Rube Contraption

(Problem Solving Activity)

Objective: Create a 3-step contraption that would normally be something relatively easy but is more difficult and entertaining with multiple steps. Please document the entire process.

Example: "**Pop a Balloon"** utilizing a marble, 10 dominoes, and toy vehicle (ex. hot wheels – matchbox).

Example Parameters: Contraption can only be created from the given materials, has to fit into a 2'x4' area, and be self-supporting.
Step 1. Marble: has to travel 12"
Step 2. Dominoes (10) stood upright to knock each other down
Step 3. Toy vehicle: has to travel 24"

Please watch the video of the example.

Parameters: This is up to you. You determine what steps, materials, etc. you want to use and task to accomplish. However, the bigger, the longer and more creative and challenging of steps you have, the greater chance you have of gaining more points and prestige.

Materials: You may use whatever materials you have available; below is a list of example materials. Please be sure to check with your parents first, if the materials may be questionable.

- Any recyclable materials. Please be extra careful if utilizing metal.
- Tape: scotch, masking and/or Duct
- Paper clips
- Rubber bands
- Dowel rods
- String
- Balloons
- Hot Glue
- Cardboard or paperboard

Concepts: Please define these in the google slide presentation (or software of choice) you will create to document your entire design process.

a. Fabrication
b. Prototype
c. Brainstorming
d. Design Process
e. Simple Machines
f. Sustainability
g. Rube Goldberg Machine
h. Engineering
i. Aesthetics
j. Ergonomics
k. Rendering

Documentation (Slides/Pics):

a. Design a colored drawing of the prototype (your contraption).
(You may use the Multi-views (front, top and side view) or the Isometric (3D) view). Be sure to add dimensions (measurements) on your drawing.

b. Take pictures of the processes used throughout and create a google slide (or software of choice) presentation of them (start to finish). Please title and briefly explain each slide/pic. Please use your discretion with the number of slides/pics used.

c. Materials List: Create a list of all materials used and add it to your presentation.

d. Reasoning Slide: Please explain why you chose what you did and how it was beneficial to you in regards to the real-world.

e. Video Slide: Please add a 5-10 second video of successfully testing your contraption, if possible. You may email me this separately, if easier.

f. Performance Slide: Briefly explain how your contraption performed from the first test run to the last.

g. Cite Slide: Cite any sources used other than your own, if applicable).

Performance Scoring:

Get it to work consistently and receive full points! Keep track of attempts taking after you feel it's working and put that data in your presentation along with a video of your contraption working, if possible.

Project Scoring:

Rendering (colored drawing)
Prototype (Contraption)
Performance
Presentation

Total Points: ____ / 100