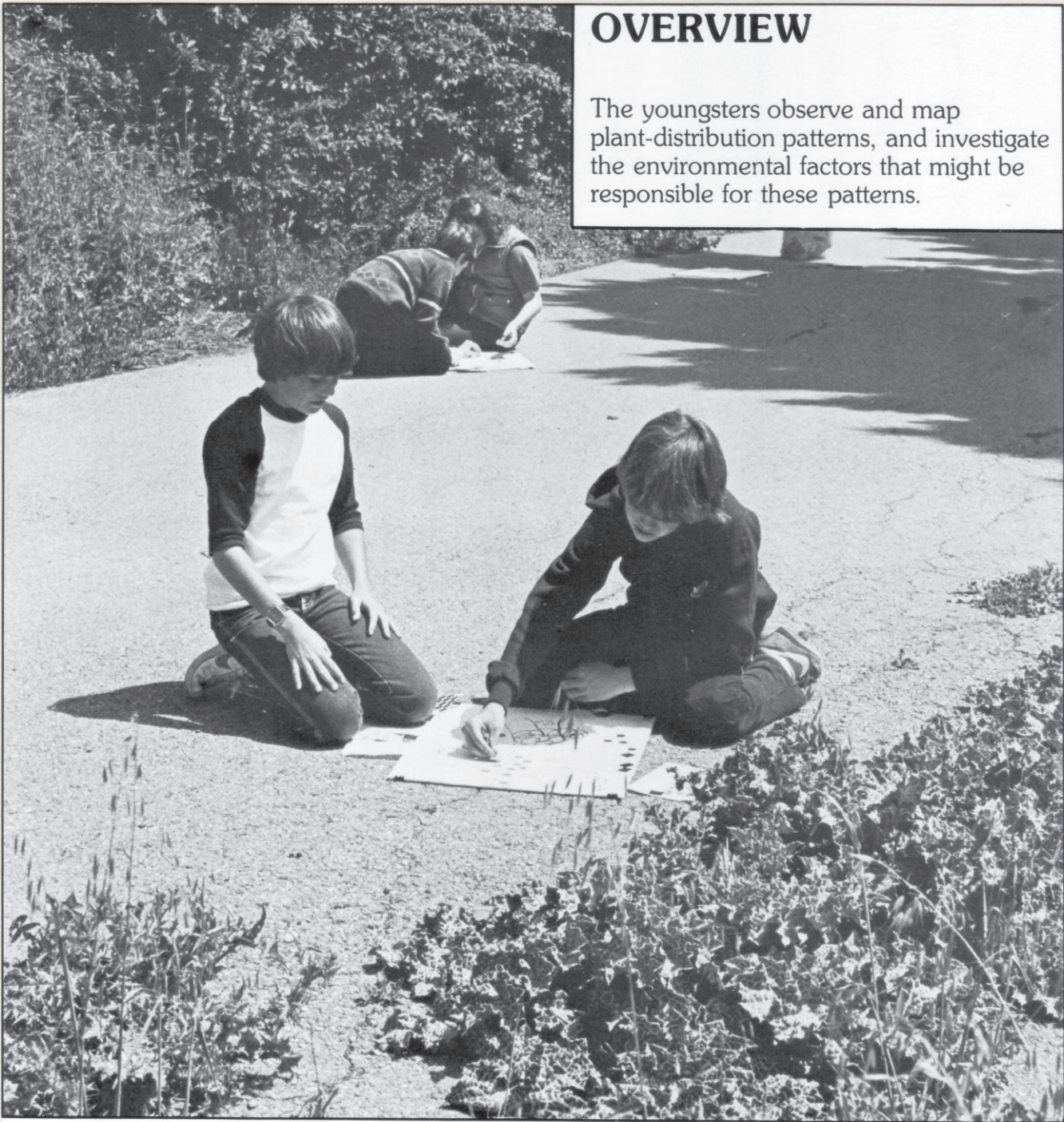


# PLANT PATTERNS

## OVERVIEW

The youngsters observe and map plant-distribution patterns, and investigate the environmental factors that might be responsible for these patterns.



## BACKGROUND

**Plant distribution** is the arrangement of plants in an area. Plants grow in certain places because environmental factors are suitable for the germination of seeds and continued growth of developing plants. **Environmental factors** include

temperature, light, moisture, soil type and available minerals, wind, and other plants competing for the same resources. Animals, including man, also affect distribution patterns.

