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ABSTRACT

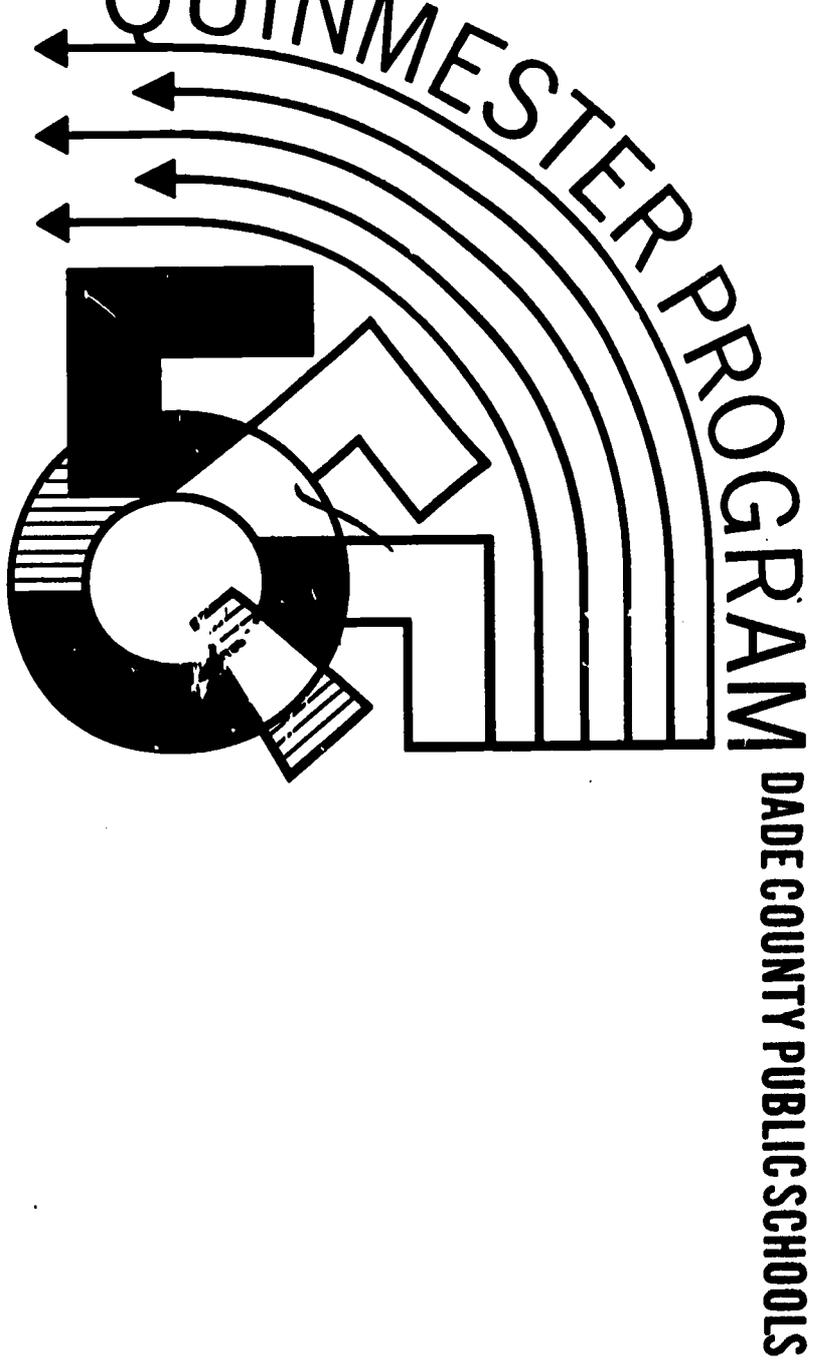
This instructional package contains two plant life units developed for the Dade County Florida Quinmester Program. "Plant Life in the Backyard" introduces the student to the more familiar plants in South Florida. Emphasis is placed on the economic value of local plants, plant propagation, and photosynthesis. "The Green Plant" is an introduction to the anatomical, morphological, physiological and biochemical concepts applicable to a green plant. Each booklet includes performance objectives for the unit, lists state-adopted texts, provides a synoptic summary of the course content, suggests activities and projects, indicates audio-visual materials available in the county and from other sources, and recommends reference books. Each booklet contains a chart relating each suggested activity to specific performance objectives. (CP)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE **QUINMESTER PROGRAM**



SCIENCE

The Green Plant

(Experimental)

5314.12

DIVISION OF INSTRUCTION • 1971

**THE GREEN PLANT  
5314.12  
SCIENCE  
(Experimental)**

**Written by James F. Miley and Peter Stamos  
for the  
DIVISION OF INSTRUCTION  
Dade County Public Schools  
Miami, Florida  
1971**

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## THE GREEN PLANT

### COURSE DESCRIPTION

An introduction to the anatomical, morphological, physiological and biochemical concepts applicable to a green plant. Identification and study will be made of some green plants indigenous to South Florida.

The theme of the course is centered around laboratory activities and supported by projects, reports, field trips, speakers and audio-visual methods.

### ENROLLMENT GUIDELINES

This course is part of the basic biology block needed by serious biology students.

### STATE ADOPTED TEXTS

1. Smallwood, William L. Biology. Morristown, N. J.: Silver Burdett Co., 1971.
2. Biological Sciences Curriculum Study. Biological Science - Molecules to Man, 2nd Ed.. Boston: Houghton-Mifflin Co., 1968.
3. Biological Sciences Curriculum Study. High School Biology: BSCS Green Version, 2nd Ed. Chicago: Rand, McNally and Co., 1968.
4. Biological Sciences Curriculum Study. Biological Science-An Inquiry Into Life, 2nd Ed. New York: Harcourt, Brace and World, Inc., 1968.

### PERFORMANCE OBJECTIVES

1. Given the diagram of a plant and an animal cell, the student will contrast the distinguishing characteristics of a plant cell.
2. Given a typical plant cell with the parts identified, the student will state the functions of each labeled part.
3. From two groups of different kinds of plants, the student will distinguish the characteristics of a unicellular and a multi-cellular plant.
4. Students will identify non-vascular plants by selecting those plants without roots, stems, or leaves.
5. Students will describe the three major parts of a vascular plant.
6. Given a vascular plant students will dissect it, in order to identify the five specialized tissues.
7. Given a cross-section of a leaf, student will identify all the structures necessary for photosynthesis.
8. Students will analyze what happens during the light reaction in photosynthesis and during respiration.
9. Students will design an experiment to investigate photosynthesis.
10. Students will devise a method utilizing apparatus to show the importance of mineral nutrition and water transport in a green plant.
11. Students will differentiate between asexual and sexual reproduction.
12. Students will discover the sequence of sexual reproduction in a green plant.
13. Students will prepare a tissue culture in order to recognize and examine differentiation in morphogenesis.
14. Students will design and do investigations in each of the following four regulators of growth: hormones, growth inhibitions, tropisms and external influences.
15. Given a selected group of South Florida plants, students will identify those plants found on inland waterways, swamps, seashore, wood and field.

