

Can Vs. Bottle



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Question

Which soda will go flat the fastest, the soda in the can or the one in the bottle?

Purpose

The purpose of this experiment is to help people feel better. By doing this experiment people will know the time frame it takes for soda to go flat and people will know what soda goes flat the fastest when they are sick with an upset stomach, whether it is Coca-Cola in a can or Coca-Cola in a plastic bottle. There is an old wives' tale that flat dark soda will help an upset stomach. This project will determine what type of soda container a soda will go flat the fastest in, so people will feel better that much sooner.

Hypothesis

If you open a can of Coca-Cola and leave it on the counter and you open a bottle of Coca-Cola and put the lid back on and leave it on the counter. Then the carbonated drink in the can will go flat the fastest.

Materials List

Pencil

Black marker

Notebook

6 clear cups

3 12oz. Cans of Coca-Cola

3 12oz. Bottles of Coca-Cola

Sticky note pad

Timer

Camera

Someone to take pictures

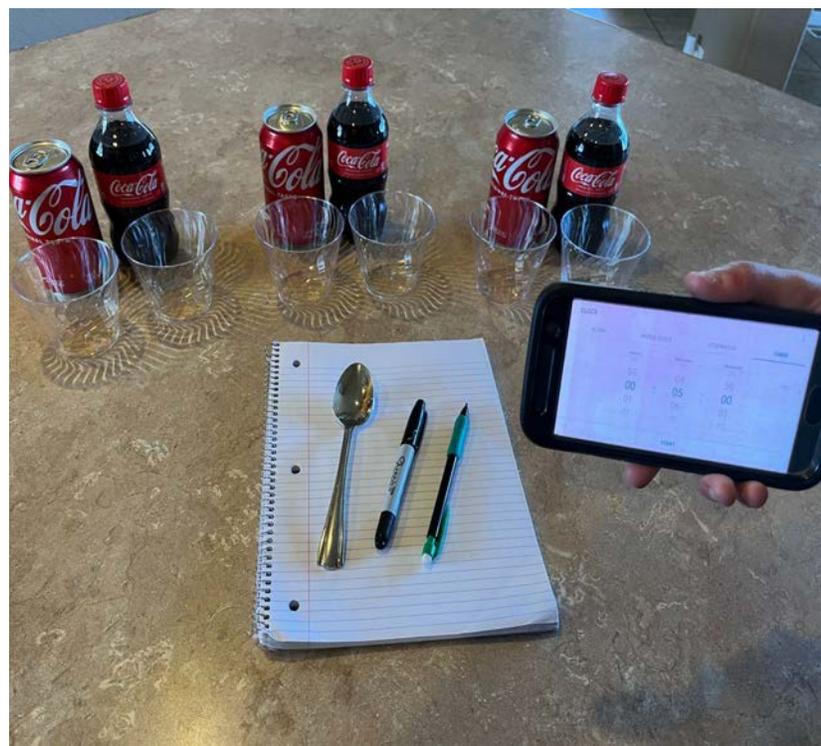
Procedures

1. You need (3) 12oz. Can of Coca-Cola.
2. You will also need (3) 12oz. Bottle of Coca-Cola. Now you want to make sure you leave both soda's on the counter unopened for at least 24 hours so they can reach the same room temperature.
3. Now you want to get (6) clear plastic cups or glass whatever is easiest for you just so they are clear.
4. The next step is to label the cups. On the 1st cup write Can on it and on the 2nd cup write Bottle on it. You will do this to all 6 cups because you will be doing 3 separate tests. So you should have 3 cups that say can and 3 cups that say bottle. Just keep in mind if you are using glass cups you may want to put tape on your cup to write on that instead of the cup.
5. It's finally time to begin our experiment, make sure you have all your supplies from your materials list.
6. Let's start with the can first. You will pour a little bit of the soda into the cup that is labeled can and watch for the fizz. Make sure you have someone taking pictures while you do this and do not forget to log down what you see.
7. Now do the same thing with the bottled soda but using the cup you labeled bottle on.
8. Once you have logged down what you saw you then can pour out the soda in the cups so they will be empty for the next pour test.
9. Now set a timer. I set my timer for 10 minutes.
10. Once your timer goes off, you will go back and repeat steps 7,8 and 9.
11. You will continue to do this until you find that you have flat soda, you will know you have flat soda when the bubbles are gone and you have no more fizz.
12. Remember PICTURES and NOTES
13. GOOD LUCK !!!!!

