10-2900-I

MISSOURI AGRICULTURAL EDUCATION

Floristry

Instructor Guide

In cooperation with
Agricultural Education
Department of Practical Arts
and Vocational-Technical Education
College of Education and College of Agriculture,
Food and Natural Resources
University of Missouri-Columbia

In cooperation with
Agricultural Education Section
Division of Vocational and Adult Education
Department of
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Jefferson City, Missouri

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University of Missouri-Columbia

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FLORISTRY

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FOREWORD

The development of the *Floristry* curriculum guide is the result of suggestions by the MVATA Teaching Aids Committee. The Floristry Advisory Committee suggested the topics to be included and reviewed the materials.

This seven-unit curriculum contains 30 lessons. The instructor's guide includes: objectives, competencies, motivational techniques, teaching procedures, other activities, activity sheets, transparency masters, evaluations, answers to evaluations and activity sheets, references and teaching aids, and materials and equipment. Topics include: the floristry industry, plant identification, post-harvest handling, the mechanics of floral design, basic principles of floral design, construction of various types of designs, and shop operations. One copy of the student reference is packaged with the instructor's guide. Additional copies of the student reference can be purchased separately. Forms for florist shop recordkeeping have been included as Appendix A. These forms can be used by the instructor to keep records for the class. Appendices B, C, and D include information on the care of plants. Appendix E contains information on drying flowers and foliage.

During the summer of 1981, the Missouri State Board of Education formally adopted the concept of "Instructional Management Systems" (IMS) as a priority for the 1981-82 school year. The Missouri Commissioner of Education described the IMS concept as a practical way of "organizing for excellence" in education. To meet the demand for greater productivity and accountability, the director of Vocational Education applied the elements of IMS to form the Vocational Instructional Management System (VIMS). The VIMS process provides a framework to use in planning and organizing to assure excellence in Missouri's vocational education system by focusing greater attention on the management of teaching and learning.

This guide incorporates the needed components to aid agriculture teachers in the implementation of VIMS. For ease of use, performance objectives and competencies have been included at the beginning of the guide as well as incorporated within each lesson. A competency profile has been provided in the front of the guide for convenient record keeping.

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FLORISTRY

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OBJECTIVES

UNIT I - FLORISTRY INDUSTRY
1. The student will be able to identify the structure of the floristry industry.
2. The student will be able to describe career opportunities in floristry.

UNIT II - PLANT IDENTIFICATION
1. The student will be able to describe the factors involved in identifying plants.
2. The student will be able to identify plants and plant parts used in the florist industry.

UNIT III - POST-HARVEST HANDLING
1. The student will be able to describe how plant processes affect shelf life.
2. The student will be able to demonstrate the techniques of processing cut plant materials.
3. The student will be able to demonstrate care of potted plants.

UNIT IV - MECHANICS OF FLORAL DESIGN
1. The student will be able to identify and safely use tools and supplies.
2. The student will be able to construct bows using basic ribbon widths.
3. The student will be able to select and prepare appropriate containers.
4. The student will be able to perform basic wiring and taping techniques.
5. The student will be able to package flowers and arrangements for delivery.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN
1. The student will be able to identify basic principles of floral arranging and elements of design.
2. The student will be able to identify design shapes.

UNIT VI - TYPES OF DESIGNS
1. The student will be able to identify how floral designs are used.
2. The student will be able to construct flowers to wear.
3. The student will be able to construct a bud vase.
4. The student will be able to construct a one-sided arrangement.
5. The student will be able to construct a centerpiece.
6. The student will be able to identify the uses of wreaths and construct a wreath using evergreens.
7. The student will be able to construct a silk arrangement.
8. The student will be able to construct a dried arrangement.
9. The student will be able to construct a dish garden.

UNIT VII - SHOP OPERATIONS
1. The student will be able to demonstrate sales transactions.
2. The student will be able to deliver a floral arrangement.
3. The student will be able to calculate the price of floral products.
4. The student will be able to assist in completing an inventory.
5. The student will be able to create displays.
6. The student will be able to maintain the floral shop area.
7. The student will be able to prepare an advertisement.