## THE GREEN PLANT

### COURSE OUTLINE

#### I. The Green Plant Cell

- A. Cellular structures
  - 1. Cell wall
  - 2. Cell substances
    - a) Nucleus
    - b) Chloroplast
    - c) Mitochondria
    - d) Cytoplasm
  - 3. Vacuoles

#### II. Plant Structure

- A. Nonvascular
  - 1. Unicellular and multicellular
  - 2. No roots, leaves or stems
- B. Vascular
  - 1. Multicellular
  - 2. Roots, leaves and stems
  - 3. Specialized tissues
    - a) Meristematic
    - b) Protective
    - c) Parenchyma
    - d) Supporting
    - e) Conductives

#### III. Plant Development

- A. Plant Nutrition
  - 1. Photosynthesis
  - 2. Mineral nutrition
  - 3. Water transport and utilization
- B. Plant Growth
  - 1. Reproduction
    - a) Asexual
    - b) Sexual
  - 2. Differentiation
  - 3. Growth regulators
    - a) Hormones
    - b) Growth inhibitors
    - c) Tropisms
    - d) External influences

#### IV. Plant Habitats of South Florida

- A. Inland waterways and swamps
- B. Seashore
- C. Woods and fields

## LABORATORY EXERCISES

Galston, Arthur W. The Green Plant. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1968.

1. Five exercises: Culture of excised roots, stems, leaves, callous tissue, and single cells. (pp. 81-88)

Jacobs, William P. and Lamotte, Clifford E. Regulation in Plants by Hormones. Boston, Mass: D. C. Heath & Co., 1964.

3. A Plant Cell: Anacharis (Ex. 4, p. 17)
4. Separation of Plant Pigments (Ex. 7, p. 27)
5. Carbon Dioxide and Photosynthesis (Ex. 32, p. 135)
6. Leaf structures-Stomates (Ex. 33, p. 139)
7. Transpiration (Ex. 34, p. 143)
8. Alternations of Generations (Ex. 14-1, p. 90)
9. Enzyme Activity in Plants (Ex. 35, p. 149)

Abramoff, Peter, and Thompson, Robert C. Investigations of Cells and Organisms - A Laboratory Study in Biology. Englewood Cliffs, N. J. : Prentice-Hall, Inc. 1968.

10. Reproduction in Algae (Ex. 68, p. 216)
11. Reproduction in Mosses (Ex. 69, p. 220)
12. Reproduction in Ferns (Ex. 70, p. 222)
13. In What Part of the Plant Does Growth Occur? (Ex. 47, p. 148)
14. Cell Structure - Onion Cells (Ex. 5, p. 18)
15. Cell Structure - Elodea Cells (Ex. 6, p. 20)
16. Is Light Necessary for Photosynthesis? (Ex. 19, p. 60)
17. How Does Light Intensity Affect the Rate of Photosynthesis? (Ex. 20, p. 62)
18. How Can you Determine if Chlorophyll is Necessary for Photosynthesis? (Ex. 22, p. 66)
19. How Can O<sub>2</sub> Consumption in Respiration be Measured? (Ex. 28, p.84)
20. How Can CO<sub>2</sub> Production During Respiration be Measured? (Ex. 29, p. 87)
21. What is the Effect of Various Environmental Factors on Transpiration? (Ex. 31, p. 96)
22. How Can the Movement of Minerals in Plants be Measured? (Ex. 32, p. 99)
23. Anatomy of the Root (Ex. 4, p. 132)
24. Anatomy of the Stem (Ex. 43, p. 133)
25. Anatomy of the Leaf (Ex. 44, p. 138)
26. The Animal Welfare Institute. Humane Biology Projects. 22 E. 17 Street, New York 3, N. Y.: Animal Welfare Institute, 1960. Plant Physiology - (17 experiments, pp. 35-40)

Biological Sciences Curriculum Study. Research Problems in Biology: Investigations for Students, Series Two. Garden City, New York: Anchor Books, Doubleday and Co., Inc., 1963.

27. Nutrition on Excised Plant Tissues and Organs (pp. 203-208)

**Biological Sciences Curriculum Study. Biological Science - Molecules to Man, 2nd Ed. Boston: Houghton-Mifflin Co., 1968.**

28. Investigating Photosynthesis (Ex. 7-5 p. 168)
29. Investigating Production of a Carbohydrate by Plants (Ex. 7-6, p. 170)
30. Investigating the Effects of Varying Light Intensity on the Rate of Photosynthesis (Ex. 7-8, p. 174)
31. Investigating Chlorophyll Pigments (Ex. 7-14, p. 187)
32. Investigating the Effect of Oxygen on Cell Growth (Ex. 8-3, p.198)
33. Investigating Chemical Breakdown of Sugar (Ex. 8-6, P. 203)
34. Investigating the Relationship Between Diffusion and Cell Size (Ex. 11-2, p. 265)
35. Investigating Cell Division (Ex. 11-5, p. 270)
36. Investigating Development of the Plant Embryo (Ex. 4-2, p. 342)
37. Investigating Transport in Plants (Ex. 18-5, p. 474)
38. Investigating Reproduction in Flowering Plants (Ex. 13-6, p. 306)
39. Investigating the Influence of Heredity and Environment in Plant Pigmentation (Ex. 15-3, p. 377)
40. Investigating Movement in Plants (Ex. 25-2, p. 630)

**Biological Sciences Curriculum Study. Biological Science An Inquiry Into Life, Student Laboratory Manual. New York: Harcourt, Brace and World, Inc., 1968.**

41. Cork-An Investigation into Form and Function (Ex. 3-1, p. 23)
42. Cells of Living Plants (Ex. 3-2 A & B, p. 25)
43. Comparison of Plants - Simple or Complex (Ex. 13-1, p. 85)
44. Green Algae-Simple and Complex (Ex. 13-2, p. 89)
45. Alternation of Generations (Ex. 14-1, p. 90)
46. A Primitive Vascular Plant (Ex. 14-2, p. 92)
47. Leaf Structure and Function (Ex.15-2, P. 97)
48. Stems (Ex. 16-1, p. 104)
49. Roots (Ex. 16-2, p. 105)
50. The Gateway Into a Leaf (Ex. 15-6, p. 102)
51. Transpiration in Plants (Ex. 16-3, p. 107)
52. The Significance of Leaf Color (Ex. 15-1, p. 96)
53. The Pigments In A Leaf (Ex. 15-3, p. 98)
54. Light and Leaves (Ex. 15-4, p. 100)
55. Plants and Air (Ex. 15-5, p. 101)
56. The Importance of Seeds (Ex. 14-3, p. 94)
57. Flowers (Ex. 17-1, p. 110)
58. From Seed to Seedling (Ex.17-3, p. 117)
59. Plant Reaction to Environment (Ex. 17-4, p. 119)
60. Regulation of Growth in Plants (Ex. 17-5, p. 121)

**Biological Sciences Curriculum Study, High School Biology: BSCS Green Version, 2nd Ed. Chicago: Rand, McNally & Company, 1968.**

61. The Concept of Primitive Characteristics (Ex. 5-2, p. 179)
62. Vegetative Reproduction (Ex. 16.1, p. 582)
63. A Model of Meiosis (Ex. 16-2, p. 589)
64. Diversity in All Structures (Ex. 11.1, p. 385)
65. Diffusion Through a Membrane (Ex. 11.2, p. 388)

66. Mitosis and All Division in Plant Cells (Ex. 11.3, p. 397)
67. Transpiration (Ex. 13.1, p. 448)
68. Stomata and Photosynthesis (Ex. 13.2, p. 450)
69. Separation of Leaf Pigments (Ex. 12.4, p. 429)
70. Photosynthetic Rate (Ex. 12.5, p. 439)

Lawson, Chester A., (editor). Laboratory and Field Studies in Biology-  
A Source book for Secondary Schools. New York: Holt, Rinehart and  
 Winston, Inc., 1960.

