More or less?

A test on the amount of alka seltzer in a pressure launcher.

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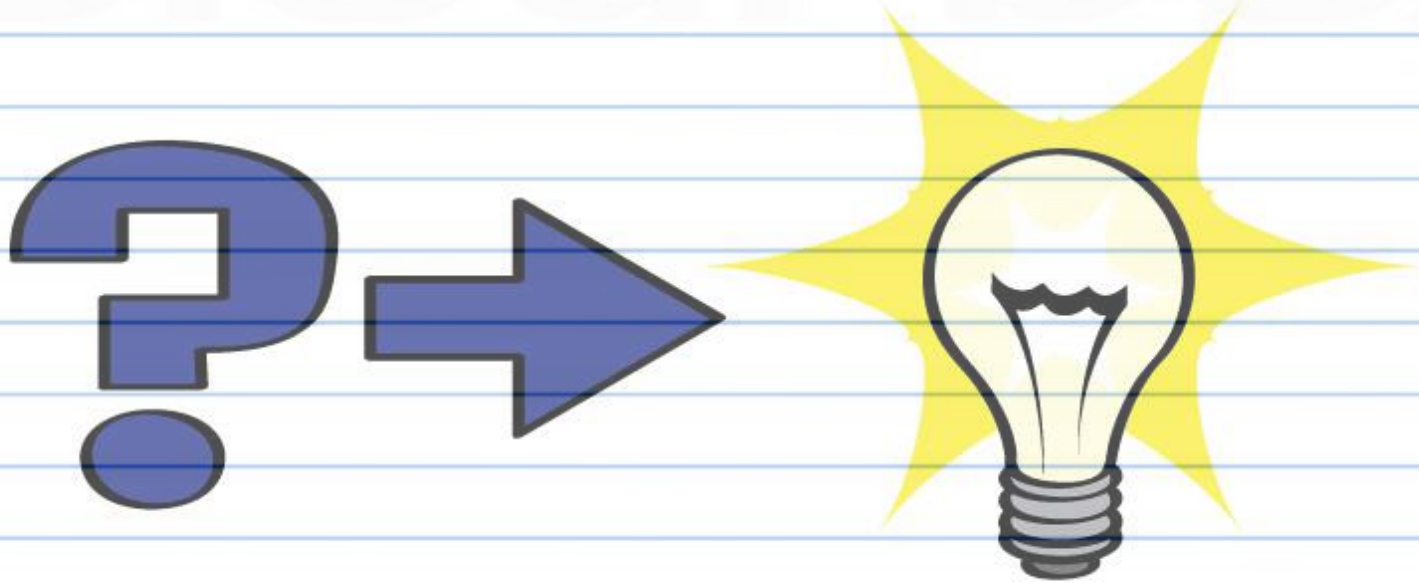
Q: What is the effect of the amount of alka-seltzer tablets on how far the cap goes?

A: The effect of the amount of alka seltzer effects how far the cap goes because, the alka-seltzer tablets create more power because of the fizz that makes the cap go further because, it’s too much fizz in the seltzer water, and it explodes and sends the cap flying.

Hypothesis

The more alka seltzer tablets that are put in, the cap will go farther, because it will probably be more fizzy. Once it's really fizzy, the cap will explode and go far depending on how much alka seltzer tablets is placed into the Seltzer water. It will go far if it doesn't hit anything that is blocking its way. If the seltzer water is more carbonated, the water in the film canister will blow the cap farther.



Controlled Variables (Dependent)

