

Sample Lesson: What is a Herbarium?

Rationale:

The collections in a herbarium represent a running catalog of a region's biodiversity. Because specimens serve as permanent evidence that a particular species occurred at a particular place at a particular time, they can be used as a reference and data source for all types of plant students.

Goals/Objectives:

1. Familiarize students with the terms botanist, specimen, and herbarium
2. Students will make observations about a pressed plant specimen.
3. Students will make observations about the some work a botanist does in a lab.
4. Students will use their observations to decide what a herbarium is and how it could be used for plant studies.

Skills:

1. Students will be able to bring up web pages from hyperlinks in a text document.
2. Students will learn the proper way to handle a pressed plant specimen.
3. Students will use hand lenses to make observations about a plant's structure.
4. Students will use deductive reasoning to form a working definition of the term herbarium.

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:

1. One hands lens per student
2. One herbarium specimen for each group of three students, or computer access so student groups can view specimens online
3. Computer with online access, a computer lab is preferable
4. Student's science journals (to record information)
5. Plain white drawing paper
6. Colored pencils

Procedure:

1. Prepare a short list of 3-5 online sites students can use to access herbarium specimens and information about the work of botanists. (An example is included at the end of this lesson plan.)
2. Complete the first parts of a KWL chart with students, listing what they KNOW about a botanist's work, and what they WANT TO KNOW.
3. Discuss how to use the hyper linked list of sites to investigate these two questions: What does a botanist do? What is a herbarium specimen?
4. Allow students 10-15 minutes to look at these sites and record their ideas in their science journals.
5. Provide groups of 2-3 students with hand lenses and a herbarium specimen. Review the proper handling of pressed plant specimens.
6. Allow students to share observations about their specimens. They may read the plant or collector's name, notice it includes roots, tell you what color the flower is, or ask about the seeds.
7. Ask students to use their hand lens to observe one part of the plant. Ask them to sketch that part (a leaf, flower, seed pod, etc.) in their journal.
8. As time permits, allow them to share their sketches and observations.
9. Discuss why a dried, pressed plant might be desirable to a botanist.
10. Complete the KWL chart, detailing what they have LEARNED about the work of botanists and their use of dried plant specimens.
11. Ask students to decide what they think a herbarium is and how it would be useful to people who study plants. They should write their responses in their science journals.

Possible Assessment:

1. Evaluate the quality of the students' journal responses with a short rubric.
2. Ask students to generate a short list of questions they could ask a botanist who has consented to visit their classroom.
3. Ask students to create from their imagination a herbarium specimen of a new plant just discovered in their backyard. It should include both a sketch and a label like the specimens they used in class.

References:

<http://askabiologist.asu.edu/profiles/landrum/microscope/microscopeview.html>

-To view a flower under a microscope and see the parts labeled

<http://askabiologist.asu.edu/profiles/landrum/index.html>

-To answer the question, "What is a herbarium?"

<http://askabiologist.asu.edu/profiles/landrum/hexamples.html>

-To see 3 examples of what's in a herbarium collection