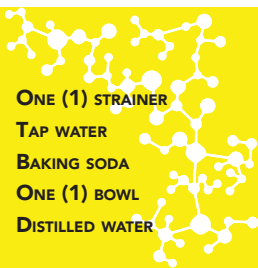Making **Science** Make **Sense**®

ARE YOU AN ACID OR A BASE?

MATERIALS:

- **1/2** HEAD OF **RED** CABBAGE
- **THREE (3)** CLEAR GLASSES OR JARS
- **ONE (1)** METAL GRATER
- **WHITE VINEGAR**
- **ONE (1)** POT
- **ONE (1)** TEASPOON
- **ONE (1)** STRAINER
- **TAP WATER**
- **BAKING SODA**
- **ONE (1)** BOWL
- **DISTILLED WATER**

PROCEDURE:

1. Grate the red cabbage into small pieces and place it in the pot.

2. Fill the pot with tap water.

3. Boil the red cabbage for 20- 30 minutes until the water turns a dark purplish color.

4. Using the strainer, drain the water from the pot into one of the bowls. The collected water should be bluish/dark purple in color.

5. Take the three clear glasses or jars. Fill one with distilled water. Fill another with white vinegar. In the third jar, mix distilled water and baking soda. These are your acid/base test solutions.

6. Using a teaspoon, add a few drops of the cabbage juice to your solutions. What happens?

WHAT THIS MEANS:

pH is a unit of measurement that represents one characteristic of a solution - in this case, whether a substance is an **acid** or a **base**. The pH scale ranges from acid (0-6) to neutral (7) to base (8-14).

In this experiment, we are using the red cabbage water as an acid-base indicator. Red cabbage contains anthocyanin or pigment molecules. They will change their color depending on the pH of their environment. When added to very acidic solutions, it will turn a pinkish-red color. Neutral solutions result in a bluish-purple color. Basic solutions appear in greenish-yellow.

Just like vinegar, your stomach is acidic. When you eat spicy food, too much acid builds up in your stomach and can make you feel upset.

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