

**Mythbusters: Diet Coke and Mentos Research**

1. What happened when Jamie removed the CO<sub>2</sub> gas from the soda and then dropped the candy in the soda?  
**Nothing. This shows that the CO<sub>2</sub> is necessary in order for the reaction to occur.**
2. How did the soda spray height compare to the spray height of the carbonated water? What does this mean?  
**The soda sprayed much higher than the carbonated water. This means that the other ingredients in the soda (aside from CO<sub>2</sub>) play a role in the reaction.**
3. Adam tested each of the other soda ingredients in the carbonated water one by one. Which of them caused the water to spray higher? (circle the ones that apply)
  - a. Aspartame (artificial sweetener)
  - b. Acids (citric & phosphoric acid)
  - c. Potassium Benzoate (preservative)
  - d. Caffeine
4. Adam tested the ingredients in the Mentos one by one to see which ones affected the reaction. What was the result when he tested...
  - a. Gum Arabic – **it made bubbles form**
  - b. Gelatin – **it made bubbles form**
5. How did the Mythbusters test the theory that nucleation sites create carbon dioxide bubbles causing the cascade?  
**They dropped fruity Mentos into the carbonated water. The wax coating on these types of Mentos prevented the bubbles from forming. This supports the theory that nucleation sites on the Mint Mentos are the cause of the bubbles forming.**
6. Describe in your own words/diagrams what causes the “soda explosion” when you mix Mentos and Diet Coke.  
**Nucleation sites (small craters) on the Mentos provide places for CO<sub>2</sub> gas to form from the soda. In addition, the aspartame (sweetener), potassium benzoate (preservative), and the caffeine in the soda as well as the gum arabic and gelatin in the candy combine to release all of the CO<sub>2</sub> in the soda at once. This produces a “cascade effect” where the gas bubbles form a foam that shoots out the top of the bottle.**