

Student activity sheet

Activity 5.1

Name: _____

Powder particulars

Sometimes on a rainy weekend, my parents let us mess around in the kitchen with some of the stuff they bake with. We like to mix vinegar and baking soda because the reaction causes a lot of bubbling. I was curious whether vinegar would work with baking powder the way it does with baking soda. After all, both powders are used in baking and look pretty similar. So I put a little baking powder in one cup and a little baking soda in another. Then I added some vinegar to each one. Both bubbled, but not in exactly the same way. So I asked my mom to give me a challenge. She put a little bit of each powder in two separate cups, but didn't tell me which was which. Then I did my "vinegar test" to see if I could figure out which one was baking powder and which was baking soda.

How can you use the characteristic ways substances react to tell similar-looking substances apart?

Take a closer look

Test baking soda and baking powder with vinegar to see if you can figure out what clues the student in the story may have used to identify each powder.

Can you use vinegar to tell baking soda and baking powder apart?

Procedure

1. Look closely at the samples of baking soda and baking powder that your teacher gave you. How are these powders similar and different?
2. With the help of your lab partner, pour all of the vinegar from each cup directly onto the baking soda and baking powder at the same time.
3. Observe until you think both reactions are over.
4. Record your observations in the boxes below.



Baking soda

Baking powder

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Powder particulars *(continued)*

Watch this!

Can red cabbage indicator help you tell if two similar-looking powders are the same or different?

You used vinegar and saw that two similar-looking powders reacted somewhat differently. Then your teacher used red cabbage indicator to test two other similar-looking powders.



1. How do you know that the powders your teacher tested with the red cabbage indicator are not the same?

What's next?

You saw that a test liquid like vinegar or red cabbage indicator can be used to tell similar-looking powders apart. The differences you observed when each test liquid was added to each powder were evidence that these powders are chemically different. Scientists can use the changes that occur when certain substances react together to help them identify unknown substances. In the next activity you will test different powders with four different test liquids. Once you have conducted the tests in an organized way and recorded your results, you will then be able to test and identify an unknown powder.