

Exploding Lunch Bag Challenge

What You Need

- One small (sandwich size) zip-lock bag – freezer bags work best.
- Baking soda
- Warm water
- Vinegar
- Measuring cup
- A tissue

Method

1. Go outside – or at least do this in the kitchen sink.
2. Put 1/4 cup of pretty warm water into the bag.
3. Add 1/2 cup of vinegar to the water in the bag.
4. Put 3 teaspoons of baking soda into the middle of the tissue
5. Wrap the baking soda up in the tissue by folding the tissue around it.
6. You will have to work fast now – partially zip the bag closed but leave enough space to add the baking soda packet. Put the tissue with the baking soda into the bag and quickly zip the bag completely closed.
7. Put the bag in the sink or down on the ground (outside) and step back. The bag will start to expand, and expand, and if all goes well...POP!

The Science

Cool huh? Nothing like a little chemistry to add fun to a boring afternoon. What happens inside the bag is actually pretty interesting – the baking soda and the vinegar eventually mix (the tissue buys you some time to zip the bag shut) When they do mix, you create an ACID-BASE reaction and the two chemicals work together to create a gas, (carbon dioxide – the stuff we breathe out) well it turns out gasses need a lot of room and the carbon dioxide starts to fill the bag, and keeps filling the bag until the bag can no longer hold it anymore and, POP! Be sure to clean up well and recycle those plastic bags...have fun!

Your Science Week Challenge

The project above is a DEMONSTRATION. To make it a true experiment, we want you to try to answer these one of the following questions:

1. Will different temperature water affect how fast the bag inflates?
2. What amount of baking soda creates the best reaction?
3. Which size bag creates the fastest pop?

You should design the experiment from scratch using correct scientific method, forming a hypothesis, and method. Then you must record the experiment and results. Students should video the whole process and then send a copy of the recording to explodinglunchbag@stfarnans.ie. The videos will be judged and a prize will be given to the student with the most authentic experiment while maintaining good scientific method.