COMPETENCIES

UNIT I - FLORISTRY INDUSTRY
1. Identify the structure of the floristry industry.
2. Describe career opportunities in floristry.

UNIT II - PLANT IDENTIFICATION
1. Describe the factors involved in identifying plants.
2. Identify plants and plant parts used in the floristry industry.

UNIT III - POST-HARVEST HANDLING
1. Describe how plant processes affect shelf life.
2. Demonstrate techniques for the processing of cut plant materials.
3. Demonstrate the care of potted plants.

UNIT IV - MECHANICS OF FLORAL DESIGN
1. Identify and safely use tools and supplies.
2. Construct bows using basic ribbon widths.
3. Select and prepare appropriate containers.
4. Perform basic wiring and taping techniques.
5. Package flowers and arrangements for delivery.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN
1. Identify basic principles of floral arranging and elements of design.
2. Identify design shapes.

UNIT VI - TYPES OF DESIGNS
1. Identify how floral designs are used.
2. Construct flowers to wear.
3. Construct a bud vase.
4. Construct a one-sided arrangement.
5. Construct a centerpiece.
6. Construct an evergreen wreath.
7. Construct a silk arrangement.
8. Construct a dried arrangement.
9. Construct a dish garden.

UNIT VII - SHOP OPERATIONS
1. Demonstrate a sales transaction.
2. Deliver a floral arrangement.
3. Calculate the price of floral products.
4. Assist in completing an inventory.
5. Create displays.
6. Maintain the floral shop area.
7. Prepare an advertisement.

EVALUATION

1. Give short, objective tests following each lesson and a more in-depth objective test at the conclusion of the unit.

2. Observe the changes in behavior as evidence of the improved ability of students to deal with problems in this unit using backgound information acquired from earlier units.

3. Observe students' attempts to solve similar problems in their supervised agricultural experience programs.

REFERENCES AND MATERIALS

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2. Teacher References

   a. Books

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   2) Boor, Mary Ann. *Math for Horticulture.* Columbus: Ohio Agricultural Education Curriculum Materials Service, 1994.

   3) Graber, Debra Terry. *Fresh Flowers: Book 2.* Lansing: John Henry Co., 1989.

   4) Griffiths, Mark. *Index of Garden Plants.* Portland, OR: Timber Press, 1994.

   5) Griner, Charles. *Floriculture Designing and Merchandising.* Albany: Delmar Publishing Inc., 1995.

   6) Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

   7) Huxley, Anthony et al. *Reader's Digest Success with House Plants.* Pleasantville, NY: The Reader's Digest Association Inc., 1979.

   8) Kuchareski, Dennis. *Landscaping and Greenhouse Technology.* Trenton: New Jersey Department of Education, 1989.

   9) L. H. Bailey Hortorium. Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. New York: MacMillan Publishing Co., Inc., 1976.

   10) Liesveld, John H. *The Retail Florist.* 3rd ed. New York: Macmillan, 1957.

   11) Mercer, Robert J.; William J. Brown, Jr.; Gene M. Love; Richard F. Stinson. *Retail Flower Shop Operation and Management.* Vol. 9, #1s. University Park: Pennsylvania State University, 1968.

   12) Morley, Jim, ed. *The Professional Floral Design Manual.* 2nd ed. Oklahoma City: American Floral Services, 1990.

   13) Pfahl, Peter B.; P. Blair Pfahl, Jr. *The Retail Florist Business.* 4th ed. Danville, IL: Interstate Printers & Publishers, Inc., 1983.

   14) Redbook Florist Services Editorial Advisory Committee. *Advanced Floral Design.* Paragould, AR: Redbook Florist Services, 1992.

   15) Redbook Florist Services Editorial Advisory Committee. *Basic Floral Design.* 2nd ed. Paragould, AR: Redbook Florist Services, 1993.

   16) Redbook Florist Services Editorial Advisory Committee. *Floral Design for the Holidays.* Paragould, AR: Redbook Florist Services, 1991.

17) Redbook Florist Services Editorial Advisory Committee. *Green and Blooming Plants.* Paragould, AR: Redbook Florist Services, 1992.

