The Alka -Seltzer Challenge

"To invent, you need a good imagination and a pile of junk."– Thomas Edison

Objective: Design a gadget that accomplishes at least THREE (3) of the following tasks in anyorder:

- ☐ Lights a match
- ☐ Pops a balloon
- ☐ Causes something to change colors
- ☐ Lifts a 500 g object at least 5 cm
- ☐ Blows out a candle
- ☐ Turns on a light

Requirements:

- ★ The gadget's driving force must come from the gas produced from one of the chemical reactions below:
  - Alka-Seltzer and water (no more than 1 tablet can be used to run the device)
  - baking soda and vinegar (no more than 30 mL (2 tbsp) of baking soda and 240 mL (1 cup) of vinegar
- ★ All development and testing must be done at home. You are responsible for any equipment and supplies – use recycled materials whenever possible.
- ★ The device must be automatic: that is, it must accomplish its task without your touching it in any way.
- ★ There must be a delay of no less than 5 seconds and no more than 30 seconds from the time the device is sealed shut and let go of to the time the task is accomplished.
- ★ The device must be safe: any potential risk or hazard can cause your device to be disqualified.
- ★ The device must be self-supporting and self-contained. In other words, you should not have to hold something or tape it to the table or ask the teacher for props, etc. Also, no splashy messes!
- ★ The device should be made with "demonstrability" in mind. Have everything clear and visible. It should be obvious to anyone watching what the device is doing and why
- ★ Creativity is of the essence here; so is visual appeal! Top priority is making the device that works, but making it look good is also worthwhile.

Presentation:

- ★ Document your work on video. Include:
  - your first name only
  - The name of your device and 'Alka-Seltzer Challenge'
  - Construction of your device
  - The initial trial for each task – if it is unsuccessful, 'interview' yourself - in the interview explain why you think it didn't work and/or what you plan to change

- 1 trial with your device completing all three tasks in the allotted time
- Audio/music to enhance video
- Edit all into 1 video and upload onto Google Drive.
- Create a document that contains the link to the video. Make sure sharing is set to "Anyone with link can view".
- Submit the document to Dropbox for Option #1: STEM Project

Grading Information:

Requirements	Outstanding	Good	Fair	Unacceptable
Device				
☐ Driven by reaction ☐ Accomplishes 3 tasks ☐ Fulfils delay requirements ☐ Free-standing ☐ Automatic ☐ No hazards ☐ No mess ☐ All working parts are visible ☐ Constructed from various individual parts	All criteria met (50 pts)	7 criteria met (40 pts)	5 criteria met (30 pts)	0-4 criteria met (20 pts)
Video				
☐ Includes group member names ☐ Includes name of device ☐ Includes 1 trial for each task ☐ You explain why it didn't work or what you will do differently ☐ Includes 1 successful trial of device in 30 sec time limit ☐ Audio and music enhance visual ☐ Edited and posted to YouTube	All criteria met (50 pts)	4 criteria met (40 pts)	2 criteria met (30 pts)	0-1 criteria met (20 pts)
Total				

GOOD LUCK! BE CREATIVE!

"Genius is 1% inspiration and 99% perspiration."– Thomas Edison