

Flying Ghosts

What's The Plan?

Happy Halloween! Have you chosen a costume for the holiday yet? Maybe you will be a princess, a pirate, an animal, or maybe you will be a ghost! Speaking of ghosts, have you ever seen one fly before? If not, check out this activity, where you can use a bit of simple chemistry to turn a balloon into a flying phantom.

What You'll Need:

Here's a list of everything you'll need! Don't have something exactly? Get creative! Some of our suggested swaps are listed in Grey.



- Plastic Water Bottle
- 1 tbsp baking soda
- $\frac{1}{2}$ cup vinegar
- Balloon
- An area to launch your ghosts in that your guardians won't mind getting messy.
- Sharpies or markers, stickers, googly eyes, and other materials to decorate your balloon with.

What To Do:



1. Decorate your balloon to make a ghost. You can draw eyes and a mouth, give it a colorful outfit, and add any other cool details you want!
2. Fill up your balloon with 1 tbsp of baking soda. You may want to work with a partner for this step, since it can be tricky to hold the balloon open and pour the baking soda in alone.
3. Pour $\frac{1}{2}$ cup of vinegar into your plastic water bottle. Don't put the lid back on.
4. Without letting any baking soda fall into the vinegar, carefully stretch the balloon over the bottle neck.
5. When you are ready to launch your ghost, make sure your water bottle is in an outdoor space, or somewhere that your guardians won't mind getting messy. Carefully pull the balloon up on the bottle, so the baking soda falls into the vinegar, and watch the ghosts grow and fly!



Why Did We Do It?

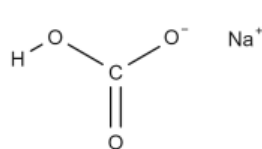
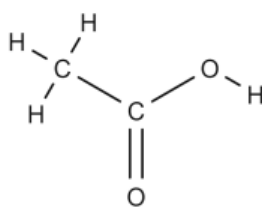
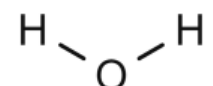
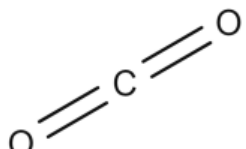


Here is a list of important words we use during the project!

Atom: an atom is a tiny particle that makes up all the things in our universe. There are different types of atoms, and different atoms make up different elements.

Molecule: when atoms of different elements come together, they can form a molecule. Molecules have their own formulas, such as H₂O being the molecular formula for water.

These are the elements, molecular formulas, and molecular shapes for the substances we used to make our ghosts!

| Substance | Elements | Molecular Formula | Molecular Shape |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Baking Soda | Na- sodium H- hydrogen C- carbon O- oxygen | NaHCO ₃ • baking soda is made of 1 sodium atom, 1 hydrogen atom, 1 carbon atom and 3 oxygen atoms |  |
| Vinegar | C- carbon H- hydrogen O- oxygen | CH ₃ COOH • vinegar is made of 2 carbon atoms, 4 hydrogen atoms, and 2 oxygen atoms |  |
| Baking soda and vinegar are the reactants in this reaction, or the things we mix together to cause a reaction. But there are also two products, or things that the reaction creates. These products are water and carbon dioxide. | | | |
| Water | H- hydrogen O- oxygen | H ₂ O • water is made of 2 hydrogen atoms and 1 oxygen atom |  |
| Carbon Dioxide | C- carbon O- oxygen | CO ₂ • carbon dioxide is made of 1 carbon atom and 2 oxygen atoms |  |

Chemical Equation: chemists and mathematicians have a lot in common. They both use special symbols to describe things, with mathematicians using numbers to describe amounts, and chemists using letters to describe elements. They also both use symbols like + to show the addition of two things together.



Here's how a chemist would describe the reaction between baking soda and vinegar:



Baking Soda and Vinegar

React to Produce

Carbon Dioxide and Water

How Did It Go?

We'd love to hear about all the amazing STEM projects you're doing! Show us your finished projects on any of the following social media platforms by tagging us!

Twitter: @MyMindsInMotion
Facebook: @mindsinmotion2014 || @ucactiveliving
Instagram: @ucalgaryactive



Let us know how you felt about the project! Please [click here](#) or scan the QR code above to fill out a short survey!