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19) Redbook Florist Services Editorial Advisory Committee. *Selling and Designing Party Flowers.* 2nd ed. Paragould, AR: Redbook Florist Services, 1993.

20) Redbook Florist Services Editorial Advisory Committee. *Visual Merchandising for the Retail Florist.* Paragould, AR: Redbook Florist Services, 1992.

21) Reiley, Edward H.; Carroll L. Shry. *Introductory Horticulture.* 3rd ed. Albany: Delmar Publishers Inc., 1988.

22) Rodekohr, Sherie; Debi Waeckerle. *Land and Turf Management.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.

23) Smith, James E. *Flower Arranging: A Manual.* Columbia, MO: Lucas Brothers, 1972.

24) Society of American Florists and Ornamental Horticulturalists. *The Care and Handling of Flowers and Plants.* Alexandria, VA: Society of American Florists and Ornamental Horticulturalists, 1976.

25) Stratman, Teresa. *Retail Floriculture, Book 1.* Columbus: Ohio State University, 1976.

26) Stratman, Teresa. *Retail Floriculture, Book 2.* Columbus: Ohio State University, 1976.

27) Wells, Judith A.; Janet Anderson. *Greenhouse Operation and Management.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.

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b. Pamphlets, magazines, etc.

1) "Floral Industry Trends." *Flowers&* Jan. 1993: 88, 90, 92, 94.

2) United States. Bureau of the Census. Economic and Statistic Administration. U.S. Department of Commerce. *1992 Census of Agriculture.* Vol. 1, pt. 25. Washington: GPO, 1994.

3) University Extension agricultural publications, University of Missouri-Columbia

a) GO6510: Caring for House Plants
b) GO6511: Care of Flowering Potted Plants, Part I
c) GO6512: Care of Flowering Potted Plants, Part II
d) GO6513: Care of Flowering Potted Plants, Part III
e) GO6515: Lighting Indoor House Plants
f) GO6540: Drying Flowers and Foliage for Arrangements

3. Audiovisuals (available from the Missouri Vocational Resource Center, University of Missouri-Columbia, 10 London Hall, Columbia, MO 65211)

   a. *Floral Design - From Concepts to Beauty*. Video. Houston Livestock Show and Rodeo Association, 1988.

   b. *Floriculture Plant Identification*. Slide set and script. Instructional Materials Laboratory, 1991.

   c. *Flower Arranging Is for Everyone*. Video. Flora Video, 1986.

   d. *Quick and Easy Vase Arrangements*. Video. Rittmers Floral School, 1987.

4. Trade Associations and Publications

   a. Associations

      1) American Institute of Floral Designers (AIFD)
      720 Light Street
      Baltimore, MD 21230
      (301) 752-3320

      2) Society of American Florists (SAF)
      1601 Duke Street
      Alexandria, VA 22341
      (800) 336-4743 or (703) 836-8700
      Publishes *Floral Management* as well as *Dateline: Washington*, which is done in conjunction with the American Floral Marketing Council and the Florist Information Committee
      Divisions of the SAF: American Academy of Floriculture (AAF), American Floral Marketing Council (AFMC), and Professional Floral Commentators International (PFCI)

      3) Redbook Master Consultants (RMC)
      P.O. Box 1706
      3307 E. Kingshighway
      Paragould, AR 72451
      (800) 643-0100

   b. Publications

      1) *Floral Finance*
      Floral Finance Inc.
      8801 S. Yale, Suite 400
      Tulsa, OK 74137
      (800) 722-9934 or (918) 491-9933
      Published by American Floral Services Inc.

