written
Correct grammar and punctuation are used
Correct spelling is used

Contraption ***140 points possible*** _____

_____ Goal was achieved (30)

_____ At least 6 steps used (30)

_____ Student has shown inventiveness (20)

_____ Shows quality of workmanship (20)

_____ Student has shown imagination (10)

_____ Project represents a sufficient amount of time (10)

_____ Project is appropriately sized (10)

_____ No improper material are used (10)

TOTAL ***200 points possible*** _____