



Activity: Cabbage Juice Chemistry

Use purple cabbage juice as a pH indicator to determine what ingredients in your kitchen are acidic or basic, and watch it change colors before your eyes!

Like the properties of color and density, pH is another property of every chemical and can range from acidic to basic. Scientists test the pH of chemicals because mixing an acid and a base creates a chemical reaction.

Materials

- ▶ Purple or Red Cabbage
- ▶ Water
- ▶ Baking Soda
- ▶ Vinegar
- ▶ Knife and Cutting Board
- ▶ Pot or Bowl
- ▶ Cups
- ▶ Spoons or Straws
- ▶ White Ice Cube Tray or Small Paper Cups

How to Make Purple Cabbage Juice

1. Chop $\frac{1}{4}$ of a purple cabbage.
2. Add 3 cups of water and boil it on the stove, then let cool. Or use a bowl and heat it in the microwave for five minutes, then let cool.
3. Pour the the purple juice into a cup.

Cabbage Juice Experiment

1. **Get Your Chemicals Ready:** Set out one cup each of cabbage juice, vinegar, and baking soda. Decide if you'd like to use a spoon or a straw to move your chemicals. If using a straw, place it in the liquid, cover the top with your finger then lift it up to move a small amount of liquid, just like an eye dropper.
2. **Start with Cabbage Juice:** Set out the ice cube tray and move cabbage juice into each of its holes.
3. **Test Baking Soda:** Using a straw or spoon add a small amount of baking soda to one of your experiment holes. Stir. What happens? Repeat the test in different holes. Do you get the same results?
4. **Test the Vinegar:** Using a straw or spoon add a small amount of vinegar to another experiment hole. What happens? Repeat the test in different holes. Do you get the same results?
5. **What is the pH?:** Use the key to determine which chemical is an acid and which is a base.
6. **Chemical Reactions:** Use a spoon or straw to add pink acid from your experiment tray to a hole with the blue base. What happens?



Basic



Neutral



Acid

7. **Extensions:** Test other things in your kitchen by adding them to cabbage juice. What colors do they turn?

Milk _____

Lemon Juice _____

Soda _____

Salt _____

Soap _____