



## **pHun with Cabbage**

**Primary Audience: Grades 3-5**

**Description:** Test the pH of substances using Cabbage.

**Keywords:** Acidity, pH, Cabbage

### **Concepts:**

- pH is a measure of acidity or base qualities in certain organic materials

### **Materials:**

- 1 head of red or purple cabbage
- 1 gallon very warm water
- Craft sticks and small cups
- Kitchen chemicals to test, such as lemon juice, baking soda, window cleaner, clear soda pop, vinegar
- Pipettes or droppers

### **Instructions:**

- Tear one cabbage leaf into small pieces and place in cup.
- Add very warm water to cover leaves. Crunch up leaves and water with craft sticks. What happens to the water?
- Remove cabbage leaves and discard. Pour some juice into each of the other cups.
- Add a little of each substance to be tested to the cabbage juice in the cups.
- What happens? Compare the colors and group the cups according to the following:
  - rose and red = acids;
  - purple = neutral;
  - blue, green, yellow = bases

### **Possible Interactive Questions:**

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### **What's Going On?**

Red cabbage contains the pigment *anthocyanin*, which changes colors when it comes in contact with an acid or a base. Acids and bases are two classes of chemicals

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based upon how they react. We use acids and bases often in our everyday lives. For example, our stomachs contain acids that break down foods. Cleaning solutions are usually bases, as they neutralize the acids and wash them away. Test some other chemicals (clear chemicals work best!) with the cabbage juice indicator. Use the color chart to determine how strong the acids and bases are.

**Further Exploration:**

1.

**Relevant Ohio Science Content Standards:** Scientific Inquiry, Grades 3-5 –B  
Organize and evaluate observation, measurements, and other data to formulate inferences and conclusions.