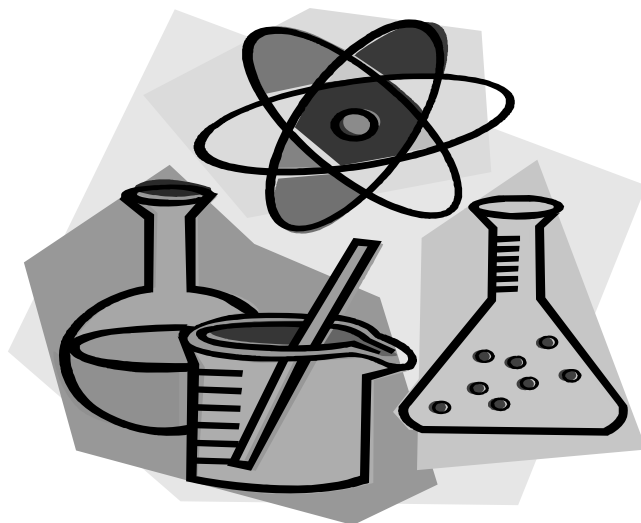


Chemical Reactions with CO₂

What Do I Need?

- 3 empty water bottles
- Water
- Soda pop
- White vinegar
- ¼ measuring cup
- funnel
- 3 balloons
- Alka-seltzer tablet
- Pop rocks
- Baking soda
- teaspoon



What Do I Do?

1. We are going to create 3 reactions to see which one produces the most carbon dioxide.
2. First, we need to put ¼ cup of water into one of the empty bottles, ¼ cup soda pop into a second bottle and ¼ cup vinegar into the last bottle.
3. Then, we are going to funnel a teaspoon of crushed Alka-seltzer into one balloon, 1 tsp pop rocks into a second balloon and 1 tsp baking soda into the final balloon. Don't forget to label your bottles and balloons ahead of time!
4. Next, we are going to attach the balloons to the top of the water bottles without releasing the substances into the bottle. The Alka-seltzer balloon will go onto the bottle with water, pop rocks will go with the soda and baking soda will go with the vinegar.
5. The balloon creates an air tight container, but you can also use tape if you are worried about air being released or the balloon coming off.
6. Now we are ready for our experiment. Pour the contents of the balloons into the bottles at the same time.
7. Which balloon blows up the biggest? Which balloon blows up the fastest? Slowest?

Now Try This!

Create a fourth reaction with hydrogen peroxide and yeast. How does this reaction compare to the first three? Now try changing the substances by mixing pop rocks with water or Alka-seltzer tablets with vinegar. Which combination creates the most carbon dioxide?

What's Going On?

An indicator of a chemical reaction is the creation of a new substance – in our experiment that is the CO₂. As the substances react, the CO₂ that is produced will take up space. Because we have made the bottles air tight, the CO₂ will fill up the bottle and balloon, causing it to inflate. The larger the balloon inflates, the more CO₂ produced.