BAKING SODA BALLOONS

MATERIALS IN KIT:

Vinegar	Small Empty Soda or Water Bottle
Baking Soda	Paper Towels
Balloon	Funnel
Safety Goggles	Food Coloring (Optional)

VOCABULARY:

Chemistry	States of Matter	Matter
Solid	Liquid	Gas
Acid	Base	Reaction
Endothermic	Exothermic	Heat
Physical Change	Chemical Change	Solution
Carbon Dioxide		

BAKING SODA BALLOON DIRECTIONS:

1. Safety first! Put on your safety goggles!
2. Place your empty soda bottle on a table. You may want to put a tray or disposable tablecloth down as this experiment can be messy!
3. Using your funnel, fill your bottle about ¼ full of vinegar.
4. Add a few drops of food coloring of your choice to the vinegar if you want.
5. Using the funnel, add 2 large spoonfuls of baking soda to the balloon.
6. Carefully stretch the open end of the balloon over the top of the open bottle.
7. Hold the bottle with one hand and carefully stand the balloon upright.
8. Gently shake the balloon so the baking soda falls into the soda bottle to mix with the vinegar. Keep the bottle still on the table.
9. Observe what happens when the baking soda and vinegar mix. Notice the temperature change that happens in the bottle as the reaction happens!
10. When the reaction is complete, you can remove the balloon to release the carbon dioxide gas and dispose of the bottle.

THE STEAM BEHIND THE EXPERIMENT:

This experiment is a great example of an acid-base reaction, a physical and chemical change, an endothermic reaction, and an experiment with the different states of matter! The baking soda is a base and vinegar is an acid. When they are mixed together they create carbon dioxide gas! A physical change is when you change the way something looks but don't actually change what it is. A chemical change is when you make something new and cannot go back to the original substance. In this experiment, the physical change occurs when you dye the vinegar. The chemical change occurs when the baking soda and vinegar mix to form carbon dioxide gas! You also work with the three states of matter: solid (baking soda), liquid (vinegar) and gas (carbon dioxide). Finally, the experiment is endothermic. This means it absorbs heat as the reaction happens and gets colder, which you can feel on the outside of the bottle.

MAKE IT AWESOME:

Make it bigger! Instead of using a small bottle, try using a 1 or 2-liter bottle. Or go even bigger! You can use a giant balloon and 5-gallon water jug! This means you will need to use more vinegar and baking soda to create an even BIGGER reaction!

EXTENSIONS:

1. What happens when you change the amount of baking soda or vinegar in the experiment?
2. What happens if you use a smaller or larger bottle?

3. What happens if you dilute the vinegar with more water?
4. What other changes can you come up with for this experiment?

VIDEOS AND WEBSITES:

1. Baking Soda and Vinegar Balloons with Ryan: https://youtu.be/Cfh7TftRf7g
2. Baking Soda and Vinegar Balloons with Science Bob: https://youtu.be/wPz9uIM5oXY

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