



Activity: Plant-Based Paints

Create your own watercolors using pigment that you extract from plants!

We call the colors we find in plants, pigments. People have been using the pigments found in plants to produce paint, ink, and dye for thousands of years. Pigments can come from all the different parts of the plant: seeds, roots, stems, bark, leaves, and flowers.

Some plant-based pigments are pH-sensitive. A pH is a measure of how acidic or basic a liquid or solution is. When a solution is pH sensitive, it means that its color changes through a chemical reaction when the liquid pigment is mixed with either an acid or a base.

Materials

- ▶ pH-Sensitive "plant stuff": Red cabbage, turmeric, berries, carrot tops, beets, spinach
- ▶ Acids: Vinegar, citrus juice
- ▶ Bases: Baking soda, dish soap, shampoo
- ▶ Pot, bowl, or large measuring cup
- ▶ Small containers, cups or ice cube tray
- ▶ Spoons for stirring
- ▶ Cutting board (optional)
- ▶ Strainer (optional)

Making Plant-Based Watercolors

1. Chop up or mash your "plant stuff."
2. Heat it up and/or mash your plant stuff to produce its liquid pigment. Either bring it to a simmer in a pot on the stove, or heat in short increments (e.g. 20 seconds at a time) in a microwave, using a microwavable container, stirring and/or mashing between each increment.
3. Divide each of your liquid pigments into small containers. Use as many containers per pigment as you have acids and bases.
 - ▶ Depending on the plant stuff you use, you may need to add some water to create your liquid pigment. For example, turmeric spice should be mixed with water, while berries create their own juices just by heating and mashing.
 - ▶ Strain out the larger parts of the plant, leaving just the liquid pigment.
4. Add a little bit of each acid and base to each pigment and stir.
5. Paint!

Tips

- ▶ Experiment with different amounts of pigment, acid and base to produce many color variations!
- ▶ Record the amounts of pigment, acid and base you are using so that you can recreate the color or change based on the colors you want to create next!
- ▶ As your paintings dry, the watercolor pigments will become more vibrant and may even change color!