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## Statements and Speeches (1975-1979): Report 02

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## INTRODUCTION

San Francisco is a highly urbanized metropolitan area with less than 7% of its 45 square miles remaining as open space. Crowded into this city are three-quarters of a million people, a density of well over 16,000 people per square mile. 1. Amidst this landscape of concrete, asphalt and automobiles are 105 public elementary schools with an attendance of 40,000 children. 2. Many of the schools have little or no landscaping and are not located near parks or open space areas.

This is not a fertile environment in which to learn about nature, and, consequently, urban children are physically and consciously estranged from the ecological realities of the world. At this time of crisis, the acute need to rectify this lack of environmental education has been expressed in the George R. Miller Educational Act of 1968 which directs schools to "..... provide a foundation for understanding.....man's relations to his human and natural environment."

The public school system of San Francisco has responded well despite lack of funds. Unfortunately, relatively little is being done to fully utilize the potential of existing educational resources of the city. Maintenance of facilities such as Strybing Arboretum and Botanical Gardens, should not be an end in itself; without viable, comprehensive, interpretive programs. The Arboretum with its botanical treasures is like a great library in a city of non-readers.

Today Strybing Arboretum has more educational resources, talented volunteer guides and requests by school teachers than ever before. What is needed now is an organized program and the equipment and materials to make it successful, so that its full potential can be reached.

1. Dreisbach, R.H. 1969. Handbook of the San Francisco Region, Environmental Studies, Palo Alto, California
2. US.F. Unified School District, December 1971
3. California Senate Bill 1., Chapter 3, Art 2C. Page 59. May 23, 1968.

## RESOURCES

Strybing Arboretum and Botanical Gardens cover 64 acres of Golden Gate Park and is administrated by the Recreation and Park Department and supported by the Strybing Arboretum Society. The Arboretum, which is open to the public free of charge is easily reached by public transportation and is noted for many established features.

1. Over 10,000 plants which include over 3,500 labelled species from all temperate regions of the world, fine collections of Asiatic Magnolias, Rhododendrons, Conifers and native plants.
2. Sunset Magazine-Strybing Arboretum Society Home Demonstration Gardens and Outdoor Garden Work Center.
3. Garden of Fragrance for the blind.
4. The James Noble Dwarf Conifer Collection
5. Redwood Nature Area and Trail
6. Conifer Walk
7. Indian Plant Trail
8. Zellerbach Memorial Garden
9. Junea Kelly Bird Garden
10. Three and one-half miles of paths, walks, and large and small lakes.

### RECENT ADDITIONS INCLUDE:

1. The Japanese Moon-Viewing Garden. 1970
2. The Eric Walter Succulent Garden. 1971
3. Additions to the demonstration gardens: a Fuchsia garden, Rhododendron garden, California Association of Nurserymen garden.
4. The Helen Crocker Russell Library of Horticulture and Related Subjects. 1972.
5. The John Muir Nature Trail of Native Plant Communities. 1972.

## PROPOSED PROGRAM

The program will have two components, each utilizing existing features of the Arboretum. The first will consist of special seasonal nature trails for classes scheduled by the Science Resource Center, under the direction of Virginia Ryder, Project Director of the S.F. Unified School District. A pilot program is already under way (Spring 1972). Four or more classes a week will meet at the Arboretum to walk the trails which emphasize different seasonal aspects of plant and animal life. Before they visit the Arboretum each class will be loaned sets of color slides and a teaching guide, to allow class preparation by the teacher and to generate enthusiasm, and interest.

Classes arriving at the Arboretum will be met by docents and student trainees from the Department of Environmental Horticulture of the University of California at Davis; each child will be given a small illustrated booklet about their particular nature walk. After their walks, they will go to the Outdoor Garden Work Center where each child will be able to make a cutting of an easily propagated plant, such as fuchsia or ivy; and given a jiffy pot and instructions on the care of the plant. Teachers participating in this program will receive an In-Service lesson on each trail to help them understand the potentials of the walks.

The second component will be the presentation to other schools (including parochial and private) of the outdoor nature study sessions or "units" on particular subjects. Newsletters will be sent to each school informing the teachers of: a) the different topics offered;

b) grade levels;

c) how to register

These classes will also be invited to participate in making cuttings. Color slide sets to accompany the specific study units will be made available to teachers who register their classes. Registration and coordination of this component of the program will be done by the staff of the Strybing Arboretum Society.

