



# Natural Dyes across the Color Wheel

Discover what you can use to dye fabrics that may be right under your nose!

## Grade range

Best for grades 2-8. Adult supervision is strongly recommended.

## Why it Matters

By naturally dyeing materials like t-shirts or bandanas, you can save money while learning more about the environment! By using natural materials to dye fabrics, you can avoid reactions by those allergic to artificial dyes AND have the joy of creating something from earthly, organic materials! You can be an advocate for **sustainability** by using natural resources, leading to a healthier environment.

## Learn about natural dyes!

Until the mid-1800's, nearly all **dyes** have come from **natural** sources—evidence of natural dyes goes back at least 4000 years! It wasn't until between about 1850 and 1900, during the industrial revolution, that companies started to invest in **artificial** dyeing methods.<sup>1</sup> Before this, people would create and color fabric themselves with, all just from minerals and **organic** materials. Even today, many people use natural dyes to give color to natural fibers, wool and yarn.

Often, when people want to add color to fabrics, they go to the store and buy kits or dyes that have artificial coloring in them. But plants and items of all varieties produce colors that can serve the same purpose!

**Natural/Organic:** not changed in any way, found in nature

**Artificial:** made by humans and not produced from the earth

**Dye:** a fake or natural material that changes the color of something

**Dye bath:** a combination of the color source and liquid, used to dye fabric materials

**Sustainability:** using resources for all they have to offer, not letting things go to waste



<sup>1</sup> Abrahart, E. Noah and Stothers, . J.B. (2019, March 5). dye. Encyclopedia Britannica. <https://www.britannica.com/technology/dye>

## Dye some fabric!

### Gather materials

Before beginning this activity, make sure to ask your parent or guardian for permission to use these supplies and ask them for their supervision.

- [Color Wheel & Tie Dye Pattern Handout](#)
- White cotton fabric such as a bandana or t-shirt (natural fibers, such as cotton, will absorb the dye better)
- White yarn
- Tea Bag
- Squirt bottle or dropper
- Rubber bands
- Gloves
- Hot water
- Pot or Crock Pot
- Bowl or Bucket
- Natural Items you want to test (like plants, fruit or vegetables)
- Ladle
- Newspaper or tablecloth to protect work area

### Try it out!

1. Begin by gathering your materials and placing them in a clear area such as a kitchen counter or table.
2. Fill a pot or crock pot with water, and with the help of an adult, turn on the heating element.
3. Now, taking one natural material at a time, carefully place one into the crock pot or pot to begin creating the **dye bath**.
4. While the dye bath is heating up, take the fabric and rubber bands, and begin using a tying technique of your choosing to prepare the bandana for the coloring process. See the [Color Wheel & Tie Dye Pattern Handout](#) for ideas on how to tie your bandana.
5. The longer you let your dye bath heat up, the stronger the color of the natural dye will become.
6. When the dye bath reaches your desired color, have your guardian help you ladle some of the liquid into the squirt bottle or a small bowl if using a dropper.
7. When your color is in the squirt bottle or dropper, you may begin by squirting the dye onto your banded bandana.

8. After the color is on your bandana, wrap it in a plastic bag and let it sit. The longer it sits, the stronger the shade of color.
9. Next you will remove the rubber bands.
  - Tip: Use scissors to cut the rubber bands, but be sure to avoid snipping the fabric. (Check with adult first)
10. Rinse your bandana in cold water.
11. Wash your tie-dye creations in the washer on a warm cycle. Be sure to wash and dry them separately from your normal clothing cycles to prevent bleeding of the dyes.
12. Dry your bandana in the dryer, and your creation is complete!

## Think it over

- Did you get the color you expected? Why do you think that is?
- If you were to do this again, what would you do differently?
- How do you think people use natural materials in their careers?
- Why is using natural dyes more sustainable than using artificial dyes?
- How can you use this activity to help the environment?

## Take it further

- Try other materials to use for dyes. Visit [www.fs.fed.us/wildflowers/ethnobotany/dyes.shtml](http://www.fs.fed.us/wildflowers/ethnobotany/dyes.shtml) for ideas. Note, some plants can produce more than one color. Why do you think this is? What other plants do you want to experiment with?
- Try dying a different piece of clothing or tying method to create a new design.

## More resources

- US Forest Service. (2015). Native Plant Dyes. <https://www.fs.usda.gov/wildflowers/ethnobotany/dyes.shtml>
- Tie-Dye Techniques, <https://www.sww.com/blog/tricks-and-tips-for-tie-dying/>

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## Color Wheel & Tie Dye Pattern Handout

# Dye Colors

Try these plants to produce the following colors!

## REDS

Cranberry, Cherry, Prickly Pear, Beets, Cochineal (insect), raspberries, strawberries, sumac, chokecherry, prairie parsley, slippery elm, black willow, avocado pit

## ORANGES

Tomato, Eastern Cottonwood, orange

## YELLOWS

Onion skins, peach tree bark, tomato vines, willow tree leaves, daffodil petals, pomegranate rinds, marigold blossoms, orange rinds, yarrow, pecan

## GREENS

Grass, butterfly milkweed, sagebrush, stinging nettle, spinach, carrot tops, Parsley leaves

## BLUES &

Grapefruit fruit, blueberries (fresh or canned), red cabbage,

## PURPLES

Black beans (dried), Red Mulberry, alder, grapes, black locust

## BROWNS

Pecans, coffee, tea, onion skins (red), walnut hulls, roots, dirt, elderberry, phlox

## BLACKS

Sumac, may-apple, primrose

## & GREYS

Iris, butternut



# Tie - Dye Patterns to try!

**CLASSIC SPIRAL:**


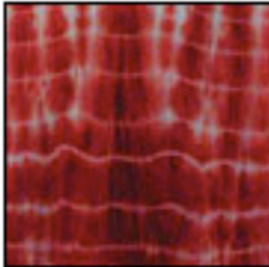
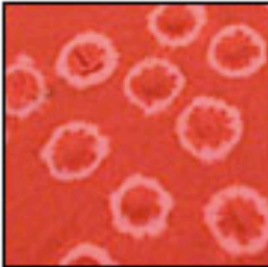





**VERTICAL STRIPE:**



**BULLSEYE:**



 <p><b>sunburst</b></p>	 <p><b>lines</b></p>	 <p><b>circles</b></p>
 <p><b>marble and several rubber bands</b></p>	 <p><b>rubber bands only</b></p>	 <p><b>marble and one rubber band</b></p>