EXPLODING ZIP LOC BAGS

Materials:

Vinegar
Baking Soda
Food Coloring (Optional)
Small Zip Loc Bag
Paper Towels
Safety Goggles

Vocabulary:

Chemical Change
Physical Change
Gas
Endothermic Reaction
Solid
Liquid
Matter
Chemistry
Solution
Mixture

DIRECTIONS:

1. Safety first! Put on your safety goggles if you have them!
2. Take your supplies out of the zip loc bag.
3. Pour half the vinegar into the empty zip loc bag.
4. Add a few drops of food coloring, if you want.
5. Lay a piece of the paper towel down.
6. Pour half of the baking soda in the middle of the paper towel.
7. Wrap the paper towel around the baking soda to make a little packet.
8. Put the packet into the Zip Loc Bag with the vinegar.
9. Quickly seal the bag closed.
10. Observe what happens when the baking soda and vinegar mix.
11. If the bag becomes big and looks like it will pop, you can toss it on the ground (if you are outside) and let it pop, or you can open the bag to relieve the pressure.
12. When the reaction is complete, you can dispose of the mixture in the sink and garbage can.
13. There are enough supplies to do the experiment twice!

THE STEAM BEHIND THE EXPERIMENT:

This is a great example of mixtures and solutions, an acid-base reaction, a physical and chemical change, an endothermic reaction, and an experiment with the different states of matter! 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 and form carbon dioxide gas! You also work with the three states of matter: solid (baking soda), liquid (vinegar and food coloring) and gas (carbon dioxide). Finally, the experiment is endothermic. This means it absorbs heat as the reaction happens and gets colder.

A mixture is two or more substances combined together in such a way that each remains unchanged. A **solution** is a specific type of mixture where one substance is dissolved into another. A **solution** is the same, or uniform, throughout which makes it a homogeneous mixture.

MAKE IT AWESOME:

Make it bigger! Try using a bigger zip loc bag and increasing the ingredients.

EXTENSIONS:

1. What happens when you change the amount of baking soda or vinegar used?

2. What happens if you use a smaller or larger Zip Loc Bag?
3. What happens if you dilute the vinegar with more water?
4. What other changes can you come up with for this experiment?

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