

DESCRIPTION

Did you know you could make a cool purple liquid just from boiling a cabbage? It's easy and you can make all sorts of cool colors! Join the A-TV science superstars and find out how to make a cabbage indicator.

MAKE PENNIES SHINE

- vinegar
- glass jar
- pennies
- salt
- measuring spoons
- paper towel

ACID TEST

- measuring spoons
- orange juice
- tomato sauce
- milk
- grape juice
- baking soda

CABBAGE TEST

- red cabbage
- boiling pot of water
- strainer
- small clear cups
- medicine dropper
- baking soda
- clear vinegar
- sprite
- knife

DIRECTIONS

1. The first thing that we need to do is take our jar and pour vinegar into it until the jar is half full. Now that we have the vinegar in our jars, the next thing we need to add is our salt. Measure out one teaspoon of salt and add it to the vinegar. Stir everything up until the salt dissolves.
2. Now add 6 pennies to the solution and let them sit in the vinegar solution for about 3 minutes. Take 3 pennies out of your jar and put them on a paper towel to dry. Take the rest of your pennies out of the solution and rinse them off with water. Then put them on a separate paper towel to dry.
3. The pennies that you rinsed in water are clean and shiny and the pennies that you did not rinse have turned a bluish-green color.
4. The vinegar and salt solution was able to loosen up the copper oxide on the pennies. So when the pennies were rinsed off the copper oxide came off and they became shiny. The pennies that you didn't rinse off still had the vinegar solution on them when you set them out to dry, which caused another reaction, they turned blue.

Did you know there's a free web video for this activity with step-by-step instructions?
See all the fun activities for kids at www.activitytv.com.



5. The next science experiment that we're going to do is called, Acid Testing. Take one of your cups and add 2 tablespoons of milk to it. Then add $\frac{1}{2}$ teaspoons of baking soda to the cup and observe what's happening to the milk. If you see bubbles in the milk—that means that there are some acids in it.
6. Take another cup and add 2 tablespoons of orange juice to it and add the $\frac{1}{2}$ teaspoon of baking soda. Now observe what happens to the orange juice.
7. Now test the grape juice, what do you see? Now test the tomato sauce. Put 2 big tablespoons of sauce into a cup and add your baking soda. Look at those bubbles. Tomato sauce definitely has acid in it. We discovered that all of our ingredients have acids in them. As the baking soda dissolved in the ingredient, it would react to any present acids, thus producing carbon dioxide bubbles.
8. The last experiment you are going to do is called, color changing cabbage. Have your adult helper slice your cabbage into 6 sections. Put the cabbage in your bowl and then have an adult help you cover it with hot water. Jessica: Let the cabbage steep in the hot water until the water has cooled and changed to a deep purple color.
9. While our cabbage cools, let's move on to the next step! What you need to do is dissolve some baking soda in some water. Take one of your cups and Add $\frac{1}{2}$ cup water and 2 tablespoons baking soda to it then stir everything up really well. The next step is to pour some vinegar into one of the small glasses. Add about $\frac{1}{2}$ cup. Take some clear soda and pour some of it into another small glass.
10. Now that the cabbage water is cold, strain it and put it into a beaker. This is your cabbage indicator. If you don't have a beaker at home, you can use a clear glass or jar. Now, pour $\frac{1}{2}$ cup of the cabbage indicator water into an empty glass. Now that you have all of your liquids measured out in front of you it's time to see which liquids will change the color of the cabbage indicator!
11. Pour a little of the vinegar into the Indicator and see what color it changes to. It should look pink. You can change the cabbage indicator back to purple again by pouring some of the baking soda solution into it. Try the soda next. The acids in the vinegar turned the cabbage indicator pink and when you added the baking soda, it turned the indicator purple, because baking soda is an alkali.