Observations/ Journal Notes

Test plot # 1

0 min Can = very fizzy
0 min. Bottle = very fizzy
10 min. Can = very fizzy
10 min. Bottle = very fizzy
20 min Can = very fizzy
20 min. Bottle = very fizzy
30 min Can = very fizzy
30 mi. Bottle = very fizzy
40 min. Can = very fizzy
40 min. Bottle = very fizzy
50 min. Can = medium fizz
50 min. Bottle = very fizzy
1hr. Can = medium to light fizz
1hr. Bottle = very fizzy
1hr 10 min. Can = light fizz
1hr. 10 min. Bottle = very fizzy
1hr. 20min. Can = light fizz
1hr. 20min. Bottle = medium fizz
1hr. 30min. Can = very little fizz
1hr. 30min. Bottle = medium fizz
1hr. 40min. Can = very very light fizz
1hr. 40min. Bottle = light fizz
1hr. 50 min. Can = No Fizz
1hr. 50min. Bottle = very very light fizz
2 hr. Bottle = No Fizz



Observations/ Journal Notes

Test Plot #2

0 min Can = very fizzy
0 min. Bottle = very fizzy
10 min. Can = very fizzy
10 min. Bottle = very fizzy
20 min Can = very fizzy
20 min. Bottle = very fizzy
30 min Can = very fizzy
30 mi. Bottle = very fizzy
40 min. Can = very fizzy
40 min. Bottle = very fizzy
50 min. Can = medium fizz
50 min. Bottle = very fizzy
1hr. Can = medium to light fizz
1hr. Bottle = very fizzy
1hr 10 min. Can = light fizz
1hr. 10 min. Bottle = very fizzy
1hr. 20min. Can = light fizz
1hr. 20min. Bottle = medium fizz
1hr. 30min. Can= very little fizz
1hr. 30min. Bottle = medium fizz
1hr. 40min. Can = very very light fizz
1hr. 40min. Bottle = light fizz
1hr. 50 min. Can = No Fizz
1hr. 50min. Bottle = Very very light fizz
2 hr. Bottle = No Fizz

