



Activity: Compost Color

Don't throw that avocado pit away! Use your food scraps to add color to old napkins, clothing or pillowcases.

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.

Plant-based pigments can be found in some of the things we might think of as food-waste, like avocado skins and pits, onion skins, and old tea bags. We can use these things to give fabrics, like old clothes, napkins, or linens, a new life!

Most of the fabric we use is made from either animal proteins or plant parts.

- ▶ **Cellulose Fibers** come from plants, and are used to make fabrics, such as cotton and linen. This recipe focuses on these kinds of fibers and fabrics.
- ▶ **Protein Fibers** come from animals, and are used to make fabrics such as wool and silk.

The natural dyeing process takes a long time, so make sure you have other fun activities to do along the way.

Materials

- ▶ Pigment plants/food waste (avocado pits, avocado skins, onion skins, or old tea bags)
- ▶ "Mordant" (salt, vinegar and/or alum)
- ▶ A pot* (stainless steel, enamel or aluminum)
- ▶ Large wooden or metal spoon for stirring*
- ▶ Sieve or strainer*
- ▶ Rubber gloves
- ▶ Extra bucket or bowl
- ▶ White or light fabric (old clothes, napkins or linens)
- ▶ Kitchen scale (optional)

Gathering Your Pigment Plants

Collect your food scraps! Gather up a collection of avocado pits, onion skins or old tea bags. These are what you will use to produce color. Ideally, you want your food scraps and your fabric to weigh about the same amount.

Below are the amounts you might need to dye a t-shirt. But, you can increase or decrease the amounts of plant parts/food scraps you use depending on the amount of fabric you want to dye.

PLANT PARTS/FOOD SCRAPS	PIGMENT PRODUCED
4-5 Avocado pits or skins (clean all avocado off of them before using)	Pinks and peaches
10-15 Onion skins	Yellows and browns
5-6 Tea bags	Purples, pinks and browns depending on the kind of tea you use!

Prepare Your Fabric

Wash: Make sure to wash your fabric well before dyeing it. Give it an extra rinse to make sure all of the soap is removed. If you want to tie-dye your fabric (<https://www.parents.com/fun/arts-crafts/kid/tie-dye-with-kids/>), create your pattern after washing your fabric.

Mordant: Most natural dyes and all cellulose fabrics require a mordant, a substance that helps the dye adhere or attach to the fibers in the fabric.

- ▶ For fruit dyes, use 1 part salt and 14 parts water (e.g. ¼ cup salt and 4 cups of water). Dissolve the salt in the water, and simmer your fabric in this mixture for approximately one hour.
- ▶ For vegetable dyes, use 1 part vinegar to 4 cups water (e.g. 1 cup vinegar and 4 cups water). Dilute the vinegar in the water, and simmer your fabric in this mixture for approximately one hour.

Make sure your fabric is very wet before putting it into the mordant. Use enough mordant solution to fully submerge your fabric.

Make the Dye Bath

Making the bath of pigment, or dye bath, that you will use to dye your fabric is like brewing a cup of strong tea.

- ▶ Place your plant parts/food scraps in your pot* and add enough water so they are submerged.
- ▶ Heat your water to a gentle simmer and continue to simmer, or steep, your plant parts/food scraps for about an hour with the pot lid on. Do not let it boil!
- ▶ Strain the plants parts/food scraps from the liquid pigment.
- ▶ Pour the pigment back into the pot and allow it to cool.

Dyeing

- ▶ Make sure your fabric is very wet (from the mordant) before putting it into the pot of pigment (dye bath).
- ▶ Submerge your fabric in the pot of pigment. Add just enough water so that your fabric is covered in the liquid.
- ▶ Slowly, over 30 minutes on low heat, bring the dye bath to a simmer.
- ▶ Simmer at this temperature for about an hour, stirring about every 5 minutes.
- ▶ Turn off the heat and allow the fabric to rest in the pot of pigment until cool.
- ▶ Hang your fabric to dry.

Washing

- ▶ Rinse the fabric with lukewarm water to remove excess dye.
- ▶ Wash with a gentle washing liquid, like dish soap, until the water runs clear.

*Safety considerations

- ▶ Do not use the equipment you use for dyeing for cooking or food preparation.
- ▶ Always work in a well-ventilated area.
- ▶ Wipe down surfaces when you are finished dyeing.
- ▶ Wear gloves and avoid inhaling fumes.