



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](http://www.projectexploration.org/stemathome).

## In this activity, you will:

explore acid-base reactions!



## Supplies Required:

- Mini pumpkins
- Baking soda
- Vinegar
- Dish soap
- Food coloring
- Spoon
- Measuring cup

## Video

What are acids and bases? <https://tinyurl.com/y69vgolt>

## 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. This gas is trapped in the bubbles/fizz that you see!



## Instructions

1. To make your mini pumpkin volcanos, start by cutting out the stem area as you would carve a Jack O'Lantern. Keep the opening on the small side as that makes the eruption more interesting.
2. Place your mini pumpkin volcanos on some sort of tray or lid to a plastic storage container.
3. Add a few spoonfuls of baking soda to each pumpkin. Then add a few drops of dish soap and lastly add a few drops of food coloring if desired!
4. Get ready for mini pumpkin volcanos! Pour vinegar into a bowl and use eye droppers, basters, or small measuring cups! Watch the fun! You can repeat the process over and over with more vinegar and more baking soda. The dish soap gives the eruption a foamy appearance.

## Additional Resources

1. What is the science behind an acid-base reaction? <https://tinyurl.com/y6aqyjse>
2. Do more fizzy experiments: <https://tinyurl.com/ycrjezcq>

## Share It Out

**Share on social media:** Take a photo or video of your experiment and share with friends and family on social media! Use the hashtags:

#HalloweenScience  
#ProjectExploration  
#StemAtHome

For more activities like this one, go to [www.projectexploration.org/stemhome](http://www.projectexploration.org/stemhome). If you're interested in learning more about Project Exploration and our free events, programs, and activities, please complete our interest form and a staff member will be in touch with you: [www.projectexploration.org/interest](http://www.projectexploration.org/interest).