      2) *Floral Mass Marketing* and *Flower News*
      Cenflo Inc.
      549 W. Randolph Street
      Chicago, IL 60661
      (312) 236-8648

3) *Florist*
Florists' Transworld Delivery Associaton
29200 Northwestern Highway
P.O. Box 2227
Southfield, MI 48037
(313) 355-9300

4) *Florists' Review*
Florists' Review Enterprises Inc.
P.O. Box 4368
Topeka, KS 66604
(913) 266-0888

5) *Flowers&*
Teleflora
Teleflora Plaza, Suite 260
12233 W. Olympic Blvd.
Los Angeles, CA 90064
(310) 826-5253

6) *Holland Flower*
Flower Council of Holland
250 West 57th Street
New York, NY 10019
(212) 307-1818

7) *PFD (The Professional Floral Designer)* and *The Retail Florist*
Attn: Promotional Services
American Floral Services Inc.
P.O. Box 12309
Oklahoma City, OK 73157
(800) 456-7890

8) *Supermarket Floral*
Vance Publishing
7950 College Blvd.
Overland Park, KS 66210
(913) 451-2200

FLORISTRY

TEACHING CALENDAR

	Periods for Classroom Instruction/Activities	Length for Activity Sheets (AS) and Job Sheets (JS)
Unit I, Lesson 1	2	No activity
Unit I, Lesson 2	2	AS 2.1 30 min.
Unit II, Lesson 1	4	No activity
Unit II, Lesson 2	10	AS 2.1 30 min.
		AS 2.2 30 min.
Unit III, Lesson 1	2	No activity
Unit III, Lesson 2	3	No activity
Unit III, Lesson 3	3	No activity
Unit IV, Lesson 1	2	AS 1.1 30 min.
Unit IV, Lesson 2	3	JS 2.1 1 class period
Unit IV, Lesson 3	2	JS 3.1 20 min.
		JS 3.2 30 min.
		JS 3.3 30 min.
Unit IV, Lesson 4	2	JS 4.1 1 class period
		JS 4.2 30 min.
Unit IV, Lesson 5	3	JS 5.1 30 min.
		JS 5.2 30 min.
		JS 5.3 15 min.
		JS 5.4 40 min.
		JS 5.5 20 min.
Unit V, Lesson 1	3	No activity
Unit V, Lesson 2	2	No activity
Unit VI, Lesson 1	2	No activity
Unit VI, Lesson 2	4	JS 2.1 3 class periods
Unit VI, Lesson 3	2	JS 3.1 1 class period
Unit VI, Lesson 4	4	JS 4 1 3 class periods
Unit VI, Lesson 5	4	JS 5.1 3 class periods

	Periods for Classroom Instruction/Activities	Length for Activity Sheets (AS) and Job Sheets (JS)
Unit VI, Lesson 6	6	JS 6.1 4.5 class periods
Unit VI, Lesson 7	2	JS 7.1 1 class period
Unit VI, Lesson 8	2	JS 8.1 1 class period
Unit VI, Lesson 9	3	JS 9.1 1.5 class periods
Unit VII, Lesson 1	4	A.S 1.1 15 min.
Unit VII, Lesson 2	2	JS 2.1 30 min.
		JS 2.2 1 class period
Unit VII, Lesson 3	2-3	AS 3.1 30 min.
Unit VII, Lesson 4	1	No activity
Unit VII, Lesson 5	3	A.S 5.1 1 class period
Unit VII, Lesson 6	1	No activity
Unit VII, Lesson 7	3	A.S 7.1 1 class period

FLORISTRY
Competency Profile

Directions: Evaluate the student by checking the appropriate number or letter to indicate the degree of competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:
3 Mastered - can work independently with no supervision
2 Requires Supervision - can perform job completely with limited supervision
1 Not Mastered - requires instruction and close supervision
N No Exposure - no experience or knowledge in this area

3	2	1	N

A. Floristry Industry

1. Identify the structure of the floristry industry (A001)
2. Describe career opportunities in floristry (A002)

Other: _____

_____

3	2	1	N

B. Plant Identification

1. Describe the factors involved in identifying plants (B001)
2. Identify plants and plant parts used in the floristry industry (B002)

Other: _____

_____

3	2	1	N

C. Post-Harvest Handling

1. Describe how plant processes affect shelf life (C001)
2. Demonstrate techniques for the processing of cut plant materials (C002)
3. Demostrate the care of potted plants (C003)