71. Study of A Forest Community (Section I, Topic A, Study 1, p. 3)
72. Introduction to Asexual Reproduction in Plants through a Field  
 Trip (Section VI, Topic A, Study 6, p. 314)
73. Do Plants Respond to their Environment (Sec. V, Topic 9,  
 Study 9, p. 285)
74. Auxin as a Correlator of Plant Behavior (Section V, Topic 6,  
 Study 10, p. 289)
75. Plant Hormones: Do They Regulate Growth of Plants (Section V,  
 Topic 6, Study 11, p. 291)
76. What is the Effect of Temperature on the Growth of Small Grains?  
 (Section V, Topic 6, Study 12, p. 293)
77. Where Does the Plant get Material for Growth? (Sec. IV,  
 Topic A, Study 3, p. 99)
78. Photosynthesis (Sec. IV, Topic A, Study 5, p. 105)
79. Photosynthesis and the splitting of water (Sec. IV, Topic A,  
 Study 6, p. 109)
80. The Importance, Characteristics, and Composition of Chlorophyll  
 (Sec. IV, Topic A, Study 7, p. 111)
81. Respiration in Plants, Animals and Microorganisms (Sec. IV,  
 Topic B, Study 7, p. 137)

#### DEMONSTRATIONS

1. Suspend a bryophyllum leaf: Growth will occur in the indentation  
 of the leaf margin.
2. Agriculture Research Service, U. S. Department of Agriculture.  
Light and Plants. Miscellaneous Pub. #879, Washington, D. C.,  
 Superintendent of Documents, 1961, p. 26.
3. The cohesion tension theory with capillary tubes.

## PROJECTS

1. Model of plant cell mitosis and meiosis.
2. Model of plant cohesion tension theory with capillary tubing.
3. Investigation of possible interactions between algae and bacteria during growth.
4. Vegetative propagation.
5. Variation in the size of pollen cells.
6. The time of most active cell division in root tips of plants.
7. The effects of age on growth and development of vegetatively propagated plants.
8. Illustrate the sequence of sexual reproduction using living plants, i.e., orchids.
9. Take pictures of the sequence of sexual reproduction in the green plant.
10. Construct a model depicting the sequence of sexual events in green plants.
11. Make a series of transparencies showing the series of green plant reproduction.
12. Study of the effects of anticancerous agents on plant callus and tumor tissues.
13. Nutrition of excised plant tissues and organs.
14. Factors influencing plant tumor growth.
15. Antagonistic effects of 2, 4, dinitrophenol on growth abnormalities induced by 2, 4-D.
16. Effects of plant growth regulators on reproductive organs and accessory floral organs.
17. The modification of juvenile and adult leaf forms with plant growth regulators.

## REPORTS

1. Fresh water algae of Florida.
2. Seaweeds and their uses.
3. Mosses: The link between green algae and vascular plants.
4. Differences between vascular and nonvascular plants.
5. Differences between plant and animal cells.
6. Functions of the five kinds of specialized tissues found in vascular plants.
7. The part that minerals play in plant nutrition.
8. The Life of William J. Robbins.
9. Crown galls.
10. The kinetics of growth.
11. Plant light - growth discoveries: From photoperiodism to phytochrome.
12. Plants for survival.
13. Native shrubs of South Florida.
14. The Everglades.
15. Seminole Bread.

### FIELD TRIPS

1. Fairchild Gardens
2. Everglades National Park
3. Tamiami Canal
4. Matheson Hammock
5. Shaw's Nursery
6. Agricultural Research and Education Center of the University of Florida's Institute of Food and Agricultural Science (formerly Sub-Tropical Experimental Station) Homestead, Florida
7. Plant Introduction Station (Old Cutler Road)
8. Redlands Fruit and Spice Park
9. Bear Cut
10. Greynolds Park
11. Museum of Science Nature Trails

### SPEAKERS

1. Dr. Robert Conover  
Agricultural Research and Education Center of the University of Florida's Institute of Food and Agricultural Science  
Homestead, Florida
2. Dr. Julia Morton  
Morton Collectanea  
University of Miami
3. Dr. Taylor Alexander  
Biology Department  
University of Miami
4. Dr. John Popenoe  
Fairchild Tropical Garden
5. Mrs. Patti Amon  
Dade County Parks
6. Dr. Monroe Birdsey  
Biology Department  
Miami-Dade Junior College - South

## FILMS

Educational Media Center, F.S.U., Tallahassee, Florida 32306  
(Rental charge for films)

1. Bryophytes, 29', C, McGraw-Hill (\$7.95)
2. Algae, 29', C, McGraw-Hill (\$7.95)
3. Simple Plants: Algae and Fungi, 13', C, Coronet (\$4.00)
4. Algal Reproduction, 29', C, McGraw-Hill (\$7.95)
5. Life Cycle of a Plant, 11', BW, UW (\$2.00)
6. Plant Reproduction, 29', C, McGraw-Hill (\$7.95)
7. Plant Growth and Development, 29', C, McGraw-Hill (\$7.95)
8. Root Development, 10', BW, UW (\$2.00)

## DADE COUNTY 16MM FILMS

9. Reproduction in Plants  
AV# 1-11051, 14", C
10. Algae  
AV# 1-1111-7, 16', C
11. Lichens and Mosses  
AV# 1-11113, 22', C
12. Growth of Seeds  
AV# 1-11103, 14', C
13. Plant Growth  
AV# 1-02273, 10", BW
14. Seeds and Germination (AIBS, Pt3. No. 2)  
AV# 1-31540, 28", C
15. Diversities and Similarities of Plants (AIBS, Pt 7 #12)  
AV# 1-31536
16. Adaptions in Plants  
AV# 1-11059, 15", C
17. Adapting to Changes in Nature  
AV# 1-01359, 11", C
18. Carnivorous Plants  
AV# 1-02323, 10", BW
19. Chlorophyll (photosynthesis)  
AV# 1-30628, 28", C
20. Growth of Flowers  
AV# 1-02354, 11", C
21. Growth of Seeds  
AV# 1-11103, 11", C
22. Life of a Plant  
AV# 1-00269, 10", C
23. Osmosis  
AV# 1-11094, 14", C
24. Plant Growth  
AV# 1-02273, 10", BW
25. Plant Growth and Development  
AV# 1-30639, 28", BW
26. Plant Life at Work  
AV# 1-02280, 10", C
27. Plant Reproduction  
AV# 1-30649, 28", C

