

BUILD A PLANT PRESS

A plant press is a basic but vitally important tool that botanists and ecologists use to preserve plant specimens. It involves laying the plants flat between pieces of paper that can absorb moisture as the plants dry out, with cardboard in between to allow airflow and enough weight on top to flatten the plant. If done correctly, the plants you preserve can last for hundreds of years!

Materials:

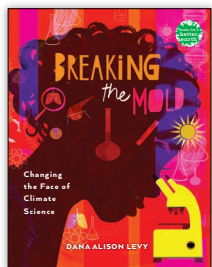
- heavy cardboard
- newspaper (or regular paper)
- flat, heavy items like big hardcover books to use as weights*
- some kind of strap (You can use a belt or a piece of rope.)*
- heavy-duty scissors or a knife (Ask an adult to help with this part!)
- PLANTS!

*Note that depending on how big a plant you're pressing, you can do this with only the strap or only the heavy books for weight. The goal is just to ensure that the plants are pressed down tightly, so wrapping the press with a strap or placing it under a giant pile of books will have the same effect!

Steps:

Depending on the size of the plants you want to press, you can make a small press (think about pressing a four-leaf clover or a bluebell) or a larger one (think about pressing larger tree leaves or a full flower, from blossom to root).

1. Collect your specimens. Make sure you're not taking plants that are endangered or that belong to someone (written permission from the landowner would be good), or that could make your life miserable, like poison ivy!
2. Cut out two or more pieces of cardboard that are bigger than your largest specimen. You can layer multiple "pressings" in the same press, with cardboard in between each layer.
3. Cut out sheets of newspaper that match the size of the cardboard.
4. Start building your plant press by layering the items in this order:
 - a. Start on a hard, flat surface like a table or the floor.
 - b. Lay down your strap, belt, or rope, if using them.
 - c. Place one piece of cardboard on top of the strap.
 - d. Add one piece of paper.
 - e. Lay the plants on the paper. Don't crowd them. You can use a pencil to write on the paper, recording the name of the plant and the date/location and other observations about the habitat where you found it.
 - f. Place another piece of paper on top.
 - g. Add a piece of cardboard to finish.
 - h. Repeat with as many layers as you want, just end with a final piece of cardboard!
 - i. Pull the strap tight or pile on the heavy books!
5. Wait about a week to ten days, but remember that many variables can affect how fast your plants dry out. How cold or warm is it? Has it been raining all week? You can lay the plant press near—but not on—a radiator or in the sun to keep things moving. You can also open it and peek in to see how the plants are doing. If the newspaper seems wet, you can carefully change it for dry paper and close it back up.
6. Open the press and C A R E F U L L Y lift up the plants! You can use tweezers or even a spatula if they are really delicate.
7. You did it! You can use these plants in an exhibit, as a guide to local plants, for craft projects, and more!



Sources:

<https://www.fieldmuseum.org/blog/diy-plant-pressing>
<https://www.sanibelseaschool.org/naturenearyoulessons>

Breaking the Mold
By Dana Alison Levy

Learn more about **Books for a Better Earth™!**

HolidayHouse.com/booksforabettereearth

HOLIDAY HOUSE

HolidayHouse.com

May be reproduced at no charge.

MAKE A SECCHI DISK

In oceans and lakes around the world, people are using this simple tool to measure the water quality near them and share it with local governments and scientists. For example, a study by the Secchi Disk Foundation invites sailors from all over the world to download an app and share their data from wherever they sail! And in Minnesota and Wisconsin, there are lake monitoring programs that invite residents to regularly test their local lakes and report the results.

If you want to test your local waters, or even create an experiment at home or school, make this Secchi disk!