Specific plants clearly show the effects of these factors. For example, the wind widely disperses cattail seeds, but only

BIO  
KEY  
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Bio-Technique  
Mapping



those seeds that land in or around fresh water will germinate and grow. Willow trees grow in moist ravines but cannot survive on the drier hilltops where only drought-resistant plants grow. Palm trees thrive in tropical and temperate climates but are not able to survive where temperatures fall below freezing for extended periods of time.

On a smaller scale, these same environmental factors influence plant distribution. In a backyard, school yard, park or camp, slight variations in light, moisture, and temperature will favor the success of different plants. To a trained observer, the presence of certain plant types is an indicator of the prevailing environmental conditions in a small area.

**CHALLENGE: LOCATE AND MAP THE EIGHT MOST IMPORTANT PLANTS IN YOUR TEAM'S SECTION OF THE ACTIVITY SITE.**

## MATERIALS



**For each team of two to four:**

- 1 map section, about 40 cm × 50 cm  
(See the "Preparation" section.)
- 1 felt pen\*
- 1 piece of cardboard or file folder (about 20 cm × 30 cm)
- 1 or 2 plastic collection bags\*
- 1 plastic bag containing 8 different colors of self-adhesive labels\* (See the "Preparation" section.)
- 1 roll of transparent tape\*

**For the group:**

- ribbon or flagging\*
- 1 data board or large drawing pad\*
- 1 black felt pen\*

\* Available from Delta Education.

## PREPARATION



**Group Size.** This activity is suitable for any size group. With large groups, divide the area into additional sections, rather than putting more youngsters on a team.

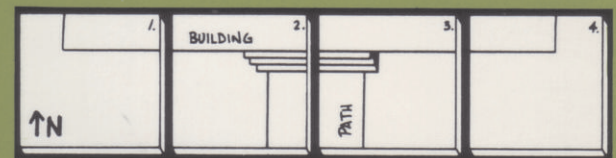
**Time.** Plan on forty to fifty minutes for this activity on a mild, calm day in the spring, summer, or fall.

**Site.** In choosing your study site, keep in mind that an unmanaged area (vacant lot or field) shows the influence of *natural* environmental factors on plant distribution. A managed area (garden or park), however, shows *man's* influence. The best activity area is one containing both types of areas so that the teams can compare different plant patterns.

Each team of two to four should work in adjoining areas 8 to 10 meters square. To avoid confusion, mark the corners of each section in the activity area with ribbon or flagging.

If necessary, obtain permission to pick leaf samples.

**Map Sections.** Make an overview map of the site in sections, each section corresponding to one of the flagged sections. There should be a section for each team, made by placing a sheet of

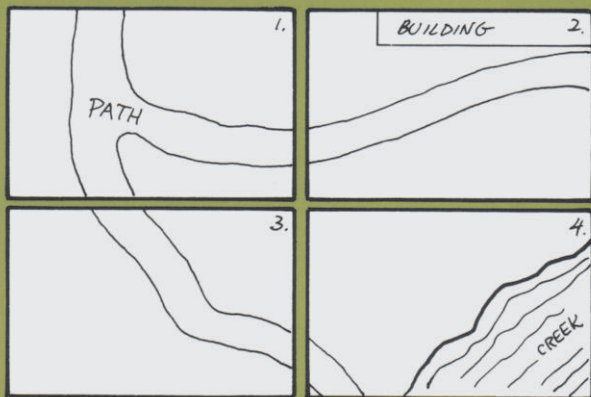


paper on a cardboard backing (about 40 cm × 50 cm). Either ahead of time or as a part of the activity, arrange the sections on the ground to correspond with the areas you marked off earlier. Draw in the physical structures for the entire area, including streams, roads, sidewalks, and buildings.

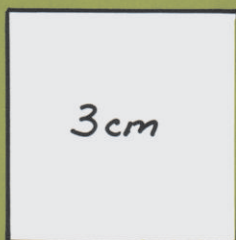
# PLANT PATTERNS

BIO  
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Bio-Technique  
Mapping  
Organism Distribution

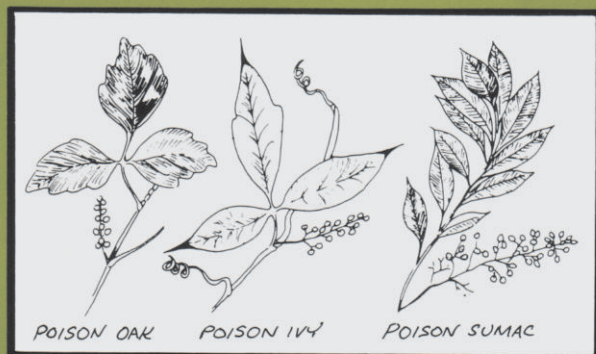


**Labels.** Prepare a bag of labels for each team. Self-adhesive dots are available, or you can cut your own shapes from contact paper or construction paper. Each team will need about 40 labels in each of eight colors (about 320 labels per team). Each label should be about 2 cm wide.