28. Plant Traps  
AV# 1-02327, 11', C
29. Plants Make Food  
AV# 1-02287, 11', C
30. Plants Obtain Food  
AV# 1-11100, 15', C
31. Plant Organism  
AV# 1-31538, 28', C
32. Plants of the Desert  
AV# 1-02329, 7½', C
33. Plants That Grow from Leaves, Stems and Roots  
AV# 1-02314, 11', C
34. Reproduction in Plants  
AV# 1-11051, 14', C
35. Roots of Plants  
AV# 1-02320, 11', C
36. Seasonal Changes in Plants  
AV# 1-02331, 10', C
37. Secrets of Plant World  
AV# 1-11096, 13', C
38. Seeds Grow Into Plants  
AV# 1-02296, 10', C
39. Seed Germination  
AV# 1-11104, 14', C
40. Simple Plants: Algae and Fungi  
AV# 1-11115, 14', C
41. Simple Plants: Bacteria  
AV# 1-11120, 14', C
42. Stems (A.I.B.S.PT. 3, No. 7)  
AV# 1-12496, 28', BW
43. Trees: Our Plant Giants  
AV# 1-11109, 14', C
44. What Plants Need for Growth  
AV# 1-02312, 10', C
45. Wonders of Plant Growth  
AV# 1-02305, 11', BW
46. Seeds and Germination (AIBS, pt. 3, No. 2)  
AV# 1-31540, 28', C
47. Leaves  
AV# 102262, 10', BW
48. Leaves  
AV# 130474, 28', C
49. Cell, Structural Unit of Life  
AV# 1-02231, 10', C
50. Cell Biology Part 1 Unit of Life #2  
AV# 1-30525, 30', C
51. Cell Biology Part 1 What is a Cell? #3  
AV# 1-30526, 30', C
52. Carbon 14  
AV# 1-01926, 12', BW

### FILM LOOPS

1. Cytoplasmic Streaming in Plant Cells (Ealing 81-5381)
2. The Importance of the Nucleus (Ealing 81-5936)
3. Measuring Rate of Photosynthesis (Ealing 81-6033)
4. Photosynthesis Fixation of CO<sub>2</sub> (Ealing-Part 1 81-5118, Part 2 81-5126)
5. Phototropic Response in Coleoptiles (Ealing 81-5746)
6. Regulation of Plant Development. Coleoptile Response in ZEA: Part I (Ealing 81-5134)
7. Regulation Plant Development: Coleoptile Response in ZEA Part 2 (Ealing 81-5142)
8. The Dividing Cell (Ealing 81-5142)
9. Plant Reproduction (Ealing 89-1655 - SET)

### DADE COUNTY AUDIO-VISUAL SLIDES

1. Everglades National Park (C) 2 x 2 slides in magazine  
AV# 5-20095, 14 slides
2. Plants and Trees, (C), 2 x 2 slides in magazines  
AV# 5-20046, 32 slides
3. Subtropical Flowering Plants (Part 1), (C), 2 x 2 slides  
in magazines, AV# 5-20074, 26 slides, SG
4. Subtropical Flowering Plants (Part 2), (C), 2 x 2 slides  
in magazines, AV# 5-20074, 26 slides, SG
5. Subtropical Flowering Plants, (C), 2 x 2 slides in magazines  
AV# 5-20067, SG
6. Trees and Flowering Plants, (C) 2 x 2 slides in magazine,  
AV# 5-20001, 30 slides
7. Flowering Plants: set 4 (C) 25 slides  
AV# 5-00007
8. Flowers Set 1 (C) 30 slides  
AV# 5-20080
9. Flowers Set 2 (C) 34 slides  
AV# 5-20077
10. Plants Set 1 (C) 25 slides  
AV# 5-00013
11. Structure of the Flower (C)  
AV# 5-30026

### DADE COUNTY AUDIO-VISUAL FILM STRIPS

12. Roll Call of the Plants: 38 Frame (C)  
AV# 573
13. How Hormones Regulate Plant Growth  
AV# 587, 40 Frames (C)

DADE COUNTY TRANSPARENCIES

1. Fungus Plants, The  
AV# 2-00025 BW
2. Plant Structure  
AV# 2-00022 1 BW
3. Angiosperm, Leaf Plant Factory  
AV# 2-00079 C
4. Angiosperm, Root  
AV# 2-00081 C
5. Angiosperm, Stem (Support and Circulation)  
AV# 2-00080 C
6. Herbaceous Dicot Stem  
AV# 2-00168 BW
7. Mitotic Cell Division  
AV# 2-00008 C
8. Monocot Stem Structure  
AV# 2-00006 BW
9. Structure of the Leaf  
AV# 2-00004 BW
10. Structure of the Leaf  
AV# 2-00170 BW

TRANSPARENCIES TO BE PURCHASED FROM SCIENCE KIT CO.

11. 3 - 6 Reproduction of Cells
12. 3 - 7 Asexual Reproduction of Molds
13. 3 - 13 Protococcus - A Common Green Algae
14. 3 - 14 Spirogyra - A Filamentous Green Algae
15. 3 - 15 Sexual and Asexual Reproduction
16. 3 - 24 Life Cycle of a Moss
17. 3 - 25 Life Cycle of a Fern
18. 3 - 26 Plant Body of a Flowering Plant
19. 3 - 29 Root Tissues
20. 3 - 39 Flower Reproduction

### SUGGESTED DISCUSSION QUESTIONS

1. What characterizes a unicellular, green plant?
2. What characterizes a multicellular green plant?
3. Correlate algae, bryophytes, tracheophytes, gymnosperms, and angiosperms using unicellular-multicellular as a frame of reference.
4. Where did multicellular plants come from?
5. Describe budding as a method of plant propagation.
6. What indigenous plant life might be used to augment the diet as well as meet many other human needs?
7. What are the food habits of the Seminoles and other people of Dade County using a group of South Florida plants as a frame of reference?
8. What are characteristics and typical examples of the following groups of plants:
  - a. "Plants of the seashore"
  - b. "Plants of inland waterways and swamps"
  - c. "Plants of woods and fields"
9. Discuss the type of plant life available South from an imaginary line drawn from Palm Beach to Sarasota, Florida.

Galston, Arthur W. The Green Plant. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

10. p. 76 - # 1 - 3, 5 - 8, 12, 14 - 22
11. p. 98 - # 1 - 3, 6 - 9, 10 - 11, 15 - 23
12. P. 77 - # 14 - 22
13. p. 519 # 1 - 8
14. p. 518 # 1 - 5
15. p. 470 # 1 - 4
16. p. 474 # 7

Biological Sciences Curriculum Study. Biological Science - Molecules to Man. Boston: Houghton-Mifflin Co., 1968.

17. p. 306 # 1 - 7
18. p. 337 # 1 - 10

19. p. 338 # 22, 24, 29, 32
20. p. 311 # 1 - 8
21. p. 348 # 1-6
22. p. 370 # 7, 16, 20.- 21
23. p. 635 # 1 - 3
24. p. 651 # 6

**Biological Sciences Curriculum Study. Biological Sciences An Inquiry into Life. New York: Harcourt, Brace and World, Inc., 1968.**

25. p. 253 # 3, 4, 6
26. p. 278 # 3
27. p. 326 # 1, 2, 3, 6, 7, 10
28. p. 253 # 2, 5
29. p. 316 # 4

**Biological Sciences Curriculum Study. High School Biology: BSCS Green Version. Chicago: Rand McNally & Co., 1968.**

30. p. 474 # 1, 5, 8
31. p. 475 # 18.- 19
32. p. 184 # 12, 14, 16
33. p. 278 # 1
34. p. 622 # 2, 11-13, 6 - 9, 11-13, 15

### ADDITIONAL INNOVATIVE ACTIVITIES

Dorothy, Sister M. "Biology Puzzles and Puzzlers. Portland, Maine: J. Weston Walch, Box 1075, 1963.