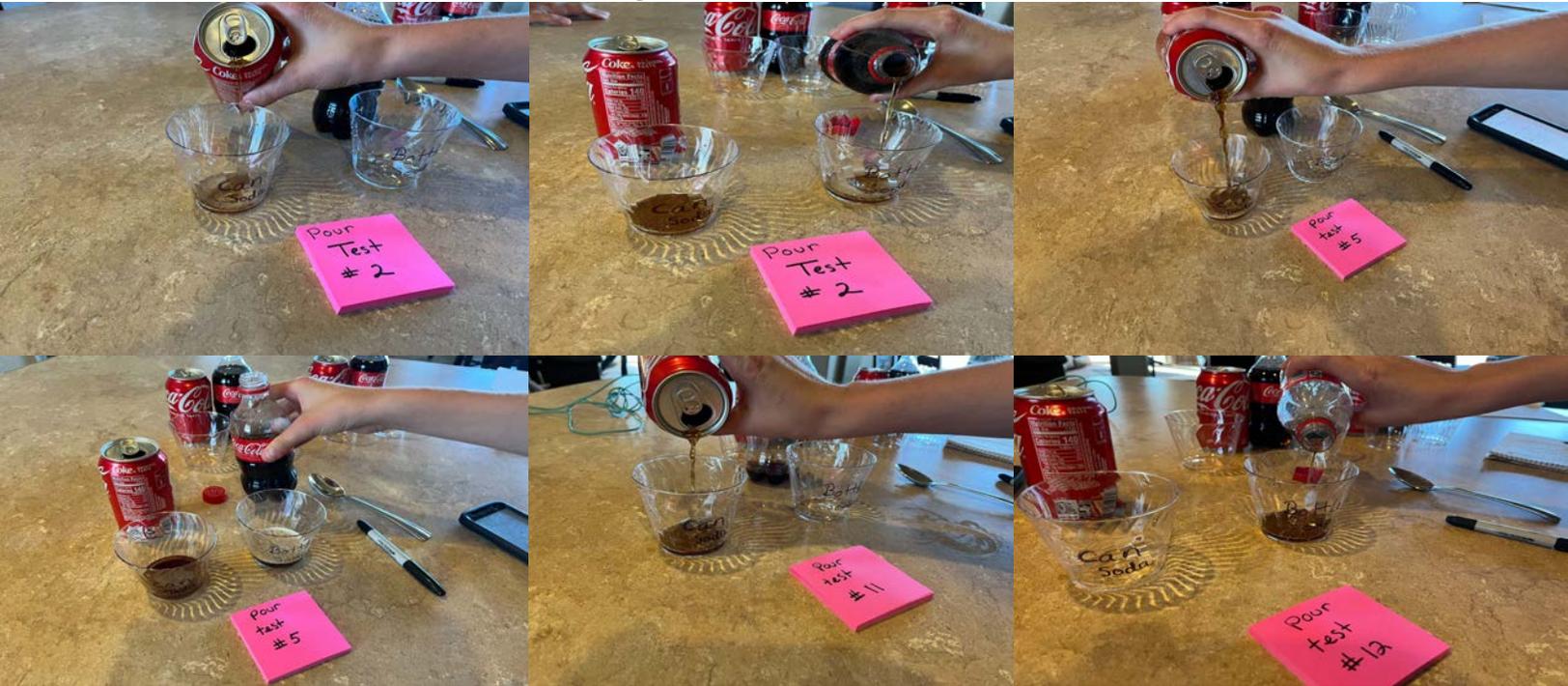
Observations / Journal Notes

Test plot #3

0 min Can = very fizzy
0 min. Bottle = very fizzy
10 min. Can = very fizzy
10 min. Bottle = very fizzy
20 min Can = very fizzy
20 min. Bottle = very fizzy
30 min Can = very fizzy
30 min. Bottle = very fizzy
40 min. Can = very fizzy
40 min. Bottle = very fizzy
50 min. Can = very fizzy
50 min. Bottle = very fizzy
1hr. Can = medium fizz
1hr. Bottle = very fizzy
1hr 10min. Can = medium fizz
1hr. 10min. Bottle = very fizzy
1hr. 20min. Can = medium to light fizz
1hr. 20min. Bottle = medium fizz
1hr. 30min. Can= medium to light fizz
1hr. 30min. Bottle = medium fizz
1hr. 40min. Can = medium to light fizz
1hr. 40min. Bottle = medium fizz
1hr. 50min. Can = medium to light fizz
1hr. 50min. Bottle = medium fizz
2 hr. Can = light fizz
2 hr. Bottle = medium to light fizz
2 hr. 10min Can = light fizz
2 hr. 10min. Bottle = medium to light fizz
2hr. 20min. Can = very light fizz
2hr. 20min. Bottle = light fizz
2hr. 30min. Can = very very little fizz
2hr. 30min. Bottle = light fizz
2hr. 40min. Can = Flat
2hr. 40min. Bottle = light fizz
2hr. 50min. Bottle = light fizz
3hr. Bottle = very light fizz
3hr. 10min. Bottle = very very light fizz
3hr. 20min. Bottle = very very light fizz
3hr. 30min. Bottle = Flat

Data

Images from test # 1



Images from test # 3



Research Report

Have you ever heard the old wives tale drink a flat dark soda to help with an upset stomach? Well I wanted to know what dark soda goes flat the fastest. Is it the dark soda in a can or is it the dark soda in a bottle. I decided to test Coca-Cola in a can and Coca-Cola in a bottle. I believed if you opened a can of Coca-Cola and left it on the counter and then you opened a bottle of Coca-Cola and put the lid back on and left it on the counter. Then the carbonated drink in the can will go flat the fastest.

The purpose of this experiment is to help people feel better. By doing this experiment people will know the time frame it takes for soda to go flat and people will know what soda goes flat the fastest when they are sick with an upset stomach, whether it is Coca-Cola in a can or Coca-Cola in a plastic bottle. There is an old wives' tale that flat dark soda will help an upset stomach. This project will determine what type of soda container a soda will go flat the fastest in, so people will feel better that much sooner.

Why does coke help settle an upset stomach? Coca-cola, due to its carbonic and phosphoric acid, has an pH of 2.6. Researchers said in addition, the sodium bicarbonate and carbon dioxide bubbles. The beverage might enhance the dissolving effect. It is not often that a soft drink is seen as medicinal. Furthermore, is what settles an upset stomach. Every parent of a toddler knows about bananas, rice, applesauce and toast. Coca-cola can claim an upset stomach. It can help nausea or diarrhea. It contains low-fiber, high-binding foods.

Before I started my experiment, I made sure I had all my materials I would need. I gathered a notebook, pencil, black marker, 6 clear cups, 3 12oz cans of coca-cola, 3 12oz bottles of coca-cola, a camera and most importantly I made sure my mom was there to take all the pictures. Once I had everything it was time to begin my experiment.

I first made sure to leave both soda's on the counter unopened for at least 24 hours so they can reach the same room temperature. Then I labeled the cups. On the 1st cup I wrote can on it and on the 2nd cup I wrote Bottle on it. I did this to all 6 cups because I will be doing 3 separate tests. So now I have 3 cups that say can and 3 cups that say bottle.

