

Chemistry/Physics

Chem Rocket!

Explore an acid and base chemical reaction through this exciting science experiment. The two chemicals being used are sodium bicarbonate (baking soda) which is a base and vinegar which is an acid. When they combine they create a gas called carbon dioxide which is an exothermic reaction. The gas created will be used as energy to help create force to launch the rocket in the air. This is Newton's 3rd law for every action there is a reaction. Please remember this experiment needs to be done outside.



Supplies

- One (1) water bottle
- Three (3) Unsharpened pencils
- One (1) tablespoon of baking soda
- One (1) cup of vinegar
- One (1) 1\2 sheet of paper towel
- One(1) roll of heavy duty tape
- One(1) Cork/bottle stopper
- One(1) Funnel



Challenge

How-to:

1. Tape the pencils onto the halfway point of the bottle pointing towards the mouth of the bottle. The pencils should be equal distance so the bottle can balance.
2. Using the funnel pour the vinegar into the bottle.
3. Take your paper towel and put the baking powder on it. Fold it up like a burrito. Then go outside.
4. Doing so quickly. Push the paper towel-wrapped baking soda into the bottle
5. Twist the cork/bottle stopper into place in the mouth of the bottle.
6. Give the rocket a quick, hard shake and Set the rocket upright on the pencils.
7. Stand back and observe. Time the rocket from launching to landing.

Guiding questions:

1. What did the pencils do for the rocket?
2. What did you observe when combining the baking soda and vinegar?
3. If you change the amount of baking soda what happens to the reaction?
4. What would happen if you used 1 cup of water and 4 Alka Seltzer?