## STUDY UNITS

The various study units will be adjusted to suit the age levels being taught.

However, certain units are more adaptable to specific ages, for example, plants with animal names appeal to younger children who are not so appreciative of plant defenses.

### SPRING

1. Plants with animal names Grades Kindergarten to 2.

A walk through the Arboretum to study plants named after animals.

The students will be encouraged to sketch the plants as they visit such oddities as the Wakerobin, Skunk Cabbage, Kangaroo Paw, Mickey Mouse plant and the Dove tree.

2. Redwood Nature Trail Grades 2 to 6.

Encompasses the costal redwood plant community and stresses the evolutionary relationships of its member plants, numbering over 100 species of conifers, flowering trees and shrubs, ferns, horsetails, lichens, fungi and algi. This unit will stress the concepts of ecological communities, habitat and adaptation.

3. Plants used by the California Indians Grades 3 to 6.

The native plant section of the Arboretum has over 110 species of plants which were used by (native) men. The student will learn how 25 different plants played important roles in the survival of man in California.

4. Spring Flower Walk. Grades 4 to 6.

The student is introduced to the fascinatingly diverse world of flowers, their functions and how the size, color, odor and nectar vary with each species. The often precise relationships with various pollinators will be discussed. By simple observation the students will learn to deduce whether a particular flower is pollinated by bees, butterflies, moths, birds, flies or wind. The anatomy and behavior of these polinators will be studied and some simple experiments will be outlined to study insect-flower relations.

FALL

1. Plant Travelers.

Grades 3 to 6.

The main study unit for this season may be considered an extension of the flower walk in that it emphasizes what happens after pollination. The students will be studying the myriads of ways in which plants are dispersed: wind, water, animal, mechanical and vegetatively.

2. African Plants.

Grades 3 to 6.

An ethnic study of the uses of many plants from Africa, especially the southern part of the continent and will emphasize climate, geography and ethnobotany.

3. Mexican Plants.

Grades 3 to 6.

Using the Latin America Geographical section of the Arboretum, the students will be able to study the large collection of central American plants. Plants named by the Mexican and Spanish explorers in California will also be seen.

4. Plant Defenses.

Grades 3 to 6.

Although plants form the basis for animal life, without protective devices, animals would probably have exterminated many plants. The functions of thorns, chemicals and other devices will be studied.

WINTER

1. Winter Nature Trail

Grades 3 to 6.

General nature walk to enable students to see plant and animal life during winter. The effects of wind on plant growth, the formation of humus, and the effects of oak root fungus on many trees will be seen. The bird life will also be stressed, this being the season for migrant water-fowl.

2. Lower Plants.

Grades 4 to 6.

Winter in the Bay Area is one of the best times to study non-flowering plants; ferns, liverworts, mosses, slimemolds, and higher fungi. The students will be shown how to grow their own gigantic tree ferns from microscopic spores. Other nature activities will be making mushroom prints and moss pottle gardens.

3. Bird Life in the Arboretum

Grades 4 to 6.

Over 117 species of birds have been reported in the Arboretum and many over-winter here, including many types of waterfowl. Each student will be equipped with binoculars. With a simple field guide, the students will soon be able to identify many of the common birds and learn of their adaptations for particular food habits and habitats.

4. Conifer Walk.

Grades 3 to 6.

The Christmas season is a fine time to study our native cone-bearing trees. On the walk 20 species of native conifers will be seen including the living fossil known as the dawn redwood, which lived on the West Coast during the reign of dinosaurs.

MATERIALS

Each class will conclude its field trip in the outdoor garden work center where, for example, the children will each make a cutting and receive a jiffy-7 peat pot. Each class will require about 30 peat pots.

Schools have limited budgets for field trip expenses, thus depriving the children of experiencing many of the city's educational resources. If municipal school bus tickets could be sent to the class after a teaching unit has been requested, better use of the arboretum's facilities would be possible. The cost for an average class would be \$3.00 for the class and \$0.50 for the teacher for a round-trip.