

Mint- Fruit Combinations Can Erupt 8% Higher than Mint or Fruit Alone in a Mentos Eruption

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Summary: This experiment tested the effect of various combinations of mint and fruit Mentos on eruption height. We hypothesized that if the amount of fruit in the ratio of mint to fruit Mentos increases, the eruption height will correlate directly. Seven 12 ounce Diet Pepsi bottles and both mint and fruit flavored Mentos were used to conduct this experiment. Only one trial was executed for each combination of Mentos. To calculate how high each Mentos eruption went, we counted the number of bricks that were sprayed by the soda. Then we measured the height of a single brick and concluded that it is 2.25 inches high. With this information, we were then able to figure out how high the eruptions were in inches. Our most successful eruption consisted of 2 mint and 4 fruit Mentos was 108% higher than our lowest eruption containing 1 mint and 5 fruit Mentos.

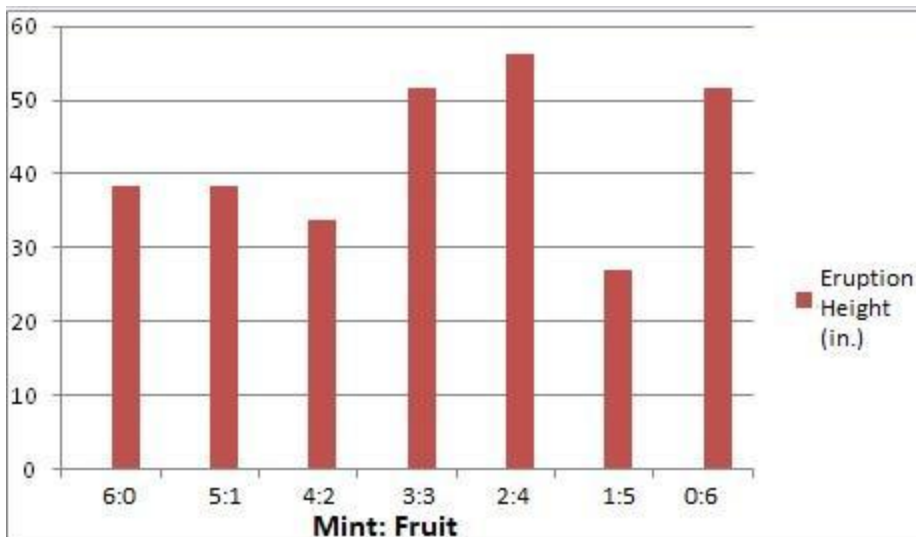
Introduction: The Mentos eruption involves dropping Mentos into soda, most commonly used with Diet Coke or Pepsi. The more Mentos dropped into the soda results in a higher eruption height according to the report called “How the Amount of Mentos Affects the Height of the Eruption”⁴. This experiment was originally brought to society’s attention when shown on the David Letterman show in 1999⁵. Additionally, it was the main focus of a Mythbusters episode in 2006⁶. It was decided to use Diet Pepsi, rather than another beverage such as Diet Coke, because it is known for producing the highest eruption heights in Mentos experiments. This information was found in a report called, “Diet Pepsi- Not Diet Coke- Results in the Highest Mentos Eruption When Compared to Other Diet Carbonated Drinks”⁷. Next, the hypothesis stated that the fruit Mentos would cause a more enhanced eruption than mint Mentos. This theory was based on prior knowledge from reading the Tonya Coffey paper settles that fruit Mentos create a higher eruption height than mint flavored ones⁸.

Experimental Section:

1. Gather supplies: 3 packages of Mint Mentos, 3 packages of Fruit Mentos, and 1 8pack of 12 fluid oz. of Diet Pepsi

2. Unscrew the cap of one Diet Pepsi.
3. Immediately following, screw on the nozzle
4. Insert 6 Mint Mentos. Pull string and erupt.
5. Count bricks that were hit by eruption and record results.
6. Repeat steps 2 & 3
7. Insert 5 Mint Mentos and 1 Fruit Mento. Pull string and erupt.
8. Count bricks that were hit by eruption and record results.
9. Repeat steps 2 & 3
10. Insert 4 Mint Mentos and 2 Fruit Mentos. Pull string and erupt.
11. Count bricks that were hit by eruption and record results.
12. Repeat steps 2 & 3
13. Insert 3 Mint Mentos and 3 Fruit Mentos. Pull string and erupt.
14. Count bricks that were hit by eruption and record results.
15. Repeat steps 2 & 3
16. Insert 2 Mint Mentos and 4 Fruit Mentos. Pull string and erupt.
17. Count bricks that were hit by eruption and record results.
18. Repeat steps 2 & 3
19. Insert 1 Mint Mento and 5 Fruit Mentos. Pull string and erupt.
20. Count bricks that were hit by eruption and record results.
21. Repeat steps 2 & 3
22. Insert 6 Fruit Mentos. Pull string and erupt.
23. Count bricks that were hit by eruption and record results.
24. Clean up materials and recycle bottles!