1. p. 62 - 63 - Thallophytes
2. p. 64 - 65 - Bryophytes
3. p. 13 - Scramble #1
4. p. 14 - Scramble #2
5. p. 15 - Scramble #3

Biological Sciences Curriculum Study. Biological Science - Molecules to Man. Boston: Houghton-Mifflin Co., 1968.

6. Investigating variation in the number of chloroplasts per cell (S - 4, p. 214)
7. Investigating variation in the number of chloroplasts per cell (S - 5, p. 215)
8. Investigating transmission reflection and absorption of light (S - 6, p. 216)
9. Investigating a plant's ability to absorb phosphate through its leaves (S - 12, p. 221)

#### Teacher-directed activities

10. Make a scrapbook of green plants
11. Collection of specimens
12. Write poems and short stories
13. Prepare bulletin boards
14. Seminars
15. Field observations and notes
16. Making a garden

#### SUPPLEMENTARY REFERENCES

1. Morton, J. F. and Ledin, R. B. 400 Plants of South Florida. Coral Gables, Florida: Text House, 1952.
2. Grant, V. "The Fertilization of Flowers," Scientific American. June, 1951, Offprint #12.
3. White, P. R. "Plant Tissue Cultures," Scientific American. November, 1950.
4. Wigglesworth, V. B. "Metamorphosis and Differentiation", Scientific American, February 1959, Offprint #63.
5. Steward, F. C. "The Control of Growth in Plant Cells", Scientific American, October, 1963.
6. Galston, Arthur W. The Green Plant. New York: Prentice-Hall, Inc., 1968, pp. 56 - 63, 78 - 88.
7. Galston, Arthur W. The Green Plant. New York: Prentice-Hall, Inc., 1968, pp. 63 - 77, 88 - 98.
8. Morton, Julia. Wild Plants for Survival in South Florida. Miami, Florida: Hurrican House Publishers, Inc. , 1968, pp. 11, 20, 26, 65.

MASTER SHEET - THE GREEN PLANT

Objectives	Laboratory Experiments	Student Texts	Demonstrations	Projects	Reports	Field Trips	Speakers	Films	Film Loops	Slides or Film Strips	Transparencies	Suggested Discussion Questions	Additional Innovative Activities	Supplementary References
1	34- p265 4- p23 3- p17 14- p18 15- p20 64- p385 66- p397	1- p11 2-pp261-265 3- p378 4-pp38-53, 108-126		1				49 50 51			2		12 13	
2	14- p18 15- p20 35- p270 42- p25 64- p385 66- p397	1- p31 2-pp267-272 3- p378 4-pp38-53, 108-126		1	5			49 50 51	1 2		1 3		12 13	
3	43- p18 44- p89 45- p90 46- p92	1- p359 2-pp285-296 3-pp378, 443, 157 4-pp244-251, 254-261			4	1 2 3 4 5	3 4 5	10 11		10 12	13 14	1 25 2 26 3 4	10 11 15	
4	43- p85 44- p89 61- p179	3-pp172-175, 177 178 472-474 4-pp254-256, 261 762-766		3	1 2 3		6	1, 9, 2, 10 3, 11			13 14	30 33 31 32	1 5 2 11 3 15 4	
5	6- p139 23- p132 24- p133 25- p138 36- p342 47- p97 48- p104 49- p105 65- p388	1-pp359 403, 511 2-pp341-347 3- p443 4-pp263-275				1 2 3 4 5	3 4 5	48 49 35 47			2 3 4 5 8	6 7 8 9	16	
6	7- p143 34- p474 50- p102 51- p107 65- p388	1-pp359-403, 511 2-pp464-480 3-pp386-443 4-pp296-308				6		48 49		9 9 11	2 9		16	
7	4- p27 5- p135 16- p60 17- p62 18- p66 19- p84 20- p87 28- p168 29- p170 30- p174 31- p187 32- p198 33- p203 52- p96 53- p98 54- p100 55- p101 56- p102 68- p450 69- p429 70- p439 78- p105 79- p109 80- p111 81- p137	1- p100 2-pp162-210 3- p426 4-pp279-295					1 3 6	52	3 4				6 7 8 9 14	

MASTER SHEET - THE GREEN PLANT (con't)

Objec- tives	Laboratory Experiments	Student Texts	Demon- stra- tions	Pro- jects	Re- ports	Field Trips	Speak- ers	Films	Film Loops	Slides or Film- Strips	Transpa- rencies	Suggested Discussion Questions	Adil- tional Innova- tive Activi- ties	Supple- mentary Refer- ences
8	4- p27 5- p135 16- p60 17- p62 18- p66 19- p84 20- p87 28- p168 29- p170 30- p174 31- p187 32- p198 33- p203 52- p96 53- p98 54- p100 55- p101 56- p102 68- p450 69- p429 70- p439 78- p105 79- p109 80- p111 81- p137	1- p100 2-pp162- 210 3- p426 4-pp279- 295					1 2 6	52 59	3 4				6 7 8 9 14	
9	4- p27 5- p135 16- p60 17- p62 18- p66 19- p84 20- p87 28- p168 29- p170 30- p174 31- p187 32- p198 33- p203 52- p96 53- p98 54- p100 55- p101 56- p102 68- p450 69- p429 70- p439 78- p105 79- p109 80- p111 81- p137	1- p100 2-pp162- 210 3- p426 4-pp279- 295					1 3 6	52	3 4				6 7 8 9 14	
10	6- p139 7- p143 21- p96 22- p99 37- p474 48- p104 49- p105 50- p102 51- p107 67- p448 77- p99	1-pp403, 511 2-pp464, 480 3-pp386, 443 4-pp296- 308	3		7		3 6	48 49	4		5 9		16	
11	8- p90 10- p216 11- p220 12- p222 35- p270 45- p90 56- p94 57- p110 62- p582 72- p314	4-pp306- 316, 246- 251, 257- 261 3-pp578- 599 2-pp298- 311 1-pp499- 516		4 5 6 7	16 18 19	6 7		4 5 6 9 27 33 40	8 9	11	7 11 12 15	5 27 13 28 17 34 18 19 20	14	

MASTER SHEET - THE GREEN PLANT (con't)

