Leaf Classification

Summary

All leaves possess numerous physical characteristics. These characteristics can be used to create a simple classification system.

Time Frame

1 class periods of 45 minutes each

Group Size

Large Groups

Life Skills

Thinking & Reasoning

Materials

Paper and pencil
Set of 5-10 leaves for each group of two to three students (Ideally, the set should include leaves from several evergreens and several deciduous trees, for example: pine needles, spruce needles, juniper needles, oak leaves, elm leaves, maples leaves, etc...)

Background for Teachers

It is helpful if some understanding has been developed on classification systems where things are divided into categories and given a names. Larger categories are divided into smaller categories and so on until everything that is different is in a group by itself.

Intended Learning Outcomes

Develop and use categories to classify observations.
Use the language and concepts of science as a means of thinking and communicating.

Instructional Procedures

1. Define classification as the systematic grouping or arranging of things into categories based on similar characteristics.
Review previously gained knowledge pertaining to classification by asking students what they know about classification. How is it done? Why is it done? Who does it?
Discuss as a class some ways that we use classification in our everyday lives to make keeping track of large numbers of things easier. Examples of classification systems that we use in our everyday lives may include: mailing addresses (country is divided into states, states into cities, cities into street addresses or Post Office Boxes, etc.), finding items in a grocery store, finding a phone number of a particular individual or of a business in the yellow pages, a book in a library, and etc. Make a list on the board or overhead of any examples the students can think of.
2. Introduce class activity. Divide the class into groups of 2-3 and give each group a leaf packet. Tell students that they will design a classification scheme that correctly identifies each leaf. (To facilitate communication, the teacher will need to assign each of the leaves a number or a name. If the leaves are not identified in some way beforehand the students will not be able to communicate their classification.)
3. Brainstorm several physical traits that differentiate each leaf. Look at things like general shape,

location of veins, shape of leaf edge, color, etc...
Ask the question: How could we make a classification system for these leaves? Listen to student ideas.
4. Direct students to separate their leaves into two groups. Most likely the first grouping would be to separate the leaves into needles and broad leaf. Ask the students to again separate the two groups into two more groups. Listen to their suggestions on how that should be done. Instruct the students to continue separating the larger groups into smaller groups until each leaf is in its own separate category.
5. Instruct students to write down their classification systems. They should record the characteristics they used to separate the leaves at each level of the classification system.
6. Have a couple groups share their classification system. Point out that all the systems are not the same. Does that make one right and one wrong? (No, scientists often disagree about classification schemes. Also, many classification systems take different routes but end up with the same identification.) Classification schemes are valid if they are based on the observation of distinguishing characteristics and use a series of logical steps.
7. Discuss the system (Five Kingdom system of classification) used by scientists to classify living organisms.
8. Use a plant key to identify the leaves that the students examined.

Assessment Plan

1. Ask students to exchange classification schemes and see if they can correctly identify leaves based using each others schemes.
2. Give students rocks, bones, flowers, or some other set of objects and ask them to create a classification scheme to be used to identify those objects.
3. Give students a simple flower key and ask them to identify a flower using the key.

Authors

Utah LessonPlans