Other: _____

_____

3	2	1	N

D. Mechanics of Floral Design

1. Identify and safely use tools and supplies (D001)
2. Construct bows using basic ribbon widths (D002)
3. Select and prepare appropriate containers (D003)
4. Perform basic wiring and taping techniques (D004)
5. Package flowers and arrangements for delivery (D005)

Other: _____

_____

3	2	1	N

E. Basic Principles of Floral Design

1. Identify basic principles of floral arranging and elements of design (E001)
2. Identify design shapes (E002)

Other: _____

_____

3	2	1	N

F. Types of Designs

1. Indentify how floral designs are used (F001)
2. Construct flowers to wear (F002)
3. Construct a bud vase (F003)
4. Constuct a one-sided arrangement (F004)
5. Construct a centerpiece (F005)
6. Construct an evergreen wreath (F006)
7. Construct a silk arrangement (F007)
8. Construct a dried arrangement (F008)
9. Construct a dish garden (F009)

Other: _____

_____

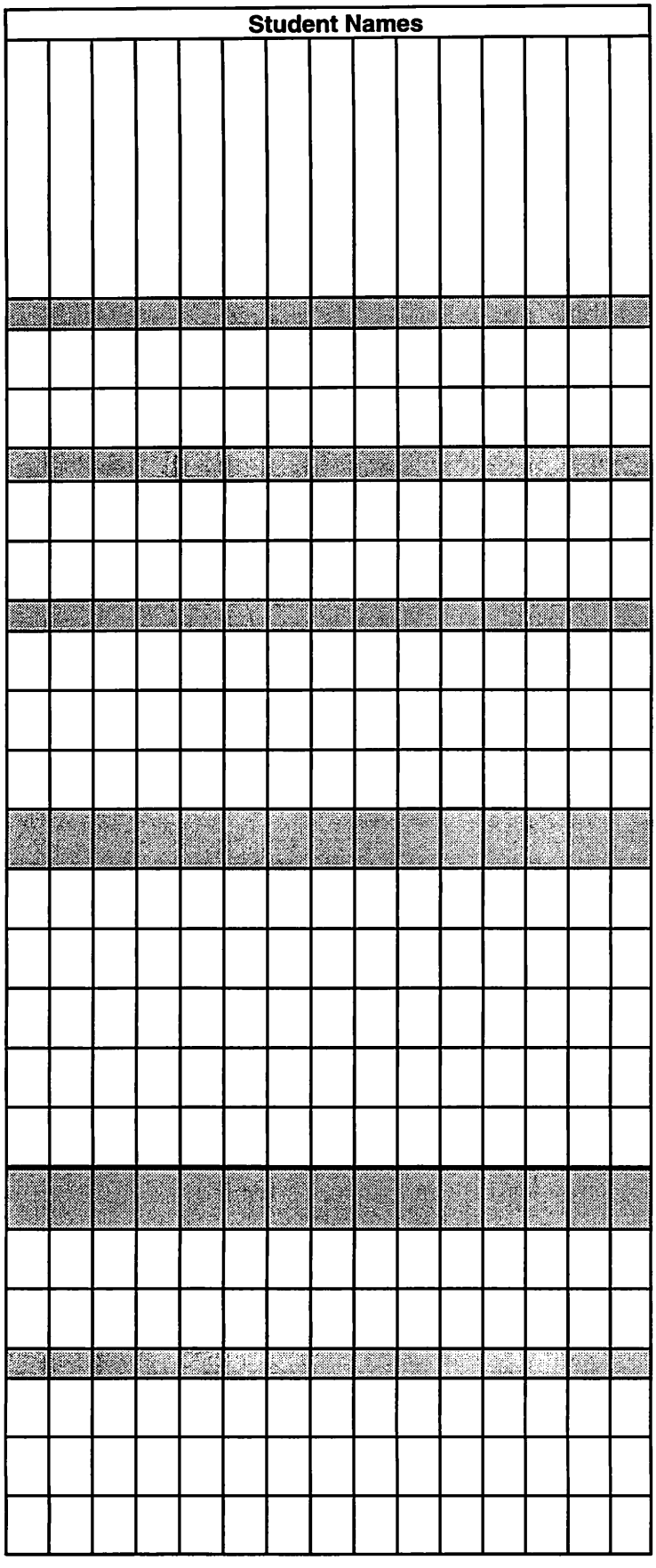
3	2	1	N

G. Shop Operations

1. Demostrate a sales transaction (G001)
2. Deliver a floral arrangement (G002)
3. Calculate the price of floral products (G003)
4. Assist in completing an inventory (G004)
5. Create displays (G005)
6. Maintain the floral shop area (G006)
7. Prepare an advertisement (G007)

