A STEM in the Park Take Home Activity

STEM in the PARK™

Science, Technology, Engineering, and Mathematics

Red Cabbage Indicator

What You Need

- 2 cup chopped red cabbage
- 2 cups of boiling water. If using water at room temperature, plan for longer time
- one big glass container
- 9 small glass containers
- baking soda (a)
- cream of tartar (b)
- vinegar (c)
- lemon juice (d)
- soap (dish detergent or laundry soap) (e)
- toothpaste (f)
- milk (g)
- windex (h)
- tap water (i)

Continued on back

What To Do

1. Chop the cabbage until you have approx. 2 cups and place into the big glass container. Add the boiling water and let it sit until the color leeks out of the cabbage. If using water a room temperature, might need to let it sit longer.
2. With a colander, separate the leaves from the purple liquid
3. Pour ~ 3 oz of the cabbage indicator into each of the small glass containers and label them a-i
4. Add the household items to the cabbage indicator according to the letters labeled until a color change is obtained.

Observe...

Each of the household items will turn the indicator into a different color depending on their acid-base properties. HINT: lemon juice is an acid while baking soda is a base. Can you determine, based on the colors, which households belong to which group?

Learn...

Aqueous solutions can be classified according to their level of acidity into acids or bases. Acids are those with high levels of acidity while bases have very low acidity. pH indicators are substances that are capable of changing colors depending on the acidity of the solution. Red cabbage contains a pigment that can behave as a pH indicator. The red cabbage indicator will turn reddish in presence of acidic solutions, purple for neutral (neither basic nor acidic) and blue-green for basic solutions.

This activity is brought to you by the Spectra

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