

LESSON 1

CATEGORIZING PLANTS

California Science Standard 2nd Grade – Investigation and Experimentation

4.c. Compare and sort common objects according to two or more physical attributes (e.g. color, shape, texture, size, weight).

California Science Standard 5th Grade – Investigation and Experimentation

6.a. Classify objects (e.g. rocks, plants, leaves) in accordance with appropriate criteria.

California Science Standard 3rd Grade—Life Sciences

3.a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.

National Science Standards Life Science Content Standard C K-4

Each plant or animal has different structures that serve different functions in growth survival, and reproduction.

Lesson Plan: Categorizing Plants

Objective

Students will learn to examine plants and categorize them according to distinguishing characteristics. Students will also explain and justify their system of categorization.

Key Vocabulary: characteristic, classify, categorize, rationale, justify, traits, observe, taxonomy, leaf, stem, root, flower, fruit

Materials: Images of a variety of plants in different shapes, sizes and forms

Anticipatory Set

Display images of plants in front of the class. Ask the students if they can think of one characteristic that all these images have in common. Obviously they will recognize that they are all plants, but allow students to share other possibilities, perhaps students will recognize they all need water to live, or they might all have some shade of green to them.

Lesson

Tell the students that these plants can be grouped in a variety of ways. Their task is to work with a partner and separate the pictures into just two categories. There is, of course, more than one way to classify the plants but the students will have only a couple of minutes to separate the pictures into two groups. When the time is up they must be prepared to justify their rationale for their two groups of pictures. For example, they could be grouped by colors, above ground parts (stem, leaf, flower, fruit) and below ground parts (roots, tubers), or by plant part, such as flowers and fruits.

When you determine that the groups have accomplished their task, regain their attention and have partners share with the class the two categories they created and how they came to distinguish the two groups. Record the categories generated in a visible location in the room.

Now, tell the students that they will take the same pictures and divide them into three or more categories. Inform them that whatever groups they devise, they must still be able to justify and explain their rationale for classification. This time give the students 3-5 minutes. When the groups seem ready, have them again share with the class the categories they devised and the characteristics that determined their placement. Again, note the categories they generated and have them compare this list with their first list of categories.

Undoubtedly having to find more distinctions between the plants will have forced the students to look more closely at the images in order to find more detailed differences between the plants. Talk to the students about how scientists are trained to look both at the larger and smaller characteristics of things in order to determine how things are similar or different. This helps them recognize both general categories and specific differences that distinguish one object, species, element, etc. from another. Tell them that what they've been doing is called **taxonomy** which is the process of organizing things into groups based on specific characteristics.

Extension

Have students bring a fruit or vegetable from home. Once you've assembled at least 5+ examples, guide the class in a whole group exercise of distinguishing and categorizing the fruits and vegetables that were brought in.

Display a collection of animal images, (i.e. mammals; chimpanzee, elephant, dolphin, blue whale, kangaroo, killer whale, etc.) Tell them that a biologist could put all these pictures into one category. What do the students think all these animals have in common? (They're all mammals). Tell them that biologists, like botanists, can be even more specific, until each animal is recognized as a species that is distinct from the others. Now, ask the students to practice taxonomy by organizing the group of pictures into groups of three or more.

Assessment

Again, they must be able to justify their reasoning. This assessment could be done verbally as in Lesson 2 or used in conjunction with Lesson 2 Taxonomy Sheet as a more formal, written assessment. It could be given as an individual or group assignment as well.