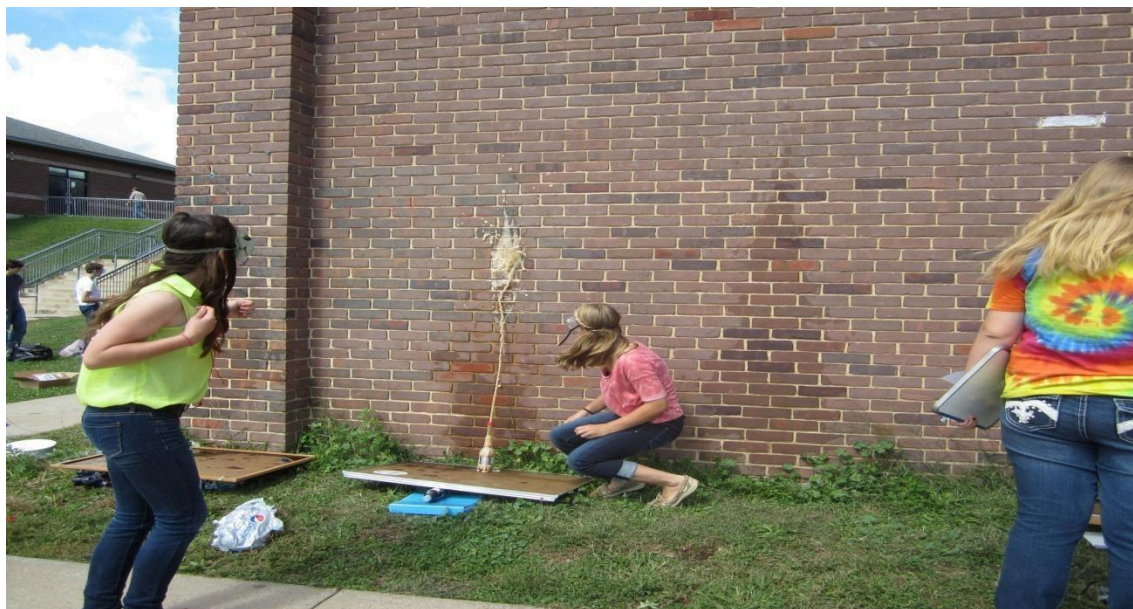
Results:



The results, shown in the table demonstrate what occurred during each trial. In the first trial, there were 6 mint Mentos which resulted in a 38.25 inch high eruption. The second trial with 5 mint and 1 fruit Mento had an outcome of the exact same height eruption with 38.25 inches. The following experiment contained 4 mint and 2 fruit Mentos caused a 33.75 inch eruption. Next, we used 3 of each type of Mento which produced an eruption of 51.75 inches. After, 2 mint and 4 fruit Mentos created a 56.25 inch eruption height. Then, 27.0 inch eruption height was made from 1 mint and 4 fruit Mentos. Finally, 6 fruit Mentos generated a 51.75 inch eruption height. On the bar graph above, it depicts multiple different eruption heights in an unorganized manner. What should have occurred is either a constant negative or positive sloped graph.

Conclusion: After the experiment was conducted, we realized our results are unreliable due to many different factors. There is a large margin for error of about 25% throughout this procedure. Multiple parts of the experiment did not turn out as planned. For example, sometimes the bottles were accidentally placed at too much of an angle to the wall, resulting in a lower eruption height due to the soda being pointed too directly toward the wall. Next, many trials had to be redone because the bottle would tip over after the string was pulled. Therefore causing the bottle to fall and spray soda in the opposite direction. The last thing that could have been improved is that more trials should have been completed to receive more accurate and dependable results. All of these improvements will be taken into consideration in the future. The results should have turned out differently. After performing the experiment, we were able to conclude from our data that combinations with greater amounts of fruit than mint produce a higher eruption

height. Although if the experiment were to be repeated, the results could easily turn out differently. This is due to the numerous errors that took place throughout the trials. In conclusion, Mentos eruptions with more fruit than mint Mentos in combinations produce a higher eruption height.



Endnotes

1. "How the Amount of Mentos Affects the Height of the Eruption." By Matt Feldman and Alex Monte, Guilford J. Chem., 2008-2009, p. 27.
2. Coffey, Tonya. "Diet Coke and Mentos: What is really behind this physical reaction?" June 7, 2007: p. 551.
3. Coffey, Tonya. "Diet Coke and Mentos: What is really behind this physical reaction?" June 7, 2007: p. 551.
4. "Diet Pepsi- Not Diet Coke- Results in the Highest Mentos Eruption When Compared to Other Diet Carbonated Drinks." By Angelise Musterer and Lindsay Ruotolo, Guilford J. Chem., 2008-2009, p. 12-14.
5. Coffey, Tonya. "Diet Coke and Mentos: What is really behind this physical reaction?" June 7, 2007: p. 552.