



Chapter 30 Project

Create an Herbarium

Project Goal + Timeline

In this project, we will be reviewing your knowledge of plant physiology by preparing an herbarium. An herbarium is a collection of pressed plant specimens, each of which is accompanied by detailed information about the specimen and how it was collected. After creating your herbarium, you'll write a short summary to highlight the special features your specimens have. This project should be completed within a group of two students over the course of a week.

Directions

Part 1: Collect Your Specimens

First, collect the plant specimens that will go into your herbarium. Some possible locations to collect specimens may include near your school, in your own garden, or in a park near your home. For any site you visit, make sure you have permission to collect from it.

Collect different parts from at least three different trees, bushes, flowers, or other plants. Try to collect a leaf and/or group of leaves, a stem, roots, and flowers, if applicable, from each plant.

For each sample, record:

- the date of collection
- the collection location
- the habitat at the collection site
- any specific details about the plant that may be helpful in identifying it

Part 2: Describe and Identify Your Specimens

Examine your specimens for their characteristics, including the types of leaves, flowers, stems, and roots. Describe the parts you collected from each of your three plants in Table 1. For the leaves, determine the form and arrangement. For the stems, determine whether they are soft or woody. For the flowers, describe the appearance and number of petals. For the roots, classify them as a fibrous or a tap root system, and describe any special modifications.

TABLE 1: Characteristics of Sampled Plants

	Leaves	Stem	Flowers	Roots
Plant 1				
Plant 2				
Plant 3				

Now, use this information, along with the descriptions of the plants you recorded while collecting, to try to identify each of the three plants. Consult published plant descriptions, illustrations, photographs, guidebooks, and online sources to identify each of your samples. Even if you are not able to identify your exact plant species, try to identify its genus or family.

As you're consulting sources to identify your plants, record any additional information you found about the plants. This information can include features of the plant that are not apparent from the specimens, such as the plant's fragrance, whether it produces fruit, its native habitat, etc.

Part 3: Press Your Specimens

Now, use a plant press to preserve your specimens. A simple plant press can be made from newspaper, cardboard, and something heavy, like a textbook. Arrange your specimens on a piece of newspaper, taking care to lay them in such a way to preserve their features. For example, spread out the petals of flowers and lay leaves flat. Then, fold the newspaper over the specimens, and set it on a piece of cardboard. Place a second piece of cardboard on top of the newspaper and use an elastic band to bind the cardboard pieces together. Place a textbook on top of the cardboard. Leave your samples in the press for several days.

Part 4: Prepare Herbarium Specimen Labels

Prepare a label for each of your specimens. Each label should be created on an index card or small piece of cardstock. Each label should contain:

- the species' name (if known), the genus (if known), and the family
- the common name, if known
- the collection location (as exact as possible, such as the name of the park or geographic coordinates)
- a description of the specimen (what part of the plant it is and what features it displays)
- a description of the plant from which the specimen came
- a description of habitat in which the specimen was found
- the date of collection and name of collector

Part 5: Mount Your Specimens

After your plants have been in the press for several days, remove the textbook, carefully remove the elastic and cardboard, and then remove the specimens from the newspapers. Ensure the specimens are completely dry prior to mounting them.

On a piece of heavy paper, such as cardstock, lay out a specimen and its label. Once you're satisfied in the arrangement, roll clear contact paper over the arrangement to seal it to the paper. Then, repeat this process for each of your samples.

Part 6: Create a Summary to Accompany Your Herbarium

Create a one-page summary of the three plants whose structures are included in your herbarium. Your summary should provide a description of each plant, highlight any special features, and relate those features to the survival of the plant. For examples, do the form of the leaves suggest a specialized adaptation to a factor of the environment? How about the roots? Emphasize what makes each specimen in your collection unique and important for the overall study of plants.

Project Materials

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| • Notebook | • Index cards |
| • Pen or pencil | • Cardstock or other heavy paper |
| • Access to site to collect plant specimens | • Contact paper |
| • Cardboard | • Computer with internet access, or field guide to plants |
| • Newspaper | • Textbook or other heavy object |
| • Elastic bands | |

Student Checklist

- ☐ Collect specimens from at least three plants
- ☐ Record information about collection site
- ☐ Examine specimens and complete Table 1
- ☐ Identify plants from which specimens were obtained
- ☐ Press specimens
- ☐ Prepare specimen labels
- ☐ Mount specimens
- ☐ Develop a summary of the herbarium