

BOOMbox at Home

DIY Fire Extinguisher

Want to make your own basic fire extinguisher? This experiment is no replacement for a real fire extinguisher, but it is a fun way to put out a candle and learn about the science of combustion.

Supplies

- plastic bottle
- vinegar
- baking soda
- tea light candle
- safety goggles or safety glasses

*Matches can be very dangerous.
Younger scientists should have adult assistance
with this project.*



Instructions

- Light the tea candle.
- Pour vinegar into the bottle until it is around half full.
- Quickly pour the baking soda into the water bottle.
- Carefully hold the bottle at an angle to let the carbon dioxide escape and put out the fire. Be careful to not spill it!

Want to explore more?

Wondering how this works? When vinegar and baking soda are combined, they react to create carbon dioxide. Carbon dioxide is heavier than oxygen, so when you release carbon dioxide from the bottle, it sinks into the place of the oxygen surrounding the flame. This starves the fire of oxygen and puts out the flame.

What will you learn today?

BOOMbox at Home

Fart Chart

Farts can be loud and smelly, but do you know how to make the loudest and smelliest fart ever? Run this experiment to find out what foods give you the loudest and smelliest farts so you can horrify everyone around you.



Instructions

- Print out the fart chart on page two, or draw your own with a marker and some paper.
- Before you start collecting information, make a guess about what foods you think will make you fart the most.
- Every day, record what foods you ate on the fart chart. Record how many farts you made that day, how loud they were, and how smelly they were. You can either write or draw or add some stickers.
- Repeat these steps over the next few days. What different kinds of food did you eat? Did your farts vary in frequency, volume, and smell?
- Use the information you have collected to form your conclusion. What foods gave you the most farts? What foods gave you the loudest farts? What foods gave you the smelliest farts? Was your first guess correct?

Want to explore more?

Even after you finish your fart experiment, there's still plenty more to learn about farts.

- Try eating the fartiest foods for a month. Do your farts get more frequent and smellier, or do they stay the same? Why do you think this is?
- Recruit a friend to do the experiment with you. Do they get the same results from eating the same kinds of food? If they get different results, what do you think caused the difference?
- The fart chart was originally created by Aerial, a writer for the Seacoast Moms Collective. Find out how her kids have used the fart chart [at this blogpost](#).

What will you learn today?

Fart Chart

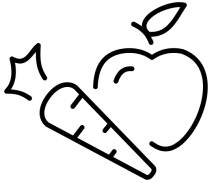

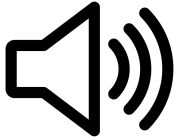

What did I eat today? 	How many farts did I make today? 	How loud were the farts? 	How smelly were the farts? 

Image credits: healthy Food by Counloucon, fart by BomSymbols, Volume by Chunk Icons, and smell by Corpus Delicti from the Noun Project

BOOMbox at Home

Creating a Gas

Mixing together baking soda and vinegar is a fun way to learn about chemical reactions that create gases. This is an easy experiment that anyone can do with common household items.

Supplies

For this activity, you will need:

- a jar
- a small plastic bag
- a rubber band
- vinegar
- baking soda
- safety goggles or glasses



Instructions

- Fill the jar one-third full with vinegar.
- Place one tablespoon of baking soda into the plastic bag.
- Use the rubber band to fasten the open end of the plastic bag onto the jar.
- Pick up the other end of the bag and hold it over the opening of the jar so that the baking soda drops into the vinegar. What happens when the two ingredients mix together?
- Squeeze the plastic bag. Does it feel like there is more air inside the plastic bag than before?

Want to explore more?

Mixing together vinegar, a liquid that is also known as acetic acid, and baking soda, a solid that is also known as sodium bicarbonate, results in a chemical reaction that creates carbon dioxide gas. You can explore the fizzing power of vinegar and baking soda by trying out lots of different kinds of experiments.

- Use a plastic bottle filled one-third full of vinegar and a balloon with one tablespoon of baking soda inside it to see the balloon expand as the chemical reaction occurs.
- Make a volcano out of modeling clay or paper maché, and pour some vinegar and red food dye into the crater. Drop in a spoonful of baking soda to watch the volcano explode!
- Experiment with different amounts of baking soda and vinegar to see what combinations make the biggest reaction.

What will you learn today?