I started with the can first. I poured a little bit of the soda into the cup that is labeled can and watched for the fizz. I made sure my mom was there to take pictures and I wrote down what I saw. After that I moved to the bottled coca-cola and did the same thing using the cup I labeled the bottle on. Once I logged down what I saw I then poured out the soda in the cups so they would be empty for the next pour test. I set my timer for 10 minutes. Once my timer went off I went back and repeated my pour test. Making sure to log down if I saw fizz or no fizz and I continued to have my mom take pictures every time I poured the coca-cola into the cups. I continued to do this until I found that I had flat soda, I knew the soda was flat when the bubbles were gone and there was no more fizz. My first two tests ended with the same results. However my third test did change because instead of pouring the soda in the cup down the sink after the pour test I ended up pouring it back into the can if it came from the can and also pouring it back into the bottle if it came from the bottle.

Research Report

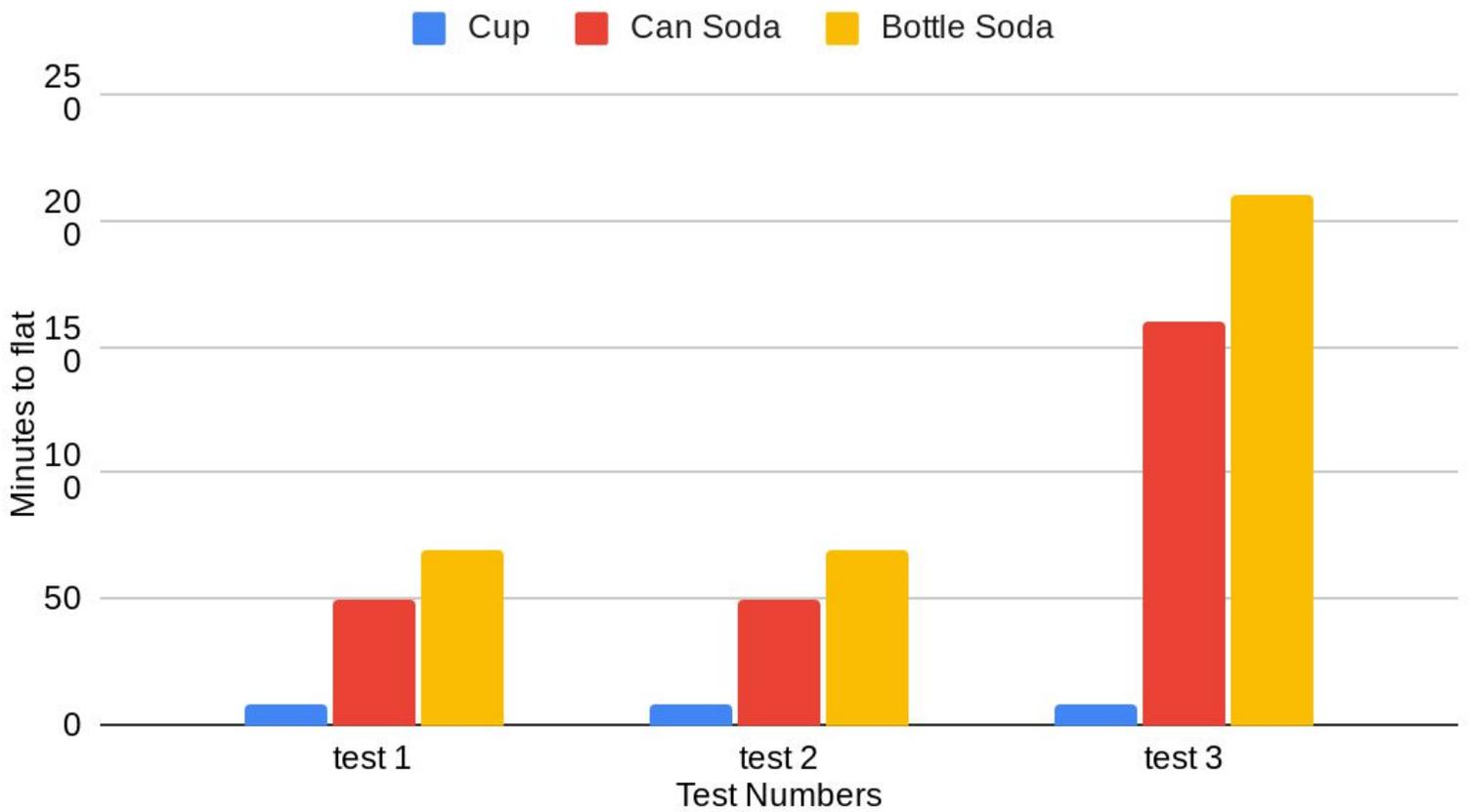
After 2 hours, my experiment was finally done. It took 1 hour and 50 minutes for the coca-cola in the can to go flat and 2 hours for the coca-cola in the bottle to go flat. I got the exact same results with test 1 and test 2. However test number 3 took 2 hours and 40 minutes for the coca-cola in the can to go flat and 3 hours and 30 minutes for the coca-cola in the bottle to go flat.

