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Plant Part Puzzles

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PLANT PART PUZZLES

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A primary level lesson based on learning to know major plant parts is included in almost every elementary science textbook series. This lesson not only teaches the names of the organs of higher plants, but also offers an experience in classification using the learning cycle (Rubba, 1984). The plant part puzzles needed for this activity can be prepared easily from materials at hand and stored for reuse.

Objectives

Students will be able to:

1. show that a typical higher plant which is complete has four main parts.
2. identify the four organs (roots, stems, leaves, flowers) of higher plants.
3. classify by shape, color, plant organ type or name of plant organ.

Plant Puzzle Sheet Preparation

Plant puzzle sheets are prepared by gluing dried plants to colored construction paper, laminating the sheets and cutting them into puzzle pieces (Fig. 1). At least four plants which have all four plant organs (roots, stems, leaves, flowers) are needed to prepare the four puzzles needed by one group of students. Plants from the road side, weed patch or garden may be used. The plants must be dried under pressure if they are to be attractive and remain in a usable condition year after year. They may be dried in a plant press (Jones and Luchsinger, 1979) or by the microwave method (Perschau, 1986). They may also be dried by laying them out in an attractive manner between two sheets of newspaper and piling weight (e.g. several bricks) on them for a week or ten days until they are dry. If the plants are very moist, changing the damp newspapers once or twice will help. Placing a sheet of corrugated cardboard above and below each plant while drying is also helpful as it permits air to pass between the plant and the weight that is holding it flat.

After the plants are dry, each plant is glued with white glue (e.g. Elmer's) to a different colored sheet of 9" x 12" construction paper. A small amount of glue is sufficient because the sheets are to be laminated after the glue dries. Lamination is not essential to the activity, but will prevent damage and allow the puzzle to be reused. After lamination, the sheets are cut into puzzle pieces. Each type of plant organ should be on a puzzle piece of the same shape. Flowers, for example, may be on circles, stems on narrow parallelograms, leaves on squares and roots on

triangles. All circles or other shapes need not be the same size, but plants and shapes of approximately the same size are easier for students to handle. The names of the plant organs should be printed on the back of the pieces or on the back of the construction paper before lamination.

Learning Cycle Activities

Exploration: Give small groups of students (2-6) the mixed-up parts from four puzzles. Each of the four puzzles should be a different plant mounted on different colored construction paper. When given the pieces, students should be told that they may move the pieces into groups as they wish. If they ask if they may "put

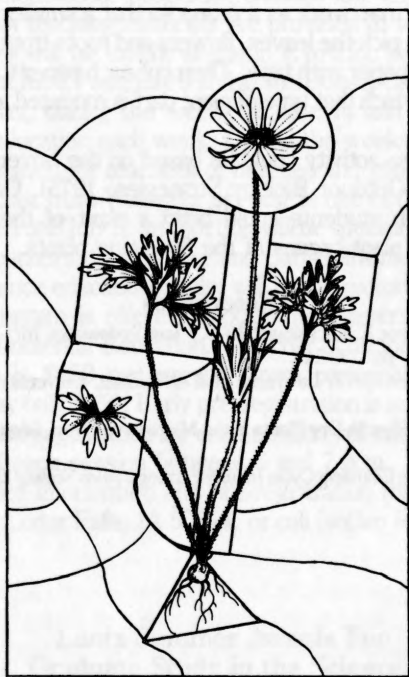


Figure 1
PLANT PART PUZZLE

The original drawing of the Carolina Anemone was done by Miriam Wysong Meyer for Prairie Plants of Illinois by John W. Voigt and Robert H. Mohlenbrock of Southern Illinois University, Carbondale, IL.

the puzzle together," they should be told that they may do so if they wish, or they may group the pieces in any way they want. After students have arranged the pieces into groups of their choice, they should be asked what other ways the pieces could be arranged. The teacher should also ask why they have grouped the pieces the way they did. The students will usually explain that they have

placed them into groups because all the pieces in one pile have something about them which is alike, such as color of the paper, shape of the piece, all are roots, or the words on the back are all alike. Students should then be asked in what other ways the pieces may be grouped so that something about them is alike.

Invention: Discuss with the students the various groupings which they chose. Note that all pieces of the same color make up a whole plant, that all pieces which are the same shape have the same plant organ and have the same word (name of organ) on the back, and that, in order to have a whole plant put together, one of each of the four shapes is needed.

Application: Take students outside and collect plants which they bring back to the classroom. Students may work as a group so that a smaller number of plants is needed. Ask them to pick the leaves, flowers and roots from their plant and stick each part on colored paper with tape. Then cut each paper to match the shape of the puzzle piece on which that type of plant part is mounted and put the matching word on the back.

An extension of this activity could be based on the "invent a plant" idea from the OBIS program (Outdoor Biology Strategies, 1975). Gather miscellaneous materials from which students could build a plant of their own design, but incorporate the four plant organs of the flowering plants.

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