Objec- tives	Laboratory Experiments	Student Texts	Demon- stra- tions	Pro- jects	Re- ports	Field Trips	Speak- ers	Film Films	Film Loops	Slides or Film- Strips	Transpa- racies	Suggested Discussion Questions	Addi- tional Innova- tive Activi- ties	Supple- mentary Refer- ences
12	8- p90 38- p306 63- p589	1-pp499- 516 4-pp246- 250, 255- 261, 267- 275, 311- 316 3-pp584- 599 2-pp298- 311		8 9 10 11	17			5 6	9	7 8 9	15 16 17 18 20	18 28 19 29 27 34		2
13	1- p81 27- p203 36- p342 39- p377 58- p117	4-pp316- 320 2-pp340- 348, 358- 365 1-pp511- 518		12 13 14 15	8 9 10		1	7 8 12 14			19	10 22 14 21	15	3 4 5 6
14	2- p116 9- p149 13- p148 26- p37 46- p630 59- p119 60- p121 73- p285 74- p289 75- p291 76- p293 10- p216 11- p220 12- p222 13- p148	4-pp320- 326 2-pp629- 635 1-pp465- 470	1 2	16 17 15	11 20 21 22 23 24 25 26		3	20 21 24 25 38	5 6 7	13		11 12 15 16 23 24 27	12 14	7
15	71- p3	None			13 14 15	1 2 3 4 8 9 10 11	2 3 4 5	15		1 2 3 4 5 6			10 11 15 16	1 8

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N-LS

AUTHORIZED COURSE OF INSTRUCTION FOR THE **QUINMESTER PROGRAM**



**PLANT LIFE IN THE BACKYARD**

5311.12  
5312.12  
5313.12

**SCIENCE**

**(Experimental)**

**DIVISION OF INSTRUCTION • 1971**

**PLANT LIFE IN THE BACKYARD**

**5311.12**

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**Science**

**(Experimental)**

**Written by David Z. Kleinman and Bernard H. Ropeik**

**For the  
DIVISION OF INSTRUCTION  
Dade County Public Schools  
Miami, Florida  
1971**

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## PLANT LIFE IN THE BACKYARD

### COURSE DESCRIPTION

This course will introduce the student to the more familiar plants in South Florida. Emphasis will be placed on the economic value of South Florida plant life. The course also will delve into the concepts of photosynthesis and plant propagation as practiced in South Florida.

### ENROLLMENT GUIDELINES

The course is an elective, beginning course for anyone who is interested in the Flora of South Florida.

### STATE ADOPTED TEXTBOOKS

1. Brandwein, et al. Life its Forms and Changes. New York: Harcourt, Brace and World, Inc., 1968.
2. Biological Science Curriculum Study. High School Biology: BSCS Green Version, 2nd ed. Chicago: Rand McNally, 1968.
3. Biological Science Curriculum Study. Biological Science: Molecules to Man, 2nd ed. Houghton Mifflin, 1968.
4. Biological Science Curriculum Study. Biological Science: An Inquiry Into Life, 2nd ed. New York: Harcourt, Brance and World, Inc., 1968.
5. Frazier and Smith. The Biological Sciences. River Forest, Illinois: Laidlaw Brothers, 1969.
6. Oxenhorn and Idelson. Pathways in Science Biology. Vols. I, II, III. Globe Book Co., 1970.
7. Thurber and Kilburn. Exploring Life Science. Boston: Allyn and Bacon, Inc., 1966.

### PERFORMANCE OBJECTIVES

1. Given an assortment of South Florida plants the student will distinguish which are used by people for:
  - a. Food
  - b. Shelter
  - c. Clothing
  - d. Medicine
  - e. Landscaping

2. The student will be able to describe the conditions necessary for photosynthesis.
3. Given several selected plants the student will describe the proper methods of care needed for optimum growth.
4. The student will be able to describe one method of sexual reproduction and three methods of asexual reproduction and name two types of plants best suited to each type. The student will be able to demonstrate these methods of plant propagation in the laboratory.
5. The student will be able to identify several South Florida trees, shrubs and vines and describe their economic value.
6. The student will identify several toxic plants and their harmless relatives.
7. The student will name several undesirable plant forms and discuss or demonstrate economical methods of removing them.

## COURSE OUTLINE

- I. Common Dade County Plants
  - A. Native
  - B. Exotic
  - C. Ornamental
  - D. Toxic
  - E. Food
- II. Plant Requirements
  - A. Photosynthesis
    - 1. Water
    - 2. Light
    - 3. Carbon dioxide
  - B. Nutrients
    - 1. Organic fertilizer, composition
    - 2. Chemical fertilizer, composition
    - 3. Growth hormones
  - C. Soil
    - 1. Type
    - 2. Drainage
- III. Plant Propagation
  - A. Sexual
    - 1. Pollination
    - 2. Cross pollination
    - 3. Hybridization
  - B. Asexual
    - 1. Cutting
    - 2. Grafting
    - 3. Air Layering
    - 4. Budding
- IV. Plant Economics
  - A. Economically important plants
    - 1. Food producing plants
      - a. Leaves and stems
      - b. Fruits
      - c. Seeds
      - d. Roots

2. Landscaping plants
  - a. Flowering plants
  - b. Ornamental shrubery
  - c. Trees

- B. Problems in plant production
  1. Conditions for optimum growth
  2. Pests and their control
  3. Diseases
  4. Pollution
    - a. Air
    - b. Water

- C. Plant pests
  1. Water Hyacinth
  2. Algae, fungi, and mildew

## EXPERIMENTS

Biological Science Curriculum Study. Laboratory Guide, Biological Science: An Inquiry into Life, 2nd ed. New York: Harcourt Brace & World, 1968.

1. Cells of Living Plants (Ex. 3-2 p. 25)
2. An Enzyme in Plant and Animal Tissue (Ex. 5-1 p. 32)
3. Food Energy (Ex. 5-2 p. 34)
4. Compounds of Living Organisms (Ex. 5-3 p. 36)
5. Investigating Differences in Peas (Ex. 8-3 p. 59)
6. Fungus Among Us (Ex. 12-2 p. 83)
7. The Importance of Seeds (Ex. 14-3 p. 94)
8. Leaf Structure and Function (Ex. 15-2 p. 97)
9. The Pigment in a Leaf (Ex. 15-3 p. 98)
10. A Simple Key to Flowering Plants (Ex. 17-2 p. 111)
11. From Seed to Seedling (Ex. 17-3 p. 117)
12. Plant Reactions to Environment (Ex. 17-4 p. 119)
13. Regulation of Growth in Plants (Ex. 17-5 p. 121)

Otto, Towle, Crider. Biology Investigations. New York: Holt, Rinehart & Winston Inc., 1965.

14. Mushroom (Ex. 19-3 p. 164)
15. Growth Stimulators (Ex. 23-4 p. 199)
16. Mineral Requirements of Plants (Ex. 23-5 p. 203)
17. The Fruit, A Matured Ovary (Ex. 26-3 p. 229)
18. The Seed, a Matured Ovule (Ex. 26-4 p. 231)
19. Seed Germination (Ex. 26-5 p. 233)

Green and Bodrowsky. Laboratory Investigations in Biology. Morristown, New Jersey: Silver Burdett, 1971.

20. The Structure and function of the flower (Ex. 38 p. 163)
21. The Germination of Seeds (Ex. 40 p. 171)

Biological Science Curriculum Study. High School Biology, 2nd ed. Chicago: Rand McNally Inc., 1968.

22. Vegetative Reproduction (Ex. 16.1 p. 582)

Thurber and Kilburn. Exploring Life Science. Boston: Allyn and Bacon, Inc., 1966.

This is an excellent source giving over 25 experiments on the growth of plant and how plants make food. (pp. 337-400)

Bulletin 8F, Biology. Dade County Public Schools, 1968.  
Many experiments on plants.

