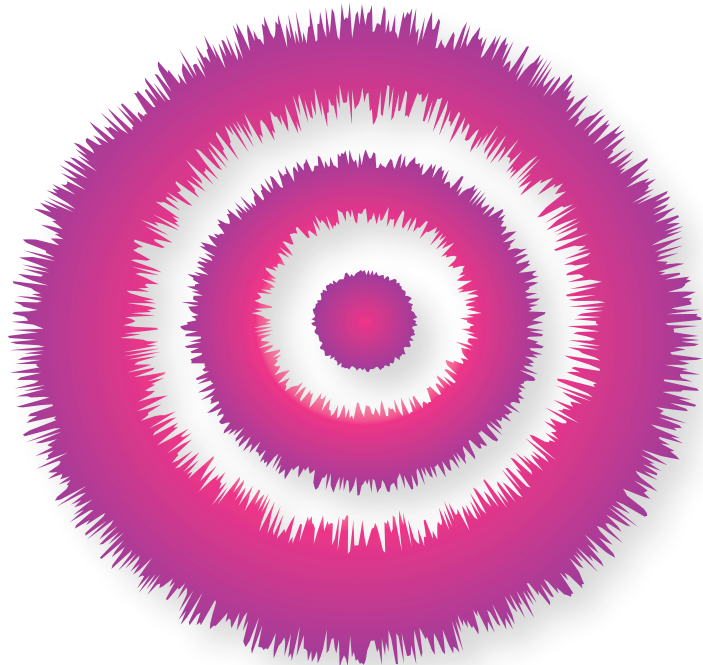


pH Tie Dye

Collect

- Red cabbage
- Knife & adult supervision
- Blender
- Water
- Strainer
- Large glass bowl
- Scrap piece of white cotton fabric
- Lemon juice
- Dish soap
- Q-tips or paintbrushes
- 2 small bowls



Prepare your pH indicator

1. Chop the cabbage and put into the blender.
2. Add just enough water to the blender to cover the cabbage.
3. Blend until it is the consistency of relish. Let it sit for about 10 minutes.
4. Place a strainer over the large bowl and pour the cabbage puree into the strainer. Press down on the cabbage to get out most of the juice.
5. Add the fabric you wish to dye into the bowl of cabbage juice and let it soak for 30 minutes until it is light purple in color.
6. Take the fabric out of the bowl, squeeze most of the liquid out, and then hang it up to dry.

Experiment with tie dye!

7. Protect your work surface with newspaper. Once your indicator cloth is dry, lay it down on the newspaper.
8. Add an even amount of dish soap and water into the first small bowl. Pour lemon juice in the second small bowl.
9. Dip a separate q-tip or paintbrush into each solution and use them to dye your fabric.
10. Experiment with how to change the color. How can you change the color back to purple? What happens when you put one solution on top of the other?
11. Once you are finished, hang the cloth up to dry. Do not rinse your fabric or the dye will be washed out.

What happened?

Scientists use indicators like red cabbage juice to figure out how acidic or basic a substance is. Acidic substances turn the red cabbage dye pink or red, and basic substances turn it blue or green. Acids and bases can be found everywhere. Sour foods like grapefruit are acids, and bitter things like hot tea are basic. Some acids are more acidic than others, just like some bases are more basic than others. When mixed together, acids and bases counteract each other to be more neutral.

Experiment!

Try out other safe substances like vinegar, milk, soda, tea, toothpaste, or fruit juice to see if they are acidic or basic. Can you tell which substance is the most acidic or basic?

