

Preserving Buds and Blooms

Overview: The vibrant blooms of summer captivate our senses and imaginations, then so quickly fade away. But the story doesn't have to end like that. You can extend children's fascination with flowers, adorn your classroom, and inspire a host of hands-on projects by doing what humans have done for thousands of years: dry 'em.



Materials:

- Flower cuttings for drying – see chart below for suggested varieties
- Air-drying:
 - pruners or sharp scissors
 - string or rubber bands
 - pole, drying rack, or other means of hanging flower bunches
 - newspaper or drop cloth
- Using drying agents:
 - pruners or sharp scissors
 - shallow airtight plastic or glass container
 - a drying agent such as silica gel (a granulated drying agent you can find at florists or craft suppliers), sand, and/or cornmeal

Approximate Time to Complete: 30 minutes prep, plus total drying time

Location: Indoor

Grades: 3-5, 6-8, 9-12

Season: All Seasons

Background Information: Preserving plants by drying them is hardly a new idea. Remnants of dried flowers and herbs have been discovered along with mummified bodies in Egyptian pyramids. Monks during the Middle Ages dried flowers and other plant parts for decorations, medicinal uses, and dyes. In the 18th century, Europeans and colonial Americans used aromatic dried flowers and herbs to repel insects and cover smells resulting from a lack of fresh water for hygiene and refrigeration to keep foods fresh. Crafts and decorations from dried flowers also brought color and promise to homes through bleak winters.

Science, art, and even history can be woven into a flower-drying project. After all, there's more than one way to dry a flower and different variables that affect the outcome. As kids test various flowers and drying regimens, gather data, and make sense of findings, they think and act like scientists. Important concepts are revealed as keen observers explore the transitions from bud to bloom or the interaction of water, light, and pigment. A class can dig into the historical "language" of flowers or create bouquets, wreaths, potpourri, and other crafts to give as gifts or sell to raise funds.

Growing and Gathering: Flowers that dry well are typically colorful, compact, strong-stemmed, and relatively low in moisture content. The chart below lists ideal flowers to grow and/or gather for drying. In flower drying, as in life, timing is everything. Have kids look for flowers just beginning to reach maturity. Other flowers on the stem or plant may still be partially closed, but that's okay; the blooms will open more as they dry. Avoid harvesting flowers when they're already at their peak or beyond;

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they'll tend to look "over the hill" when they dry. (You might ask kids whether flowers on a spiky stem, such as delphinium, open top to bottom or bottom to top and let them observe what happens over time!)

The best time to pick flowers for drying is mid-morning when the dew has dried but before they're wilted from heat and sun. For most flowers, you'll want to take as much stem as possible and make a clean, angled cut with a sharp pruner or scissors. Remove excess leaves on the lower part of the stem. If you're drying blooms that have weak stems or those that weaken as they dry (e.g., strawflowers, globe amaranth, and immortelle), leave an inch of stem or less and plan to replace it with florist's wire before you dry the flowers. (You can later wrap the wire support with florist's tape to camouflage it.) Keep the cut blossoms out of sunlight to maintain good color. Once they're dried, you can bring them into the light.

Selecting a Method: One of the easiest means of preserving flowers and their vibrant hues is to air-dry them in hanging bunches. But not all budding blossoms take to this scheme. Those that are fragile or moist, such as pansies and poppies, dry better when covered with a substance, like silica or sand, that helps draw the water out. Yet another approach (if you don't mind flattened flora) is to press blooms and other plant parts. If this is your preference, please check out our activity, [Pressed Flowers and Leaves](#). Whichever method you use, the basic principle is the same: to remove moisture slowly while maintaining as much of the original shape and texture as possible.

Instructions:

Air-Drying

Sturdy flowers with relatively low moisture contents (see chart below) generally air dry very well as long as you follow some simple instructions:

1. Find a relatively dark, dry, airy spot (a hallway or attic, for instance) for hanging flower bunches. (Low light is okay, but direct light will drain flower color.) If there is little airflow in your drying area and/or you're in a humid area, you can use a fan to increase air circulation.
2. Gather flower stems into bunches that are no more than 1½ inches thick at the bottom and bind each bunch at the bottom with string or rubber bands.
3. Challenge kids to design a system for hanging their flower bunches upside-down. For instance, they might create a clothesline effect with horizontal poles or ropes or build a drying rack. (Bent paper clips make perfect hangers for bunches.) Place a newspaper or a drop cloth under the bunches to catch fallen leaves and petals.

Note: Some flowers dry better right side up. This is often true for large blooms, such as sunflowers; many-flowered blooms, such as Queen Anne's lace and dill; and seedheads, such as those from poppies. Try putting stems of these types of plants through a piece of wire mesh (e.g., hardware cloth) so the flowers lay flat and the stems dangle below. Better yet, have your students invent a unique drying system.