## PROJECT I

The student will bring in examples of the following "Plants in the Backyard":

1. a monocot plant (any)
2. a dicot plant (any)
3. a catkin
4. an example of a rhizome
5. a parallel veined leaf
6. a net veined leaf
7. a palmately veined leaf
8. a simple leaf
9. a compound leaf
10. a plant which shows alternate leaf arrangement
11. a plant which shows opposite leaf arrangement
12. a plant which shows whorled leaf arrangement
13. an example of a South Florida angiosperm
14. an example of a South Florida gymnosperm
15. a stem which shows conducting tissue

## PROJECT II "TOXIC PLANTS"

The student will make a notebook or poster of the following South Florida poisonous plants. For each plant listed, the student will give the following information:

- A. Photograph or pencil sketch
- B. Scientific name
- C. Habitat
- D. Toxic effect
- E. Treatment

- |                 |                  |
|-----------------|------------------|
| 1. Lantana      | 8. Oleander      |
| 2. Rosary Pea   | 9. Milk Bush     |
| 3. Manchineel   | 10. Cajeput Tree |
| 4. Poison Ivy   | 11. Privet       |
| 5. Coral Sumac  | 12. Pokeweed     |
| 6. Physic Nut   | 13. Poinsetta    |
| 7. Poison Sumac | 14. Larkspur     |
|                 | 15. Jimsonweed   |

### REPORTS

1. Forest plants which are used in everyday living.
2. South Florida plants such as poinsetta, periwinkle and pencil cactus are poisonous. Explain why.
3. Select five ferns and five palms that are native to South Florida. Tell how these are of benefit to man.
4. Prepare a report that helps to explain the effects of excess water on garden plants such as peas, beans, and corn.
5. Why string beans, squash and tomatoes are considered fruits.

### FIELD TRIPS

1. Fairchild Tropical Gardens-- 10901 Old Cutler Road, Coral Gables  
Dr. Gillis 667-1651
2. Redland Fruit and Spice Park-- Redland Road, Homestead Florida  
247-5727
3. Matheson Hammock-- Old Cutler Road, Coral Gables, Florida  
666--979
4. Camp Owaissa Bauer Park-- 17001 S.W. 264 Street Homestead, Florida  
247-6016
5. Simpson Park-- 55 S.W. 17 Road  
377-5569

### SPEAKERS

1. Tropical Audubon - Mrs. Flora O'Brien 4440 W. Flagler
2. Dade County Redland Fruit and Spice Park 24801 S.W. 187 Ave. Rt. 2-  
Homestead
3. Everglades National Park - Chief Naturalist 247-6211

## AUDIO VISUAL

### Materials Available From Lindsey Hopkins

#### FILMS

1.	<u>Adaptations in Plants</u>	15 min.	C	AV #1-11107
2.	<u>Leaves</u>	10 min.	BW	AV #1-02262
3.	<u>Color of Life, The</u>	24 min.	C	AV #1-30664
4.	<u>Life of a Plant</u>	10 min.	C	AV #1-02269
5.	<u>Living Traps</u>	10 min.	C	AV #1-02326
6.	<u>Plant Growth</u>	10 min.	BW	AV #1-02273
7.	<u>Flowers and Their Purpose</u>	15 min.	C	AV #1-11105
8.	<u>Flowers at Work</u>	11 min.	BW	AV #1-02349
9.	<u>Flying Seeds</u>	10 min.	BW	AV #1-02322
10.	<u>Fruits of Plants, The</u>	12 min.	C	AV #1-11106
11.	<u>Gift of Green, The</u>	20 min.	C	AV #1-11090
12.	<u>Growth of Flowers</u>	11 min.	C	AV #1-02354
13.	<u>Growth of Seeds</u>	14 min.	C	AV #1-11103
14.	<u>Plants Obtain Food</u>	15 min.	C	AV #1-11100
15.	<u>Reproduction in Plants</u>	14 min.	C	AV #1-11051
16.	<u>Roots of Plants</u>	11 min.	C	AV #1-02320
17.	<u>Seasonal Changes in Plants</u>	10 min.	C	AV #1-02331
18.	<u>Seasonal Changes in Trees</u>	10 min.	C	AV #1-02343
19.	<u>Seed Dispersal</u>	11 min.	BW	AV #1-02293
20.	<u>Seed Germination</u>	14 min.	C	AV #1-11104

#### SLIDES

1.	<u>Everglades National Park</u>	14 Slides	AV #5-20095
2.	<u>Flowers Set 1</u>	30 Slides	AV #5-20080
3.	<u>Flowers Set 2</u>	34 Slides	AV #5-20077
4.	<u>Plants &amp; Trees</u>	28 Slides	AV #1-20046
5.	<u>Plants Set 1</u>	25 Slides	AV #5-00013
6.	<u>Trees</u>	29 Slides	AV #5-20078
7.	<u>Trees and Flowering Plants</u>	30 Slides	AV #5-20001

#### TRANSPARENCIES

1.	<u>Flower</u>	C	AV #2-00088
2.	<u>Angiosperm: Flower</u>	C	AV #2-00082
3.	<u>Angiosperm: Root</u>	C	AV #2-00081
4.	<u>Angiosperm: Stem</u>	C	AV #2-00080
5.	<u>Mitotic Cell Division</u>	C	AV #2-00008
6.	<u>Plant Structure</u>	C	AV #2-00022
7.	<u>Structure of the Flower</u>	C	AV# 2-00001
8.	<u>Structure of the Leaf</u>	C	AV# 2-00170
9.	<u>Structure of the Leaf</u>	C	AV# 2-00004

## FILM LOOPS

Available From Wards Natural Science Establishment  
Rochester, New York

1. Plant Life  
Fresh-water Algae  
73 W 1277 Standard 8mm \$15.50  
73 W 6385 Super-8 \$19.00
2. Mushrooms  
73 W 1278 Standard 8mm 13.50  
73 W 6386 Super-8 17.00
3. Corn Growth and Pollination  
73 W 1279 Standard 8mm 17.00  
73 W 6387 Super-8 20.50
4. Flowers Opening  
73 W 1280 Standard 8mm 17.00  
73 W 6388 Super-8 20.50
5. Fruit Ripening  
73 W 1281 Standard 8mm 15.00  
73 W 6389 Super-8 18.50
6. Seed Dispersal  
73 W 1282 Standard 8mm 15.00  
73 W 6390 Super-8 18.50
7. Self-planting Seeds  
73 W 1283 Standard 8 mm 17.00  
73 W 6391 Super-8 20.50
8. Seeds Sprouting  
73 W 1284 Standard 8mm 15.00  
73 W 6392 Super-8 18.50
9. Climbing Vines  
73 W 1285 Standard 8mm 15.00  
73 W 6393 Super-8 23.00
10. Desert Flowers  
73 W 1287 Standard 8mm 18.50  
73 W 6395 Super-8 22.00
11. Pocket Garden for Germination Studies  
73 W 1705 3 min. 30 sec. 18.50
12. Seed Distribution and Germination  
73 W 0580 Standard 8mm 17.50  
73 W 0585 Super-8 18.60

COLOR SLIDES

Available from: Wards Natural Science Establishment, Rochester, New York.

