

Instructions:

Choose one (1) from the following experiments and perform it at home to help you determine if a chemical change has occurred or if it is simply a physical change.

Ask help from an adult in doing these experiments.

(Please try to use the materials available at home)

Enjoy and have Fun Learning, Kids!

What is a Chemical Change?

Review: A chemical change is when 2 substances are mixed together to form something new. This differs from a physical change, which is a substance changing physical forms but still retains its original properties. Sometimes when a mixture is made it can be hard for kids to tell if a chemical change has occurred. Such as when mixing sugar and water, the sugar appears to be no longer present so children assume a chemical change has happened when in reality the mixture can be separated back into its original substances. There are 4 main clues that a chemical change has occurred.

1. There is a formation of gas which can be seen by a fizzing or bubbling
2. The reaction will cause heat, light or odor to be emitted
3. A color change is produced
4. A solid is formed during the change

The Experiments to choose:

Make sure when you do scientific activities of any kind to go ask questions, go through the scientific method and have them form a hypothesis and discuss if they were correct at the end. It's good practice for more advanced science and it gets the mind working.

- ❖ The first experiment is a very simple one that shows children how to tell if a chemical reaction has occurred by observing the formation of a gas.

Materials Needed:

- A bottle
- vinegar
- baking soda
- a balloon
- a funnel



1. Have the kids place a small amount (a couple tablespoons) of baking soda in the balloon using the funnel.
2. Then have them pour vinegar into the bottle so it is about half full.

3. Very carefully stretch the balloon around the top of the bottle, making sure you keep the balloon down so that the baking soda doesn't fall into the bottle just yet.
4. Once the kids have formed their guesses have them tip the balloon up to allow the baking soda to drop into the bottle.
5. Make sure they hold the top of the balloon so that it doesn't come off.
6. Once they have observed the reaction, answer the following questions: **What type of reaction occurred? How do they know? What is inside the balloon?**

❖ Next up is the formation of a solid. You can also use baking as an example for this- bread is formed and cannot be separated back into flour and water, but this one is more fun.

Materials Needed:

- 3/4 cup of warm water
- 1 cup of glue
- a large bowl
- a cup
- an additional 1/2 cup of warm water
- 2 tsp borax
- a spoon

Adults: Place the 1/2 cup of warm water into a cup and stir in the 2 tsp of borax

1. Have the kids pour the water and glue into the bowl and stir them together.
2. Ask them for any observations.
3. Then have them stir while slowly pouring in the borax solution (this is a good 2 person job).
4. Have them keep stirring until the solid forms completely.
5. Ask for their observations. **Did a chemical change occur? How do they know? This is fun experiment with a fun outcome so don't forget to let them play with the new substance for a while!**

Looking forward for your interesting results and observations!