

**The Mystery of the Mentos:
How Does the Type of Liquid
Affect the Mentos Eruption?**

QUESTION AND HYPOTHESIS

MATERIALS AND EQUIPMENT

PROCEDURE

RESULTS

ANALYSIS AND CONCLUSION

How does the type of liquid mixed with mint Mentos affect the amount of liquid left in the bottle after the two are mixed and the mixture erupts out of the bottle?

Eight people think regular Coke will erupt the most because of past experience—regular Coke won another experiment.

Fifteen think diet Coke will erupt the most because there is less sugar in diet Coke. The soda geyser tool said diet Coke works best.

No people think lemonade will erupt the most because it isn't a soda—it isn't as fizzy as Coke.

2-liter bottles of regular Coke
2-liter bottles of Minute Maid lemonade
2-liter bottles of diet Coke
geyser tubes
liquid measuring cup

1. Put the geyser tool on the regular Coke bottle.
2. Drop in the mint Mento.
3. Measure how much liquid is left in the bottle.
4. Repeat.
5. Average the results and record.
6. Repeat with the lemonade.
7. Repeat with the diet Coke.

amount pushed out of the bottle (in mL)	first try	second try	average
Regular Coke	900	902	901
Lemonade	0	--	0
Diet Coke	1040	1040	1040

When we dropped the mint Mentos in the regular Coke, we observed that about half the bottle spewed out. When we dropped the mint Mentos in the diet Coke, it exploded more rapidly, made a bigger fountain, and the reaction lasted longer. The diet Coke reaction sped up faster. The diet Coke reaction looked lighter than the regular Coke. The top of the eruptions of both diet and regular Coke formed a mushroom shape that was bigger on the diet Coke reactions. The lemonade did not react at all so we only did one bottle.

On average the regular Coke lost 901 mL of fluid. On the other hand, on average the diet Coke lost 1040 mL. Of course, the lemonade did not react at all and lost no fluid.

We think the lemonade did not react because it was not carbonated. It might be that sugar interferes with the process, so diet Coke reacts more. Or maybe the fake sugars help the reaction.

We did not have any problems performing our experiment.

We could improve our experiment by doing more repetitions. We should do five and Mrs. Kragen was too cheap to buy that much soda. We could build a platform to tilt the bottles so none of the fluid could fall back into the bottles. We could make sure the bottles did not get shaken on the way to the experiment. We could try the experiment without the spout. We could try it with a smaller spout opening.

Most of the class was correct with the hypothesis that diet Coke would erupt the most. Diet Coke lost 1040 mL of fluid each time. On average regular Coke lost 901 mL. The lemonade was still full. Overall, the diet Coke lost a little *more* than half the bottle, and the regular Coke lost a little *less* than half the bottle. It may be that the artificial sweeteners helped the reaction.

We wonder if there are other sodas that erupt more than diet Coke. What would happen if we did this with carbonated water with no sweeteners at all?