This experiment did bring a few things to my attention. I never thought that maybe the room temperature of my home is different from the room temperature of someone else's home and could that play a role in the results? Or what if we pour the soda into the cup at a different speed will that affect the results? There are just some things I do not have answers to.

I really enjoyed doing this experiment because I love soda. My hypothesis was right. The soda pop in the can did go flat much faster than the soda pop in the bottle with the lid kept on. If I could redo this experiment or change it in any way I really would like to compare brands of soda for example, maybe try Pepsi in a can and Coca-Cola in a can. Do different brands of soda have more carbonation than others ? I had no idea soda could be so interesting.

Results

Can Vs Bottle



Take Away

The most important thing about doing this project and should definitely remember is Do Not Spill the soda, It makes a very sticky mess.

Conclusion

For their science fair project, they wanted to see what soda would go flat the fastest if it was Coca-Cola in a can or Coca-Cola in a bottle. Their hypothesis was that if they left an open can of Coca-Cola on the counter and they opened a bottle of Coca-Cola and put the lid back on it and left it on the counter then the carbonated drink in the can would go flat the fastest. In conclusion of their science fair project, their hypothesis was correct. The carbonated drink in the can did go flat much faster than the carbonated drink in the bottle. They believe this is because there is not a lid on the can to help keep the gases from escaping. The project was very exciting in the beginning because there was so much fizz but it got a little challenging at the end when the soda's were becoming close to flat making it harder to judge the fizz. If they had to do the experiment all over again they would like to try and compare the Coca-Cola in a can to another brand of soda such as Pepsi in a can just to see what brand of soda would go flat the fastest.

Limitations

There were a few limitations of this project such as weather. If it is really cold outside then the temperature inside my home is going to be warm because the heater is on or if it's super hot outside then it's going to be cold inside my home because of the A/C. So if someone else does this experiment the results can be completely different because they do not live where I live. Also what if I did not put the lid on all the way on the bottle Coca-Cola then I might have a human error that will affect my results as well. These are just a few things I did not think of when testing my experiment.

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And just a great big thank you to all my teachers that tried to help me with whatever they could on my experiment.

What I will do next

Now that I know Coca-Cola will go flat faster in a can than in a bottle I really want to know if a different brand of soda such as Pepsi in a can will go flat faster than the Coca-Cola in a can. I'd even like to compare a clear soda pop such as Sprite and Coca-Cola. Will the color of the soda pop clear or dark have an affect on how fast one goes flat?



Abstract

The purpose of this project is to help people feel better. By determining can vs. bottle I will know the time frame it takes for soda to go flat and people will know what soda goes flat the fastest when they are sick with an upset stomach, whether it be coca-cola in a can or coca-cola in a bottle. If I open a can of coca-cola and leave it on the counter and then I open a bottle of coca-cola and put the lid back on and leave it on the counter then the carbonated drink in the can will go flat faster than the carbonated drink in the bottle. After researching flat soda there are many tricks to making soda go flat, some will shake the soda before opening it, but since I will be using a can for one of the containers this will make a large mess and according to live science if I open a can of soda the carbonation will escape through the bubbles and if sat long enough will become flat.

I am going to see how long it takes for coca-cola in a can and coca-cola in a bottle to go flat by pouring some of the soda from each container into separate cups watching for fizz. I will test the soda pop every 10 minutes watching for any fizz that may occur. I will know the soda pop is flat when the fizz is no longer there.

In the beginning of my experiment I had tons of fizz from both can and bottle. I continued to set my timer and do pour tests on each can and bottle every 10 minutes and logging down the amount of fizz I saw and finally after 2 hours the whole experiment was done. It took the soda pop in the can to become flat in 1 hour and 50 minutes and 2 full hours for the soda pop in the bottle to become flat.

In conclusion of my experiment my hypothesis was right: the soda pop in the can did go flat much faster than the soda pop in the bottle with the lid left on.