**Natural pH Tester**

**OBJECTIVE:**

Create a natural pH tester with red cabbage juice.

**TERMS TO GO OVER:**

pH

Acid

Base

Neutral

**PRE-LAB DEMONSTRATION MATERIALS:**

* Red cabbage
* Blender
* Water
* Coffee filter
* Funnel
* Cup
* Test tubes
* Test tube holders
* Lye
* Hydrochloric acid

**PRE-LAB DEMONSTRATION PROCEDURE:**

1. Put the red cabbage into blender with some water and chop until pulpy
2. Filter out the pulp, leaving only the cabbage juice in a cup
3. In the 3 test tubes, put in 20mL of cabbage juice each
4. In one test tube, put in water and show that it is neutral
5. Put in hydrochloric acid in another and show that the cabbage juice turns red
6. Put in lye in the last test tube and show that the cabbage juice turns yellow
7. Then, balance out the acid with a base, and vica-versa until the solutions all turn to the original red cabbage juice color

**WHAT IS HAPPENING?**

Red cabbage acts as a natural pH. When reacted with an acid, it turns red; when reacted with a base, it turns blue, then blue-green, blue-yellow, and finally yellow

**LAB MATERIALS:**

* Red cabbage
* Blender
* Water
* Coffee Filter
* Funnel
* 10mL cups
* Pipets
* Plastic cups
* Milk
* Lemon juice
* Vinegar
* Baking soda
* Carbonated soda
* Salt water
* Sugar water
* Dish soap

**GROUP LEADER/VOLUNTEER/TLC ROLE**

Help the students determine whether the indicator shows a base or an acid.

**SETUP PROCEDURE**

1. Put cabbage and water into blender and mix until pulpy
2. Filter out the juice with the coffee filter and funnel into a cup for each group
3. Put two ingredients at each table
4. In separate cups, mix salt, sugar, and baking soda with water

**LAB PROCEDURE**

1. Add a little of each ingredient into the 10mL cups and then pipet in 3 drops of red cabbage juice – add more as needed – then watch the reaction. What color did it turn?