Materials:

- a flat circular object, like the lid of a paint can
- waterproof paint (white, or black and white, depending)
- a long string (at least 3 feet) (not cotton, which stretches)
- a small weight like a nut and bolt plus a washer
- a permanent marker

Instructions:

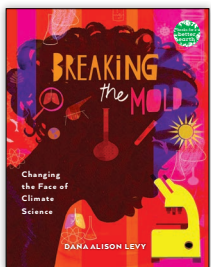
1. Make a hole in the center of the disk (ask an adult to help use a drill, hammer, or sharp knife).
2. Paint the disk all white, or in alternating quadrants of black and white.
3. Thread the bolt through the hole, add the washer on the underside of the disk, and attach the nut.
4. Attach the string to the bolt.
5. Mark the string at one-foot intervals using a permanent marker.

To use your Secchi disk (in a lake, river, or ocean):

- Slowly lower the Secchi disk into the water, taking care to be on the shaded side of a boat or shore (sunlight interferes with the experiment).
- Stop lowering when the disk is no longer visible.
- Using the marks on the string, record how deep the disk is at this point.
- Repeat the experiment and take an average of the numbers to get a more accurate reading.

To use your Secchi disk in an experiment:

- Get several five-gallon buckets, fill them with water, and add different amounts of dirt, sand, or household substances like flour or cornmeal—anything that won't dissolve!
- Slowly lower the disk into a bucket and note the spot on the string when it disappears, as in the directions above.
- Compare different kinds of sediment and see how it makes a difference in turbidity.



Sources:

<https://www.rmbel.info/training/how-to-use-a-secchi-disk/>

<http://blog.waterfrontoronto.ca/nbe/portal/wt/home/blog-home/posts/at-home-experimentssecchi-disc>

<http://www.secchidisk.org/>

Breaking the Mold
By Dana Alison Levy

Learn more about **Books for a Better Earth™!**

HolidayHouse.com/booksforabettereearth

HOLIDAY HOUSE

HolidayHouse.com

May be reproduced at no charge.

PROTECT MONARCH BUTTERFLIES

Orange-and-black monarch butterflies are beautiful and seemingly fragile creatures that can be found in numerous countries around the world. They're particularly common in North and South America. But the most famous subspecies is a relatively small and endangered group of butterflies that migrates almost three thousand miles from Canada and the northern United States to Mexico. As with so many creatures, monarch butterflies have been impacted by human activity and climate change.

Organizations from Mexico to Canada have partnered to study these incredible insects, but they need help. And luckily there are a number of ways that people can get involved.

Plant a garden!

Monarch butterflies need rest stops along their journey, and people are providing way stations that offer them milkweed to lay their eggs on. You don't need a lot of space . . . even one square foot is enough to make a difference.

- Be sure to plant native species to your area; there are plenty of milkweed varieties, depending on your geographic region.
- Make sure your garden gets plenty of sunlight!
- Include a water source: A puddling station is essential to help butterflies stay hydrated and receive vitamins and other nutrients from muddy water, like sodium. Fill a shallow dish with water, adding soil, sand, or pebbles to create a watery mud.
- Use natural weed killer, like mulch, to lessen the need for pesticides and herbicides in your garden.
- Register your way station so scientists can accurately map how the monarchs can survive on their journey.

For more information, visit:

World Wildlife Fund

National Wildlife Federation

Monarch Watch

Join a local community science project!

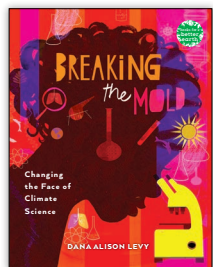
Scientists and organizations across North America are looking for volunteers to help submit observations and data to keep track of monarch population sizes and migration patterns.

To find a community science project near you, visit:

<https://www.citizenscience.gov/>

<https://www.fws.gov/initiative/pollinators/monarchs>

<https://monarchjointventure.org/get-involved/study-monarchs-community-science-opportunities>



Breaking the Mold
By Dana Alison Levy



Learn more about **Books for a Better Earth™!**

HolidayHouse.com/booksforabetterearth

HOLIDAY HOUSE

HolidayHouse.com

May be reproduced at no charge.