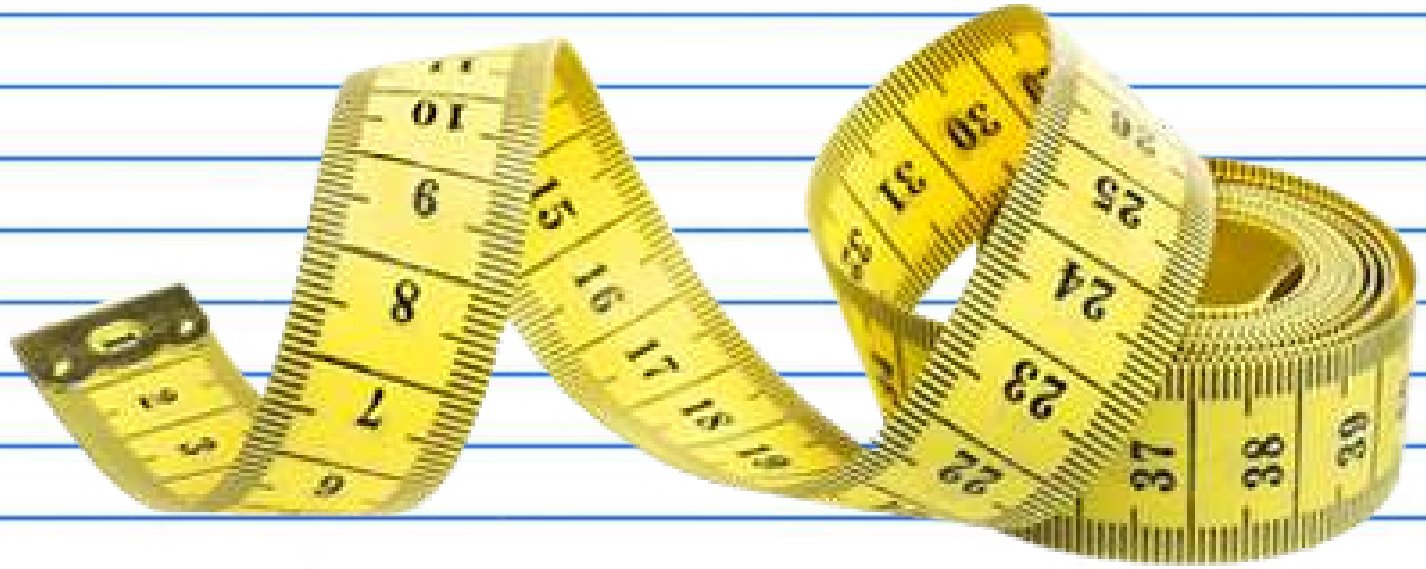
- The angle of the launcher (45 degree angle)
- Amount of seltzer (20 ml)
- Where the launcher stays
- Temperature of seltzer water

Manipulated Variable or Independent Variable

The manipulated variable or independent variable is the amount of alka- seltzer tablets put into the seltzer water in the film canister. Because the amount of alka- seltzer tablets change, we will be adding 1 more alka-seltzer tablet each time, so the amount of alka- seltzer tablets change once we put them inside the film canister with the seltzer water inside of it.

Responding/Dependent Variable (The variable that is measured)

The responding/dependant variable is the cap, because it the cap is measured to see how far it goes because, when the cap goes flying off the film canister, we have to see how far it goes, so we measure how far the cap went. We can use a tape measure, or tape to represent how far the cap traveled.



Materials

- Film Canister
- Launcher (45 Degree Angle)
- Seltzer
- Alka-Seltzer tablets
- Post its or tape to mark where the cap goes
- Tape measure
- Water (20 ml)

