# GARDEN ACTIVITY PACK

DIY fun using Smart Pots COOKING SCIENCE ART







# ART EDITION

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# NATURAL PLANT DYES





Creating arts and crafts using natural dyes allows you to transform the inherent beauty and vibrancy of plants into a new form. This garden activity pack introduces you to the best plants to grow for natural dye in your Smart Pots, 3 ways to extract pigment from your plants, and fun activities for using your homemade natural plant dyes.

# **BEST PLANTS FOR NATURAL PLANT DYES**

### GREEN

FLOWERS: BLACK-EYED SUSAN LEAVES: SPINACH CONEFLOWER CHAMOMILE GRASS NETTLE ROOTS:

PLANTAIN

## **PURPLE/PINK**

FRUIT: BLUEBERRIES WILD GRAPES BLACKBERRIES MULBERRIES ROOTS: DANDELION BEETS

#### **RED/ORANGE**

ROOTS: MADDER SEEDS: ANATTO



#### ORANGE

FLOWERS: DYER'S COREOPSIS ROOTS: CARROTS ONION SKINS

#### BLUE

LEAVES/STEMS: TOMATO PLANTS RED CABBAGE FRUIT: ELDERBERRIES

## YELLOW/GOLD

#### FLOWERS:

CHAMOMILF DAISIES ASTER MARGUERITE MARIGOLD CALENDULA ZINNIA DAHLIA SULFUR COSMOS SUNFLOWER ST. JOHN'S WORT LEAVES/STEMS: MINT PARSLEY WILD MUSTARD YELLOW DOCK **BINDWEED** CELERY **ROOTS:** TURMERIC

Note: Size of Smart Pot needed varies depending on plants grown.

# WAYS TO EXTRACT NATURAL PLANT DYES



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alum\* (aluminum potassium sulfate from a

pharmacy, craft store, or spices section of

GARDENING



## **SUN-BREWED DYE**

#### Supplies:

- various plant materials, cut into small pieces
- distilled water (\*chlorine-free)
- glass pint jars with lids

#### plastic or wooden spoons

#### Instructions:

- 1. Place the prepped plant material in the jars, add distilled water to within an inch of the brim, and cover the jars with a non-metal lid or plastic wrap with a rubber band.
- 2. Place the jars in a warm, sunny place for several days and then strain the liquid through
- 3. To each pint jar, add 1/4 teaspoon of alum and stir with a wooden or plastic spoon.
- on the next page).
- 5 Allow items for soak in the liquid for 1 to 4 days, then rinse in cool, clear water.

## **STOPVETOP DYE BATH**

#### Supplies:

- various plant materials, cut into small pieces
- large enamel or glass pot
- hotplate or stovetop
- distilled water (\*chlorine-free)

#### Instructions:

- 1. In the pot, cover the plant materials with distilled water and then simmer them for about an hour until the water is colored and the plant tissues look bleached.
- Strain the dye bath through cheesecloth or an old stocking to get rid of plant material.
  Optional: Add mordant\*. If you're just getting started, you may choose not to use a mordant to
- fix" the dye to fabric. Some plants will yield colorfast dyes without a mordant (e.g. turmeric), while others will lose their color with washing and sunlight (e.g. purple cabbage). 4. At this point, you can add the items of your choice that you wish to dye (\*See specific
- instructions for fabric on the next page) OR use the dye liquid for the other activities on the following page.

\*Note: Alum and cream of tartar are used as mordants that act as fixatives to chemically attach or "set" the dye to the material being colored.





## **POUNDED PLANT PRINTS**

#### Supplies:

- fresh flowers and leaves
- rubber mallet
- white or light-colored cotton fabric

#### Instructions:

- 1. Cut flowers from stems, leaving a little bit of stem attached.
- 2. Choose a workspace that can be safely pounded with a hammer, such as the floor or a sturdy worktable. Cover the surface with thick protective layer of newspaper, and place wax paper on top to keep the newsprint from being transferred to the fabric. Lay fabric on top of the wax paper.

safety goggles

wax paper

newspaper

- 3. Place flowers and leaves face down on the fabric and place sheet of wax paper over the entire design.
- 4. With safety goggles on, kids can hammer through the wax paper to transfer the flower pigment onto the fabric. Make sure they pound along the margins to define the shape. Thick flowers require more pounding.
- 5. Remove wax paper and check the fabric. You may want to add more flowers and continue the process until they are pleased with the results.

grocery store)

plastic wrap

paper towels

- cheesecloth and pour it into clean pint jars. Compost the used plant material.
- 4. Immerse items you wish to dye in the liquid (or save the liquid to use in any of the activities
- 6. Place the items on paper towels or hang to dry.

- large wooden spoon or spatula
- cheesecloth or nylon stockings
- alum\*
- cream of tartar\* (available in spices section of grocery store)

# CREATE ART WITH NATURAL PLANT DYES



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# **DYEING FABRICS**

Prepare the dye liquid using the instructions for a sun-brewed or stovetop dye on the previous page.

#### Instructions for a stovetop dye bath:

- 1. Pretreat the fabric: Create a mordant solution by dissolving 3/4 teaspoon alum and 1/4 teaspoon cream of tartar in a cup of hot water, then add it to a pot of water (1 quart of water per each ounce of fabric). Wet the fabric with tap water to ensure good absorption, then place it in the mordant solution.
- Heat slowly at a simmer for one hour. Remove the pot from the heat; cool and rinse the fabric before adding it to the dye bath.
- 3. Add fabric to dye bath and simmer for 30 to 60 minutes, turning the material gently. Stir and check the color every 10 minutes or so.
- 4. Rinse dyed materials with progressively cooler water and hang them to dry.





# TIE DYE

#### Supplies:

- dye liquid\*
- white fabric (e.g. t-shirt, bandana, etc.)
- rubber bands
- plastic squeeze bottles plastic bags

#### Instructions:

- 1. Add the dye liquid to plastic squeeze bottles.
- 2. Tie off the fabric as you wish using rubber bands. There are dozens of ways to create different tie dye patterns, but the classic spiral involves pinching the center, twisting it into a coil shape, and then tying rubber bands around it to section it off. Each section will be used for a different color.
- Using the squeeze bottles, carefully add the dye onto each section, saturating the fabric.
  Place the dyed fabric into a plastic bag and let it soak for 1 hour to 1 day (the longer, the stronger the color).
- 5. Untie the rubber bands to reveal your tie dyed design.
- 6. Wash separately in cool water.





# DYED EGGS

\*Note: Prepare the dye liquid using the

instructions for the stovetop dye on the

previous page and steps 1-2 above, being

sure to pre-treat the fabric using mordant to

ensure that the color will stay after washing.

#### Instructions:

- 1. Using your natural dye liquid that <u>has not been treated</u> with mordant (this is important, especially if they will be consumed), soak hardboiled white-shelled eggs for 1 hour or more.
- 2. Once they reach the desired color, place them on paper towels or a metal rack to dry completely.

# WATERCOLOR PAINT

#### Instructions:

1. For every 1/2 tsp of natural dye liquid, mix in 1/4 tsp of natural (kaolin or white cosmetic) clay. 2. This mixture can be used to create colorful watercolor paintings!

