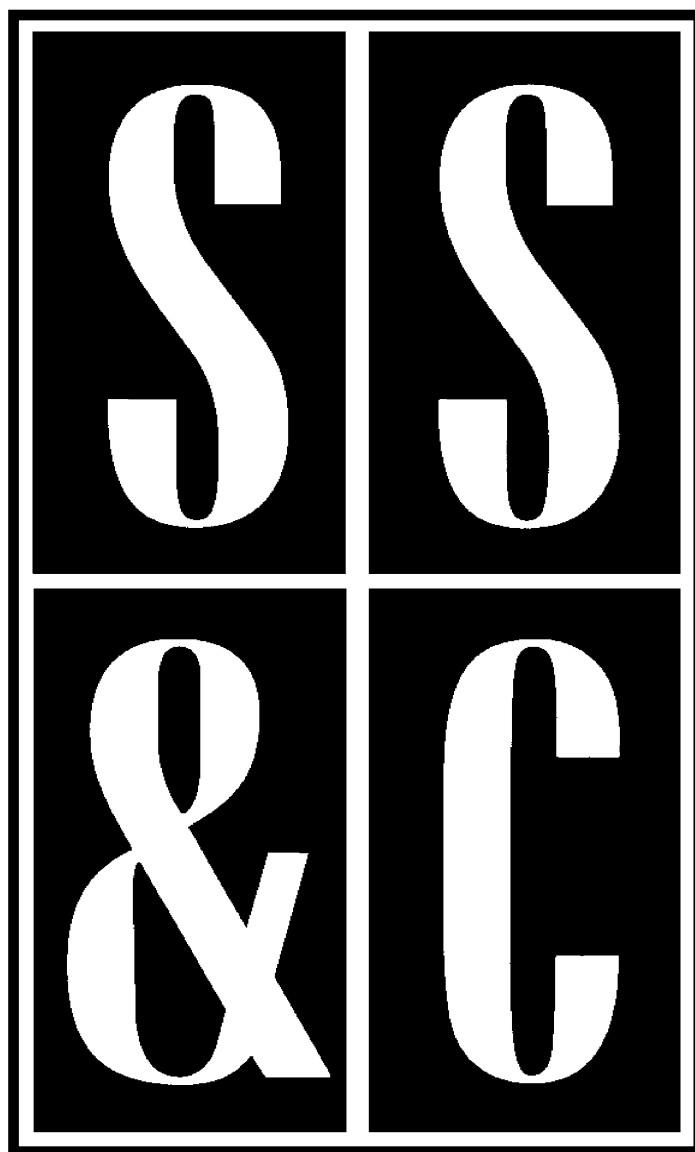


Scope, Sequence & Coordination

A National Curriculum Development and Evaluation Project for High School Science Education



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SS&C Research and Development Center

Bill G. Aldridge, *Principal Investigator
and Project Director**
Dorothy L. Gabel, *Co-Principal Investigator*
Erma M. Anderson, *Associate Project Director*
Nancy Erwin, *SS&C Project Editor*
Rick McGolerick, *Project Coordinator*

Evaluation Center

Frances Lawrenz, *Center Director*
Doug Huffman, *Associate Director*
Wayne Welch, *Consultant*
University of Minnesota, 612.625.2046

Houston SS&C Materials Development and Coordination Center

Linda W. Crow, *Center Director*
Godrej H. Sethna, *School Coordinator*
Martha S. Young, *Senior Production Editor*
Yerga Keflemariam, *Administrative Assistant*
Baylor College of Medicine, 713.798.6880

Houston School Sites and Lead Teachers
Jefferson Davis H.S., Lois Range
Lee H.S., Thomas Goldsbury
Jack Yates H.S., Diane Schranck

California Coordination Center

Tom Hinojosa, *Center Coordinator*
Santa Clara, Calif., 408.244.3080

California School Sites and Lead Teachers
Lowell H.S., Marian Gonzales
Sherman Indian H.S., Mary Yarger
Sacramento H.S., Brian Jacobs

