



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:

blow up balloon with CO₂!



Supplies Required:

- Balloon
- About 40 ml of water (a cup is about 250 ml so you don't need much)
- Soft drink bottle
- Drinking straw
- Juice from a lemon
- 1 teaspoon of baking soda

Video

Watch a video about blowing up balloons with CO₂: <https://tinyurl.com/vtu4v2v>

Overview

Chemical reactions make for some great experiments. Make use of the carbon dioxide given off by a baking soda and lemon juice reaction by funnelling the gas through a soft drink bottle and in to your awaiting balloon! If all goes well then your balloon should inflate! Adding the lemon juice to the baking soda creates a chemical reaction. The baking soda is a base, while the lemon juice is an acid, when the two combine they create carbon dioxide (CO₂). The gas rises up and escapes through the soft drink bottle, it doesn't however escape the balloon, pushing it outwards and blowing it up. If you don't have any lemons then you can substitute the lemon juice for vinegar.



Instructions



1. Before you begin, make sure that you stretch out the balloon to make it as easy as possible to inflate.
2. Pour the 40 ml of water into the soft drink bottle.
3. Add the teaspoon of baking soda and stir it around with the straw until it has dissolved.
4. Pour the lemon juice in and quickly put the stretched balloon over the mouth of the bottle.

Additional Resources

Think About It! Where else do we find carbon dioxide gas? Why is important to understand chemical reactions? Do you think the results would be different if you changed the amounts of lemon juice or baking soda?

1. Chemical reactions introduction: <https://tinyurl.com/y98dd5d6>
2. Top 10 chemical reactions: <https://tinyurl.com/w78ta35>

Share It Out

Talk about it with your family and friends!

Share on social media: record a video or take a picture of your experiment and post the results online using the hashtags:

#BalloonChallenge
#ProjectExploration
#StemAtHome

Tag a friend and challenge them to design and test their own!

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 408. 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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