



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at www.projectexploration.org/stemathome.

In this activity, you will:

explore the effects of acid-base reactions!



Supplies Required:

- 1 plastic bottle
- 1 balloon
- 1 cup of vinegar
- 1/3 cup of baking soda
- Funnel or rolled up piece of paper

Video

Watch what happens to the balloon when you mix baking soda and vinegar: <https://tinyurl.com/jloroqa>

Overview

What happens when you mix baking soda with vinegar? A chemical reaction! A chemical reaction is when two substances are combined to form a completely new substance. Our two substances are vinegar and baking soda. When vinegar, an acid, and baking soda, a base, are combined they create tiny fizzy bubbles. These bubbles didn't exist before—they are a completely new! The bubbles contain carbon dioxide gas. This is the same gas that is released every time you exhale, or breathe out. Since the balloon is on top of the bottle, the gas has no way to escape. The gas travels into the balloon and starts to blow it up. Just like you can blow up a balloon with your own carbon dioxide, the reaction in the bottle is blowing up the balloon!



Instructions

1. Use the funnel to put 1/3c of baking soda in the balloon. (If you do not have a funnel, you can roll up a piece of paper to act as a funnel!)
2. Use the funnel to pour 1c of vinegar into the bottle.
3. Attach the balloon to the top of the bottle. Make sure you are holding on firmly. Lift the balloon to shake the baking soda into the bottle.
4. Make sure your face is AWAY from the balloon.
5. Observe! What is happening in the bottle? What is happening to the balloon?

Additional Resources

Think About It! What if you changed the temperature of the vinegar? What if you used lemon juice instead of vinegar? What if you change the size of the balloons?

1. Read and learn more about chemistry with Ducksters: <https://tinyurl.com/ybp9o3gj>
2. Top 10 chemical reactions you can do at home: <https://tinyurl.com/ycus7rtr>

Share It Out

Share on social media: Challenge your friends and family to try! Or film yourself trying another one of chemical reactions listed in the Additional Resource section! Use the hashtags:

#BalloonBlowUp
#ProjectExploration
#StemAtHome

Share via PE's website: Students who complete STEM@home activities and share what they learned with the PE team via our website will earn points which can be traded in for cash prizes at the Explore Store. Your project number is 222. Learn more at www.projectexploration.org/explore-store

Join PE's character contest!

Design a STEM character who will lead kids through activities and be featured on our website and in our STEMbooks. Cash prizes will be awarded to the top 3 finalists. Learn more at: www.projectexploration.org/character-contest.



Call or text us for help: 312-772-6634



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