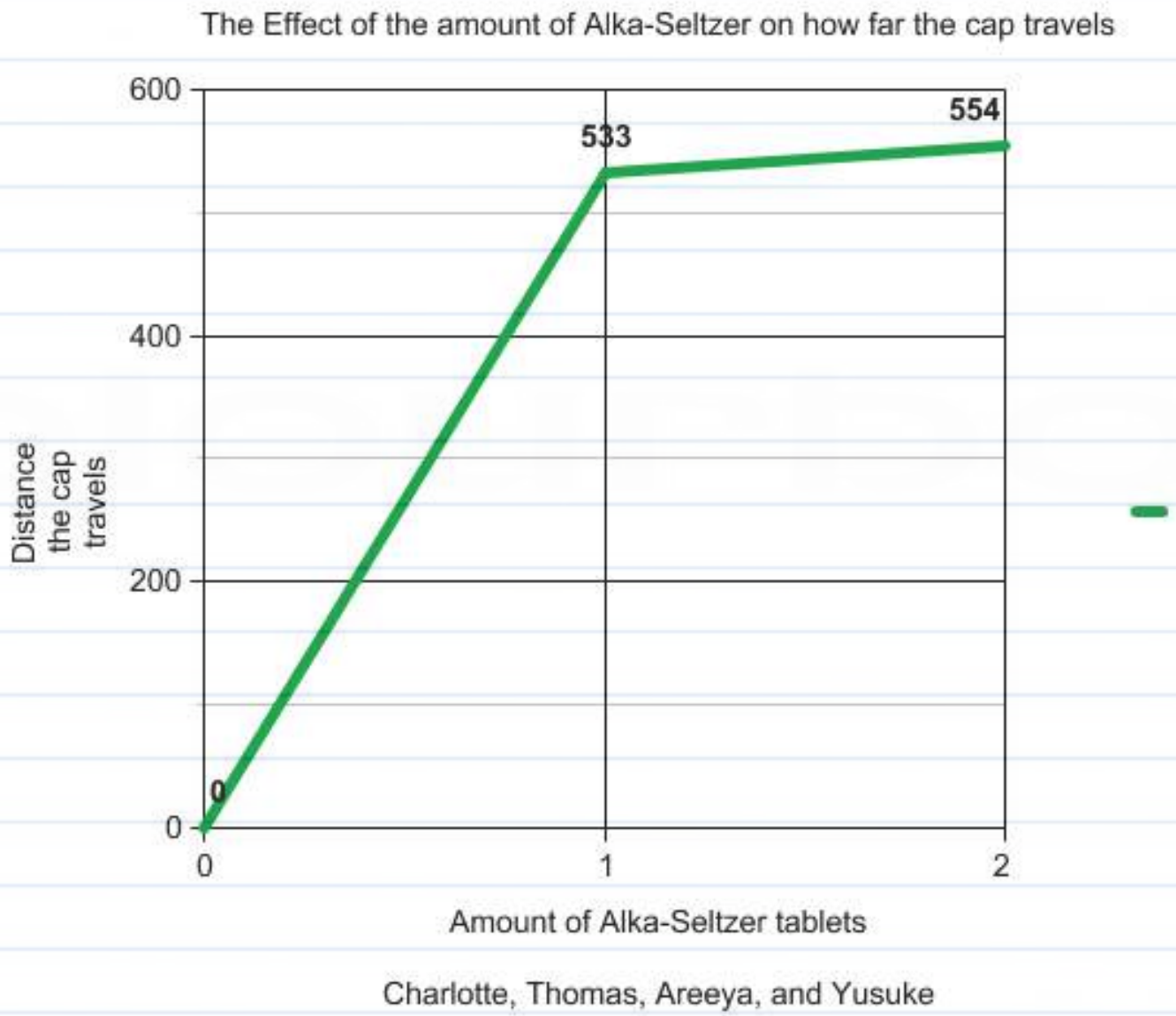
Procedure

1. Keep the room you're doing this experiment in at room temperature.
2. Keep all parts of the room including, windows closed.
3. Then get one launcher, one film canister, two boxes of alka-seltzer tablets, and a bottle of seltzer water.
4. Then put the launcher on a flat surface or a table, then make sure you can fit all the materials on it, you can also use the floor if you're comfortable with it.
5. Then set the launcher to a 45 degree angle, away from any fragile items.
6. Grab a syringe and use it to fill the up to twenty millimeters with seltzer water.
7. Push down on the syringer top to let the seltzer water fall out, pour the seltzer water into the film canister.
8. Then pour the seltzer from the syringe into the film canister.
9. Grab an alka-seltzer tablet, put it into the film canister and quickly screw on the cap of the film canister.
10. Quickly place the film canister into the launcher.
11. Tighten the screw, and watch the cap pop
12. Grab a tape measurer and measure the distance of the cap. A friend can help measure.
13. Add your measurement to your data table.

Data Table

Number of alka- seltzer tablets	Trial 1 (cm)	Trial 2 (cm)	Trial 3 (cm)	Average (cm)
1	593	503	505	533
2	555	592	516	554

Data graph:


The Effect of the amount of Alka-Seltzer on how far the cap travels
600
400
200
0
Distance the cap travels
533
554
0
0
1
2
Amount of Alka-Seltzer tablets
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Conclusion/Results

In this experiment we found out that our hypothesis was right. We had guessed that the more alka-seltzer tablets you put into the canister, the further the cap will go, and when we did the experiment we found that we were right. For example, when we used one alka-seltzer tablet after three trials we got an average of 533 cm. But when we used two tablets we got an average of 554 cm.

Questions

- Is there a quicker way to put the cap on?
- Should you put the canister in the launcher, put the seltzer in the canister and put the tablets in, then put the cap on, or should you keep the canister out of the launcher, put the seltzer in and the tablets and put the cap on quickly and put it in the launcher?
- How can you think of a good average?
- What would happen if we used a different liquid instead of seltzer water?
- Is there an easier way to measure the distance?

Sources

Conclusion:
http://www.clipartpanda.com/categories/conclusion-clipart
Tape Measure:
http://www.petsathome.com/shop/en/pets/advice
Question Mark:
https://clipartxtras.com/categories/view/7552905cbf4effca4165eb0584a4ed9e88e702c3/question-mark-clipart-transparent-background.html
Materials:
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