GARDEN ACTIVITY PACK

DIY fun using Smart Pots

COOKING
SCIENCE
ART

Smart Pot
Patented Aeration Container

ART EDITION

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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
- **FLOWERS:** CONEFLOWER
- **FLOWERS:** CHAMOMILE
- **FLOWERS:** GRASS
- **LEAVES:** NETTLE
- **ROOTS:** PLANTAIN

**RED/ORANGE**
- **ROOTS:** MADDER
- **SEEDS:** ANATTO

**ORANGE**
- **FLOWERS:** DYER’S COREOPSIS
- **ROOTS:** CARROTS
- **ONION SKINS**

**BLUE**
- **LEAVES/STEMS:** TOMATO PLANTS
- **FRUIT:** ELDERBERRIES

**PURPLE/PINK**
- **FRUIT:** BLUEBERRIES
- **WILD GRAPES**
- **BLACKBERRIES**
- **MULBERRIES**
- **ROOTS:** DANDELION
- **BEETS**

**YELLOW/GOLD**
- **FLOWERS:** CHAMOMILE
- **DAISIES**
- **ASTERS**
- **MARGUERITE**
- **MARIGOLD**
- **CALENDULA**
- **ZINNIA**
- **DAHLIA**
- **SULFUR COSMOS**
- **SUNFLOWER**
- **ST. JOHN’S WORT**
- **LEAVES/STEMS:** MINT
- **PARSLEY**
- **WILD MUSTARD**
- **YELLOW DOCK**
- **BINDWEED**
- **CELERY**
- **ROOTS:** TURMERIC

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Note: Size of Smart Pot needed varies depending on plants grown.
WAYS TO EXTRACT NATURAL PLANT DYES

SUN-BREWED DYE

Supplies:
- various plant materials, cut into small pieces
- distilled water (*chlorine-free)
- glass pint jars with lids
- plastic or wooden spoons
- alum* (aluminum potassium sulfate from a pharmacy, craft store, or spices section of grocery store)
- plastic wrap
- paper towels

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 cheesecloth and pour it into clean pint jars. Compost the used plant material.
3. To each pint jar, add 1/4 teaspoon of alum and stir with a wooden or plastic spoon.
4. Immense items you wish to dye in the liquid (or save the liquid to use in any of the activities on the next page).
5. Allow items for soak in the liquid for 1 to 4 days, then rinse in cool, clear water.
6. Place the items on paper towels or hang to dry.

STOPVETOP DYE BATH

Supplies:
- various plant materials, cut into small pieces
- large wooden spoon or spatula
- large enamel or glass pot
- hotplate or stovetop
- distilled water (*chlorine-free)
- cheesecloth or nylon stockings
- alum*
- cream of tartar* (available in spices section of grocery store)

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.
2. Strain the dye bath through cheesecloth or an old stocking to get rid of plant material.
3. Optional: Add mordant*. If you’re just getting started, you may choose not to use a mordant to “fix” the dye to the 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.

POUNDED PLANT PRINTS

Supplies:
- fresh flowers and leaves
- rubber mallet
- white or light-colored cotton fabric
- safety goggles
- wax paper
- newspaper

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.
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.

*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.
CREATE ART WITH NATURAL PLANT DYES

DYING 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.
2. 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.
3. Using the squeeze bottles, carefully add the dye onto each section, saturating the fabric.
4. 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.

*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.

DYED EGGS

Instructions:
1. Using your natural dye liquid that has not been treated 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!