

Lesson: How to Press a Plant

Rationale:

When European adventurers set out in the 16th century to discover unknown lands, they often returned with samples of plants they'd collected. As this treasure trove of flora exploded, botanic gardens were finding it difficult to keep living samples of these burgeoning collections. So botanists' solution was to create a collection of pressed plants.

Scientists were interested in comparing their discoveries, identifying new plants, and documenting the diversity and distribution of plants on Earth. They designed a system that includes conscientiously pressing plants, mounting each specimen on heavy paper, and writing an accompanying information card. These labels feature such information as when and where the plant was found, the name of the collector, the habitat in which it was found, and the plant's common and scientific names. The specimens are housed in plant libraries, called herbaria, which scientists still use today. The University of Montana herbarium has plants collected as long ago as 1893.

Goals/Objectives:

1. Familiarize students with the terms botanist, specimen, and herbarium
2. Students will make observations about the habitat in which they are collecting plants.
3. Students will understand the importance of creating a voucher for botanical or environmental study.
4. Students will become familiar with collecting guidelines for protected and endangered plants.

Skills:

- 1) Students will create a small plant press to use in their schoolyard.
- 2) Students will thoughtfully collect plant specimens from selected sites.
- 3) Students will arrange collected specimens in their plant press in a natural way.

National Standards Addressed:

Content Standard A: Develop descriptions, explanations, predictions, and models using evidence

Content Standard A: Use appropriate tools and techniques to gather, analyze, and interpret data

Content Standard A: Think critically and logically to make the relationships between evidence and explanations

Materials:

- 2 flat pieces of wood, about 12" X 18"
- Several pieces of corrugated cardboard, about 12" X 18"
- Sheets of newspaper cut to the same size as the cardboard
- Two 36" pieces of rope or twine, or 2 old belts or bungee cords, or something to weight the collection
- Garden clippers
- Garden trowel
- Student journals
- Small sealed plastic bag for collecting seeds

Procedure:

To Make the Press

- 1) Lay one of the flat pieces of wood on the table. On top of it, add a piece of cardboard, then two open pieces of newspaper.
- 2) Continue to make alternate layers of cardboard and paper. When you've got several layers made, add the second piece of flat wood.
- 3) Tie everything together with the rope, or fasten together with a bungee or belt.

Collecting the Specimens

- 4) A scientific herbarium collection usually features native plants.** But if your students want to create a field guide to their schoolyard, or collect flowers for an art project, they don't have to limit themselves to naturally occurring plants. Decide on your purpose for collecting and pressing plants. Then discuss as a class what types of plants or plant parts to gather (for example, wildflowers or tree leaves) and where they will collect them.
- 5) The best time to collect plants for pressing is when the air is dry and plants are not dampened by dew or rain. Use garden clippers or scissors to snip flowers, leaves, or entire plants.
- 6) Students should number the specimen when they collect it, and record that same number in their notebook when they write down information about that plant.
- 7) If they are creating scientific herbaria, they'll also want to collect some roots. Loosen the soil around the plant base and gently pull the plant free from the earth. They may also want to collect and label some seeds from their specimen.

- 8) While in the field Students should put their plants in sealed plastic bags out of the sun to keep them fresh. A wet paper towel in the bag will keep them from wilting too much. This way, they will keep overnight, but they'll want to get plants in the press as soon as possible.
- 9) If you are going right back to the classroom, students can press and protect plants in a phonebook or catalog, and transfer them to their plant press when they return.
- 10) Use field journals to take notes on the plants collected for your herbaria. Write a journal entry that includes such information as date, location, environment, type of growth (herb, vine, for example), description of seeds and/or fruits, and collector's name. Field journals can also include sketches of plants in their habitats.

Pressing the Plants

- 11) Carefully lay each plant specimen in between two folded sheets of newspaper. They can place several flowers or plants of the same thickness on the same piece of paper. Make sure they don't touch.
- 12) Arrange flowers and other plant parts in a natural way. Their parts should be visible when pressed.
- 13) Place a piece of corrugated cardboard in between each plant/paper layer.
- 14) Finally, place wooden boards on either side of your layered pile. Tighten straps or belts around the stack to create pressure that will help the plants dry. Leave your press in a warm, ventilated location.
- 15) Most plants will dry in ten days to two weeks. Some specimens may take longer. If you find they are still moist when you check them, you can change just the outer layer of newspaper.

** A Caution

Contact a natural resources agency to learn if there are any endangered or protected plants in your area. You do not want to disturb or collect these species. It's a good idea with any plants to use this rule of thumb: never pick a plant unless you can find at least six more in the area. Your group should always get permission from the owner of any property on which you intend to collect plants.

Possible Assessment:

- 1) Evaluate the quality of the students' field journal entries with a short rubric.
- 2) Performance assessment: Student would demonstrate how to collect and preserve a plant sample.

- 3) Observations: Use a checklist of expected field procedures to insure students are collecting properly.
- 4) Extension: If you have taken digital photographs of the students at work on this project, create a PowerPoint presentation about the process. Ask each individual to write a short narrative for a particular slide.

References:

<http://www.sdnhm.org/fieldguide/plants/collecting/index.html>

San Diego Natural History Museum, "How to Make A Plant Collection"

http://www.funsci.com/fun3_en/herb/herb.htm

From Fun Science Gallery, "A Herbarium"

<http://www.botany.unimelb.edu.au/herbarium/files/MakeHerbSpec.pdf>

From the University of Melbourne Herbarium, "Make Your Own Herbarium Specimens"