

Pumpkin Science

(see our video demonstrating this on our Virtual Program page: <u>https://tinyurl.com/mplvirtual</u>)

- Make some observations of your pumpkin and fill out the "My Pumpkin Investigation" page before cutting into it.
- Prepare a space to get messy! Put down a washable sheet, newspapers, or a plastic tablecloth to protect your space. If the weather is nice, you may even set up a table outside. Wear an apron, goggles, and/or gloves for protection. (The chemicals in this experiment are very mild, but food coloring may stain and it's no fun to get vinegar or baking powder in your eyes.)
- Get a tray (like a casserole dish or baking sheet with a lip) so that your creepy foam is contained. Put your pumpkin on the tray.
- Ask a grown-up to cut the top off your pumpkin with a sharp knife.
- Make some observations about your pumpkin's insides, too. How are your answers to your worksheet different now that you're considering the inside of the pumpkin?
- To make pumpkin cauldrons, scrape out the seeds and "guts" of your pumpkin with a spoon or scraper. (Save the innards in a bowl for more science fun!)
- Add 2-4 spoonfuls of baking soda to your pumpkin's bowl. (Green food coloring has already been added to the baking soda in the library's kit)
- Pour in some vinegar to see your fizzling pumpkin cauldron bubble over! (A couple of drops of dishwashing liquid have already been added to the vinegar in the library's kit)
- Experiment! Here are some questions to think about:
- \Rightarrow What happens if you stir the bottom of the pumpkin after the fizz has subsided?
- ⇒ Can you make more fizz by adding more vinegar? What about baking soda?
- ⇒ If you add plain baking soda and plain vinegar (no soap added), is the foam bigger or smaller?

What else can you do with your pumpkin? Turn the page!

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More Pumpkin Fun!

(you will not be able to do <u>all</u> of these with one pumpkin)

Do the baking soda and vinegar trick with a larger pumpkin with a jack-o'lantern face. Can you make the foam come out of its eyes, nose, and/or mouth?





 Save some seeds and plant them to see the sprouts grow. (You can use any planter or pot for this) <u>https://www.lifewithmoorebabies.com/2013/04/growing-</u> <u>pumpkins-in-pumpkins.html</u>

 Use the guts and seeds to make pumpkin slime.
<u>https://littlebinsforlittlehands.com/how-to-make-pumpkin-</u> <u>slime-with-real-pumpkin/</u>





Roast your pumpkin seeds for a tasty snack.
https://minimalistbaker.com/how-to-roast-pumpkin-seeds/

 Roast your pumpkin and make a pie (if you already used it for a baking soda and vinegar experiment, please do not consume) <u>https://littlesproutslearning.co/easy-peasypumpkin-pie-cooking-kids/</u>





 Journal and observe a carved pumpkin rotting day by day. <u>https://kidsactivitiesblog.com/7011/rotting-pumpkin/</u>





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What is happening in this experiment?

Baking soda and vinegar react chemically because one is a base and the other is an acid. Baking soda is a basic compound called sodium bicarbonate. Vinegar is a diluted solution that contains acetic acid.

The baking soda and vinegar reaction is actually two separate reactions. The first reaction is the acid-base reaction.

When vinegar and baking soda are first mixed together, hydrogen ions in the vinegar react with the sodium and bicarbonate ions in the baking soda. The result of this initial reaction is two new chemicals: carbonic acid and sodium acetate.

The second reaction is a decomposition reaction. The carbonic acid formed as a result of the first reaction immediately begins to decompose into water and carbon dioxide gas.

Just like carbon dioxide bubbles in a carbonated drink, the carbon dioxide (that formed as the carbonic acid decomposed) rises to the top of the mixture. This creates the bubbles and foam you see when you mix baking soda and vinegar.

Quoted from: <u>https://www.wonderopolis.org/wonder/what-happens-when-you-mix-</u> <u>vinegar-and-baking-soda</u> Visit to read more and watch a fun video.





