

# 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

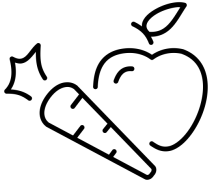

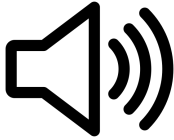

<b>What did I eat today?</b> 	<b>How many farts did I make today?</b> 	<b>How loud were the farts?</b> 	<b>How smelly were the farts?</b> 

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.

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## DIY Paper Pinwheels

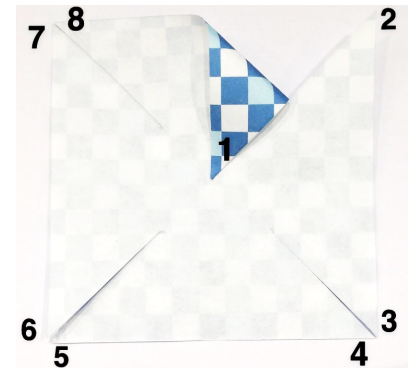
The best way to learn more about how windmills work is to make your own miniature windmill. These DIY paper pinwheels are a great way to take advantage of a windy day.

### Supplies

- Sheets of colorful paper or cardstock
- Scissors
- Glue stick
- Push pin
- Pencil with eraser

### Instructions

- Start by cutting two pieces of colorful paper or cardstock into squares.
- Glue both squares together with the colorful sides facing out. Make sure it is fully dry before proceeding.
- Crease the paper by folding in half both horizontally and vertically. Those creases will serve as the guidelines for where to cut.
- Now make cuts halfway to the center on all four points, along the creases.
- Using the diagram in the pictures, gently fold in Corner 1 and glue the tip down in the center. Repeat this step for Corners 3, 5 and 7.
- Once the glue has dried, insert a push pin to the center to hold the tips together.
- Attach the pinwheel to a pencil by pushing the pin into the pencil's eraser.
- Finally, try blowing at the edges of the pinwheel to make it spin. Make sure to loosen the pin a bit if the blades do not rotate well.



*What will you learn today?*

*Send a photo of your project to [mycreation@skokielibrary.info](mailto:mycreation@skokielibrary.info) and we may feature it on social media.*

# BOOMbox at Home

## Edible Candle

No candles? No problem! Make an edible candle in minutes using supplies you may already have in your kitchen. Fool your friends by taking a bite out of your birthday candles—just be sure to blow them out first!



## Supplies

- knife
- walnut
- banana
- lighter or match
- standard birthday candles (optional)

*Knives and matches can both be very dangerous. Younger scientists should have adult assistance for these steps.*

## Instructions

- Cut a walnut into small slivers. You can use the wick of a birthday candle as a reference for size.
- Cut the banana into pieces that are the same size and shape as a birthday candle.
- Place a walnut sliver in the top of the banana slice. Push it in a little so that it stands upright without support.
- Light the walnut the same way you would light the wick of a normal candle.

## Want to explore more?

- Check out [this post from Thought Catalog](#) for more information on the science of this project.

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