4. Look for signs of drying. The process can take from 10 to 20 days, depending on the plant. The stems should snap easily when the flower is thoroughly dry. Students might also dissect one or two flowers to make sure there is no moisture inside — and learn a bit about flower anatomy, to boot. If you're saving flowers for a craft project or sale later in the year, wrap them in newspaper and place them inside a cardboard box with air holes in the sides.

Using Drying Agents

Another common method for drying flowers involves covering them with something that draws moisture out, generally referred to as a desiccant. Here are instructions for using several drying agents: silica gel, sand, and homemade mixtures.

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Silica Gel

Silica gel, available from florists and craft shops, is not actually gel-like but rather is granular. It dries most flowers quickly — generally in three to four days — with good results. Although it is relatively expensive, you can reuse it indefinitely as long as you dry it out between uses (see below).

1. In a shallow, airtight container, spread the flowers on a 1-inch-thick layer of silica without crowding them. You may want to remove very thick stems and replace them with florist's wire so you won't have to use as much silica. Kids might want to try different flower orientations to see which best preserves the original shape. (For instance, some people recommend putting flat flowers, such as daisies, facing down.) Carefully spoon more silica on top until you've covered the flowers with at least another inch of silica, trying to keep the petals in their natural positions. If your container is tall enough, you can even make alternating layers of flowers and silica.
2. Seal the container and leave it for at least three days before checking on the flowers. (If you don't seal the container, the silica will absorb moisture from the air.) You may also want to try speeding up the process by using a microwave oven. To do so, put the silica-filled, sealed container in for about 3 minutes at medium power. Allow 15 minutes for it to cool before opening the lid. If the flowers aren't dry, you can put them in for 30 more seconds, remembering to let the contents cool each time. Do some flowers respond better to this treatment than others? What observations and generalizations can kids make? (Kids can also experiment by placing blossoms in folded paper towels directly in a microwave and putting a dish on top to prevent curling. Set the microwave for 2 minutes on high as a starting point.)
3. Gently shake the fully dried blooms or lightly brush off the silica. Once the flowers are dry, you can use them for arrangements, wall hangings, potpourri, field guides, and other creative projects kids dream up.
4. Dry the silica gel so you can reuse it. Most silica gel products turn pink when they've absorbed moisture and blue when they're dry enough to use. (Other products remain white.) If your silica turns pink, dry it out by baking it in a 200-degree F oven for several hours until it turns blue (or as directed on the package). Always store silica gel in an airtight container.

Sand Mixtures

Clean, dry, fine sand is one of the oldest, least expensive desiccants available. However, it dries more slowly than other agents and is heavier, which can bruise delicate petals. Follow the same general steps as detailed above. You'll need to use at least 2 inches of sand over and under the flowers. Expect the drying time to be at least 5 to 8 days. Here's a mixture that many gardeners say is more effective than pure sand: 3 parts borax cleaning powder, 2 parts dry "hobby" sand, and a tablespoon of salt per quart of mixture. Is it, indeed, more effective? Challenge your budding scientists to find out!

Other Homemade Concoctions

Because pure borax can burn or bleach delicate flowers, flower dryers often mix it with other substances such as cornmeal or Cream of Wheat. Start with a ratio of 1 part borax to 3 parts of one of the other ingredients. (The more borax, the faster the blooms should dry.) To speed up drying, add 1 tablespoon of salt to each quart of mix. Have students brainstorm other types of readily available materials that might absorb moisture. (Consider kitty litter, perlite, or sawdust.) Next, experiment to find out which ones, alone or in combination, are the best preservatives.

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Flowers That Preserve Well		
	Good for air-drying	Best dried with a desiccant
Annuals	acroclinium, bachelor's button, bells of Ireland, celosia, chive, globe amaranth, immortelle, larkspur, love-in-a-mist, salvia (blue), statice, strawflower	aster, calendula, cosmos, dahlia, marigold, pansy, zinnia
Perennials	anise hyssop, astilbe, artemisia, baby's breath, bee balm, chrysanthemum, delphinium, heather, lavender, liatris, sea lavender, rose, tansy, veronica, yarrow	chrysanthemum, coreopsis, dianthus, painted daisy, rose
Herbs	chives, oregano, rosemary, sage, thyme	
Wildflowers <i>(Never pick a flower that seems to be in short supply in an area or that you know to be endangered.)</i>	goldenrod, milkweed, pearly everlasting, queen Anne's lace, teasel, thistle	blanket flower, wild sunflower, black-eyed Susan
<i>Note: Many seed heads and pods also dry well and add interest to dried flower creations. Try preserving the seed heads/pods from these plants: baptisia (false indigo), Chinese lantern, love-in-a-mist, oats (and many other types of grasses), money plant, and purple coneflower.</i>		

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