## ACTION

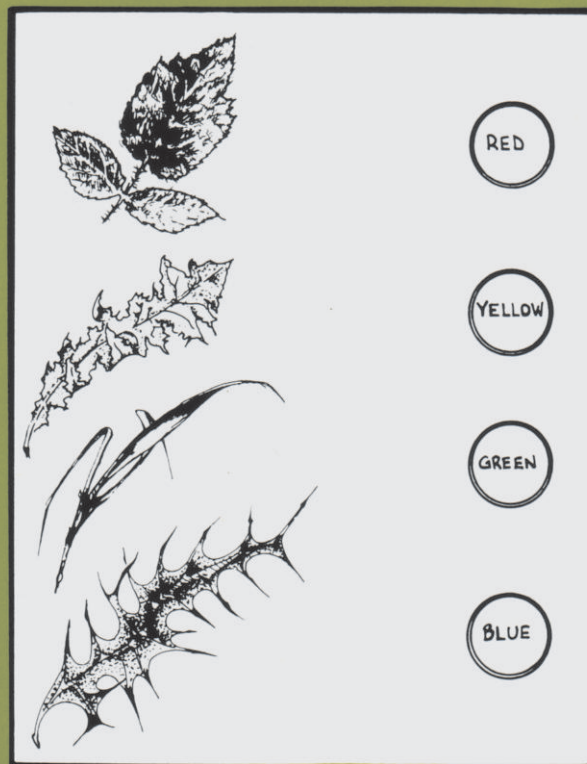
1. Establish limits for the activity site. Review the conservation ethic with regard to taking leaf samples. (See the *Leader's Survival Kit* folio.) Be sure to tell the kids to avoid poison ivy, poison oak, and poison sumac. Point out any of these plants to the group ahead of time.



2. Give each youngster (or pair of youngsters) a plastic collection bag, and challenge the group to collect a leaf or representative sample from the *five most important plants* in the area. Let each individual decide which plants are "important." (You may wish to offer a few suggestions as to what makes a plant important: its size, abundance, economic significance, beauty, aroma, etc.) Allow five minutes for sample taking.

3. As a group, sort the leaf samples out by kind on the data-board surface. Name the eight plants selected most often by the group as the "most important plants." You might ask the kids how they selected their plants.

4. As a group, construct a group plant-identification key by taping these eight plant samples to the data board. Assign each type of plant a label of a different color. Allow the students to choose the labels for the plants and to place them on the data board.



5. Show the kids the overview map of the study site, and orient the group.
6. Divide the group into teams of two to four, and give each team one section of the map and a bag of labels. Ask each team to make its own copy of the plant-identification key, using leaf samples, colored shapes, and a piece of cardboard (or file folder).
7. Challenge the teams to locate and map the locations of the eight important plants in their sections of the site by placing the appropriate colored label at the appropriate place on the map. Mention that it is easier if each team member concentrates on mapping one or two of the plants in the area.
8. When everyone has finished mapping, put the sections of the map back together and gather for a group discussion. Each team should briefly describe the plant patterns revealed on its section of the map.



## PLANT PATTERN



1. What is the most common color on the overview map, and which plant does it represent? Tell the youngsters that the most abundant plants in an area are called **dominants**. Dominant plants cover more space or are larger than others and usually have a controlling influence on other organisms in the area.
2. Do certain colors appear next to each other several times on the map? Why might this be?
3. Introduce the idea of **plant distribution** as the arrangement of plants in an area. Ask which **environmental factors** (for example, light, wind, rain, soil) might be affecting the distribution of the plants that were found.
4. Animals, including humans, can be considered environmental factors. Ask what effects animals have on the distribution of plants in the area.

## BRANCHING OUT



Use your map to indicate where animal activity occurs in the study area by marking trails, feces deposits, fur or feather snags, etc. on the map.