Iowa Coordination Center

Robert Yager, *Center Director*
Keith Lippincott, *School Coordinator*
University of Iowa, 319.335.1189

Iowa School Sites and Lead Teachers
Pleasant Valley H.S., William Roberts
North Scott H.S., Mike Brown

North Carolina Coordination Center

Charles Coble, *Center Co-Director*
Jesse Jones, *Center Co-Director*
East Carolina University, 919.328.6172

North Carolina School Sites and Lead Teachers
Tarboro H.S., Ernestine Smith
Northside H.S., Glenda Burrus

Puerto Rico Coordination Center**

Manuel Gomez, *Center Co-Director*
Acenet Bernacet, *Center Co-Director*
University of Puerto Rico, 809.765.5170

Puerto Rico School Site
UPR Lab H.S.

Pilot Sites

Site Coordinator and Lead Teacher
Fox Lane H.S., New York, Arthur Eisenkraft
Georgetown Day School, Washington, D.C.,
William George
Flathead H.S., Montana, Gary Freebury
Clinton H.S., New York, John Laffan**

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* Western NSTA Office, 394 Discovery Court, Henderson, Nevada 89014, 702.436.6685

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Student Materials

Learning Sequence Item:

955

Populations

March 1996

Adapted by: Keith Lippincott

Contents

Lab Activities

1. Why Am I Here?
2. Colors That Stand Out in Nature

Readings

- 1.

Science as Inquiry

Why Am I Here?**How do we count plant populations?****Overview:**

Using gloves or forceps is strongly recommended for anyone when counting or handling plant specimens. This eliminates the likelihood of an allergic reaction when coming in contact with a plant or plants.

Procedure:

Work in groups of 3 or 4. Create three charts on different sheets of notebook paper. The title for the charts are *Sunlight*, *Shade*, and *Neglected*. The information you will collect will be listed under the headings *Plant Type* and *Number* for each chart.

Select three different locations that meet the criteria on the charts (i.e., in the lawn around the school or at a nearby accessible park). Note: *Neglected* means an abandoned area where weeds are allowed to prosper.

At the sunlight location, nominate one student from your group to toss an object, such as a pencil, into the chosen location. This student should close his or her eyes when making the toss. Another student will mark the spot where the object lands. Using the string and the stakes/nails, mark off a 30 cm × 30 cm square around this spot. The object (pencil) should be in the center of this square.

On the chart labeled “Sunlight,” record the type and number of all the plants inside the square. If a plant is not able to be identified, carefully remove a single leaf or flower. This will be identified using the plant charts or books in the regular classroom. Use forceps or gloves when making the removal for safety sake.

When finished counting the plants, remove the string and the stakes, and move to the next designated location, repeating steps 1–7 for the other two charts.

Questions:

1. Why are there different plants in these locations?
2. Describe the prominent plant in each location. What makes these plants successful in these areas?
3. How would you estimate the total population of any given plant in your school lawn or the park you worked in?
4. How could this procedure be applied to the marketing of a new product?

Science as Inquiry

Colors That Stand Out in Nature**What do we know about relationships in an ecosystem?****Procedure:**

Your teacher will scatter toothpicks over a grassy area. These toothpicks represent food and you are the predators hunting this food. You will be given a time limit. Once the signal is given, “capture” your prey. At the second signal, the stop hunting. Count the number of prey you have captured. Separate the prey (toothpicks) into numbers which represent the number of each color of prey captured. Create a data table with the entire class.

Questions:

1. How does color affect the ability of a prey to avoid predation?
2. If you needed 30 prey to survive, would you have survived?
3. How did competition affect or reflect the results of the data table?
4. What would happen if the following environmental factors changed: Annual temperature, annual rainfall, amount of time sunlight fell on the area, different soil type, ratio of animal to plant life?