Pressing Matters
All Ages

Big Idea:
• Did you know that leaf and flower pressing began thousands of years ago? Pressed plants have many different uses, from art to cultural practices to science! For scientific purposes, pressed plants serve as a historic record to track plants over the years. With these specimens, scientists can study plant diversity, habitat change, taxonomy, genetics, and more!

Activity Description:
• In this activity, you will create your very own plant press, used for preserving leaves and flowers. With your own plant press, you can begin your very own herbarium to learn about the plants in your environment.

Materials Provided for Pressing Matters:
• Chipboard Squares with holes (2)
• Cardboard Squares (2)
• Cotton Squares (2)
• Nylon Screws (2)
• Nylon Wing nuts (2)
• Name/Leaf Sheet (1)

Materials Scavenger Hunt: Look in your home and environment to find these supplies!
• Glue
• Leaves or flowers to press

Directions for Pressing Matters

Assembling your plant press:
1. Glue one cotton square onto the chipboard square. The cotton square should be in the center of the chipboard square, in between the two holes. Repeat this with the second cotton square and chipboard square.
2. Next, glue one of the cardboard squares on top of your cotton square, aligning the edges so it sits centered on the top. Repeat this with the second cotton square. The cotton squares should now be in between the larger chipboard square and the cardboard square.
3. Write your name on the name/leaf sheet and decorate it as desired! Once done, glue this sheet on the outside of one of the chipboard squares. This will be the top of your plant press.
4. Let all components dry.
Using your plant press:
1. Go outside and find some leaves or flowers you would like to press! Due to the size of the press, you should select a specimen that can fit in a 3 ½ in square. The press works best (and more quickly!) if you choose leaves/flowers that are thin or partially flat and do not have a lot of moisture in them. For example, violets and daisies will press better than a rose, unless you only want to press petals. See the “Take It Further” section for resources on how to identify your plants!
2. Place your plant press open on the table, so the cardboard squares on each side are facing up.
3. Pick up the bottom half of your press and insert two screws from the bottom up through the holes on either side of the cotton/cardboard squares. Place the press back down with the two screws coming through.
4. Select a leaf or flower you would like to press and place it on the cardboard square of the bottom half of the plant press.
5. Place the top half of your plant press on top of the leaf/flower, with the cardboard side facing down. Line it up so the two screws go through the holes on the top half.
6. Put the two nylon wing nuts onto the screws and tighten them equally to apply press to the press. This should squeeze the leaf or flower flat.
7. Now it’s time to wait! It will take from several days up to 2-3 weeks for your leaf/flower to dry completely. This is dependent upon the temperature and the amount of moisture in your leaf or flower! Store in a cool, dry place as you wait.

Take It Further!
1. Identify your plant! There are many resources that can help you identify your plant. Some examples we suggest are using the free online dichotomous key from “Go Botany” (gobotany.nativeplanttrust.org), using the app “iNaturalist”, or looking it up in a book featuring plants found in your region.
2. Make your own plant journal! Once you’ve pressed your plant, glue it into a journal to start your very own herbarium. Then, add important information to track details on your collection. Typically, herbariums include: name of plant (common and scientific, see above for resources to help with this); date collected; collector (you!); and any other special notes you want to include.
Pressing Matters Information Sheet

Why is this important?

Pressed plants and herbariums are extremely important historical records for scientists to track how our Earth has changed over the years.

Though there are many historical books and notes on plants, herbariums provide a unique opportunity for scientists because they preserve the physical specimen and usually also include dates, locations, and other notes. With the preserved plant, scientists can use DNA testing to learn more about genetic changes and the evolution of plants, including how new plant species arise.

In conjunction with the notes from the original collectors, scientists can track locations where plants were once present and connect this to research on climate and habitat change. They also show what the plants look like, when they flower, what chemicals are present in them, and more. Many different scientists find use for herbariums, from botanists to ethnobiologists!

The Maria Mitchell Association has an herbarium collection in our Research Center, which is both our oldest and most frequently used collection. The oldest specimens were collected way back in 1878, and the image on the right is of a specimen collected on Nantucket in 1917!

Botanists are still adding specimens to compare species ranges and distributions, monitor rare plant populations, and uncover genetic changes in our island populations. In total, our herbarium includes 5288 pressed plant specimens representing 1391 species, all from Nantucket!
What happens when you press a plant?

Looking at a plant, you may not realize just how much water they carry inside of them! Just like you, plants need a lot of water to survive. In fact, water can make up between 50-95% of a plant’s tissue, depending on the type of plant. In order to press a plant for preservation, the water needs to be removed, otherwise it will feed bacteria and mold and cause the plant to rot.

That’s where a plant press comes in handy! When you apply pressure using a plant press, it squeezes remaining water from the plant and allows it to evaporate.

This requires some patience and can take anywhere from a few days to 3 weeks for the process to be complete. However, if you are able to wait patiently, your newly pressed plant will keep for a long, long time! Some of the oldest dated pressed plants that were kept in a journal are in the Swedish Museum of Natural History and were collected from 1699 to 1702!

Vocabulary:

Taxonomy: The classification of something, usually organisms. Taxonomy is how scientists group organisms based on shared characteristics, which ultimately can help determine new or different species.

Dichotomous Key: A key used for the identification of organisms based on a series of choices between alternative characters. One free resource to identify plants using a dichotomous key is “Go Botany,” at gobotany.nativeplanttrust.org.

Botanist: An expert in, or student of, the scientific study of plants.

Ethnobiologist: A scientist who studies the relationships between people, living things, and the environment. This multidisciplinary field analyzes how human cultures interact with and impact the natural world.

Herbarium: A collection of preserved plant specimens and associated data used for scientific study. The Maria Mitchell Association has an herbarium in our Research Center!

Additional Resources

• “Go Botany” at gobotany.nativeplanttrust.org for plant identification
• “iNaturalist” for plant identification