- |    |  |       |
|----|--|-------|
| 1. | <u>Tree Fruits</u>                             |       |
|    | 171 W 3700 Set of 28 slides                    | 25.00 |
|    | Individual slides, each                        | 1.00  |
| 2. | <u>Wild Flowers of Spring</u>                  |       |
|    | 171 W 4000 Set of 30 slides                    | 27.00 |
|    | Individuals, each                              | 1.00  |
| 3. | <u>Summer Wild Flowers of the Woods</u>        |       |
|    | 171 W 4100 Set of 30 slides                    | 27.00 |
|    | Individuals, each                              | 1.00  |
| 4. | <u>Summer Wild Flowers of Field and Meadow</u> |       |
|    | 171 W 4200 Set of 50 slides                    | 45.00 |
|    | Individuals, each                              | 1.00  |
| 5. | <u>Summer Wild Flowers of Pond and Swamp</u>   |       |
|    | 171 W 4300 Set of 30 slides                    | 27.00 |
|    | Individuals, each                              | 1.00  |

BIO-PLASTIC MOUNTS

Available from: Wards Natural Science Establishment, Rochester, New York.

FUNGI AND LICHENS

- |                                      |      |
|--------------------------------------|------|
| 1. Mushroom Types<br>56 W 1100       | 7.25 |
| 2. Mushroom Development<br>56 W 1110 | 6.25 |
| 3. Lichen Types<br>56 W 1900         | 5.25 |

GINKGO

- |                                     |      |
|-------------------------------------|------|
| 4. Ginkgo Life History<br>56 W 5200 | 6.75 |
|-------------------------------------|------|

INJURIOUS PLANTS

- |                                |      |
|--------------------------------|------|
| 5. Poison Ivy<br>56 W 6100     | 7.25 |
| 6. Poison Oak<br>56 W 6110     | 7.25 |
| 7. Common Ragweed<br>56 W 6150 | 5.25 |

FLOWERS, FRUITS, AND SEEDS

- |                                |       |
|--------------------------------|-------|
| 8. Flower Anatomy<br>56 W 7000 | 15.25 |
| 9. Fruit Types<br>56 W 7150    | 8.75  |

GERMINATION MATERIALS

- |  |       |
|--|-------|
| 10. Lima Bean Germination<br>56 W 7540 | 12.50 |
| 11. Corn Germination<br>56 W 7560      | 8.75  |
| 12. Pea Germination<br>56 W 7570       | 9.50  |

### DISCUSSION QUESTIONS

1. Discuss the effect of temperature and soil conditions of plants that are found in the backyard.
2. Discuss the effects of exotic plants such as the Australian pine on native plants.
3. What is the effect of light on plant growth? Consider the light and photosynthetic relationship.
4. Discuss the benefits that can be had by knowing something about plant propagation.
5. How is plant life being affected by pollutants such as smoke, smog, and chemicals?

### ADDITIONAL INNOVATIVE ACTIVITIES

1. Students who are photographers or artistic can make a display of 10 or 15 edible plants found in Dade County.
2. Set up displays which demonstrate the following types of reproduction:
  1. cutting
  2. air layering
  3. budding
  4. grafting
  5. "planting the eye" of a tuber
  6. splitting a bulb
3. Develop a simple plant key for the South Florida Area- (The Botany Handbook for Florida has a good example: This booklet can be obtained from the Department of Agriculture in Homestead).
4. Demonstrate the value of rooting hormone by dripping six or eight Croton cuttings in Rootone or similar material and placing them in a potting soil. Place an equal number of undipped cuttings in potting soil. Place both groups of plants in sunlight, and water daily. At the end of five or six weeks check for root growth.

## REFERENCES

1. Hanson, Herbert C. and Churchill, Ethan D. The Plant Community. New York: Reinhold Publishing Co., 1961.
2. Morholt, Evelyn et al. A Source Book of the Biological Sciences. New York: Harcourt, Brace & World, 1966.
3. Morton, Julia. Wild Plants for Survival in South Florida. Miami, Florida: Hurricane House Publisher, Inc., 1968.
4. Northern, Henry. Introduction to Plant Science. New York: The Ronald Press, 1953.
5. Odom, Eugene E. Fundamentals of Ecology. Philadelphia: W.B. Saunders and Co., 1959.
6. Stevens, William, Southern Seashores. New York: Holiday House, 1968.
7. Weier, Elliot; Robbins, W.; Stocking, Ralph. Botany: An Introduction to Plant Science. New York: John Wiley and Sons Inc., 1957.
8. Weisz, Paul B. and Fuller, Melvin S. The Science of Botany. New York: McGraw-Hill Book Co., Inc., 1962.
9. Went, Frits W. The Plants. Life Nature Library. New York: Time Life Books, 1963.
10. Wilson, Carl L. and Loomis, Walter E. Botany. New York: Holt Rinehart and Winston, 1962.

## RESOURCES

- I. Pamphlets and Periodicals available from  
U. S. Department of Agriculture  
2690 N.W. 7 Ave. or 18710 S.W. 208 Street.  
Miami, Florida Homestead, Florida
1. Growing Flowering Plants Bulletin # 114
  2. Hibiscus in Florida Bulletin # 168-A
  3. Home Propagation of Ornamental Trees and Shrubs Bulletin # 80
  4. How to Grow Your Own Mango Tree Circular # 342
  5. Hydroponic Culture of Vegetables Circular # 192A
  6. Plant Propagation Bulletin # 1567
  7. Propagation of Shrubs and Trees Bulletin # 178
  8. Selected Trees of Florida Homes Bulletin # 182
  9. Selecting and Growing House Plants Bulletin # 82
  10. Botany Handbook for Florida Bulletin # 187
  11. Common Aquatic Weeds Agriculture Handbook # 352
  12. Florida Weeds Circular # 331
  13. Poisonous Plants Around the Home Bulletin # 175B
- II. Golden Nature Series  
Golden Press - New York
14. Everglades
  15. Flowers
  16. Non-flowering plants
  17. Pond life
  18. The Southeast
  19. Trees

MASTER SHEET PLANT LIFE IN THE BACKYARD

Ob- jec- tives	Texts	Experi- ments	Speak- ers	Pro- jects	Li- brary Re- ports	Field Trips	Trans- paren- cies	Films	Film Loops	Dis- cus- sion Ques- tions	Slides	Addi- tional Activi- ties	Bio- Plastic Mounts	Re- sources
1		10	1	1	1,4,5	5		1,11	1,2		1-2 4-5	1	1-3 8-9	14,19
2	2Ch.13 3Ch.9-19 7pp.389- 395	8,9				3,4,5	1,8,9			3		4		3,5,6, 19
3	1Ch.9 2Ch.12, 13 3Ch.24 4Ch.14	12,13, 15,16			4,5	1,2				1		4		14,16,19.
4	1pp.291- 302 7pp.337- 355 2Ch.16 3Ch.13 4Ch.17	22,21, 11,7 17			4	1,2	2,5,7	12,13, 15,14	6,7, 12,3	4	1,2,5	2	10,11,12	6,3
5		10	2,3	1	3	1,2	1,28, 9			5	1,2,3, 4,5,6, 7	3	8	3,5,8
6		10	1,2, 3	2	2	1,2						3	5,6,7	13,19
7	1pp.234- 242	6	3	2	3	3,4		1	2,9	2	4,5	3	5,6,7	10,11, 14,19