

Chemical Reactions Releasing Gases

Safety!

- Don't mix anything together that isn't food, washing up liquid, or baking soda
- If you're using something vinegar, do not get it in your eyes



- If you do get vinegar in your eye you must wash it under a running cold tap for 10 minutes

Apparatus

- Bicarbonate of Soda/Baking Soda
- Various foods/sauces you predict could be acidic
- Washing up liquid (such as fairy liquid)
- Small cups or glasses in which to mix things (the narrower the glass, the better!)
- Small spoons (tea spoons) for measuring

Method

Summary

In this experiment, you will be creating a **neutralisation** reaction that produces foam and releases gases.

Steps

1. Add an amount of your chosen food or liquid to the bottom of a glass or mug. (The narrower the glass, the better)
2. Add a small amount of washing up liquid to the liquid and mix carefully
3. Add a teaspoon of baking soda and see what happens
4. Record how much foam was produced as a general rating out of 10 or measure its height with a ruler
5. Repeat steps 1-4 with different foods/sauces. You could also try adding them in a different order



Evaluation / Conclusion

This is the same reaction that occurs in the famed "science fair volcano" experiment. Why do you think some of the foods reacted more than others? Can you figure out what the foods that reacted more taste like?

ABINGDON
SCIENCE
PARTNERSHIP

FOLLOW UP SCIENCE

The main ingredient in baking soda is Sodium hydrogen carbonate, NaHCO_3 .

It is a base, which neutralises acids which are found in many foods. As it neutralises the acid, it produces carbon dioxide gas, which is then trapped in the washing up liquid as a foam.

The more acidic the food, the faster this reaction should happen and the more foam should be produced.

Elephant Toothpaste reaction

Another very similar experiment done in schools and which you won't have the chemicals for at home, is the Elephant's Toothpaste experiment. It is slightly different in that oxygen is produced and a lot more quickly, but it is still trapped in washing up liquid to make a foam.

Watch this video to see some fun demonstrations of this in a lab with proper safety precautions:

<https://www.youtube.com/watch?v=p5qvi20J5IM>