



Pop the Top

SYNOPSIS

Students conduct an experiment to find out what happens when vinegar and baking soda are combined.

OBJECTIVE

Students will be able to understand that a chemical reaction can occur when two substances are mixed together.

MATERIALS

- baking soda
- container (film canister or plastic bag that can be closed)
- outdoor area
- safety glasses
- vinegar

VOCABULARY

chemical reaction: a process in which one or more substances is changed into others

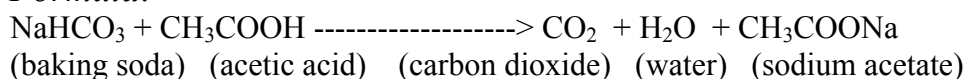
PROCEDURES

Note: Older students should be provided with the chemical formula so they can see the reactants and the products of the chemical reaction.

1. Explain to the students that they are going to see what happens when a particular acid and base are mixed.
2. Show them the vinegar and the baking soda. Ask them which is the acid (*vinegar*) and which is the base (*baking soda*). (*Younger students will need additional information to understand this.*)
3. Have them predict what they think will happen when the vinegar and the baking soda are mixed together.
4. Explain the process the students should follow. This will depend on the type of container they are using. If they are using a film canister:
 - Put your safety glasses on

- Pack the lid of the film canister with baking soda
 - Pour some vinegar into the film canister
 - Place the lid on the film canister
 - Turn it upside down
5. After the students have completed their experiment, ask them if their predictions were correct. Ask them why they think the film canister became a "rocket." (*If they use a plastic bag instead, the bag will fill up and then pop.*) Explain that the chemical reaction between the vinegar and the baking soda has two products: water and carbon dioxide. Carbon dioxide is what causes the fizzing and bubbling.

Formula:



CHECK FOR UNDERSTANDING

- Have the students write down their answer to this question: What would you see if you put some baking soda into a clear container and then poured vinegar into it? (*Foaming and fizzing.*)

EXTENSION

- Have the students find the pH of the vinegar, the baking soda (with a little water added), and the end product of the reaction.
- Have the students research other chemical reactions between acids and bases.