Other: _____

_____



UNIT I - FLORISTRY INDUSTRY

1. Identify the structure of the floristry industry.
2. Describe career opportunities in floristry.

UNIT II - PLANT IDENTIFICATION

1. Describe the factors involved in identifying plants.
2. Identify plants and plant parts used in the florist industry.

UNIT III - POST-HARVEST HANDLING

1. Describe how plant processes affect shelf life.
2. Demonstrate techniques for the processing of cut plant materials.
3. Demonstrate the care of potted plants.

UNIT IV - MECHANICS OF FLORAL DESIGN

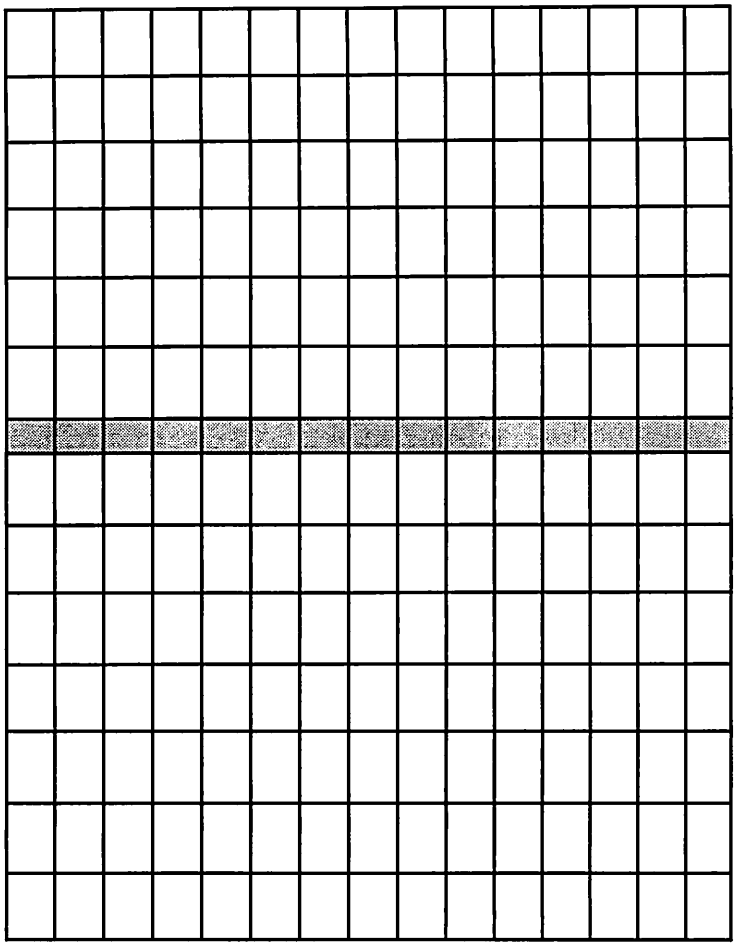
1. Identify and safely use tools and supplies.
2. Construct bows using basic ribbon widths.
3. Select and prepare appropriate containers.
4. Perform basic wiring and taping techniques.
5. Package flowers and arrangements for delivery.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

1. Identify basic principles of floral arranging and elements of design.
2. Identify design shapes.

UNIT VI - TYPES OF DESIGNS

1. Identify how floral designs are used.
2. Construct flowers to wear.
3. Construct a bud vase.



4. Construct a one-sided arrangement.
5. Construct a centerpiece.
6. Construct an evergreen wreath.
7. Construct a silk arrangement.
8. Construct a dried arrangement.
9. Construct a dish garden.

UNIT VII - SHOP OPERATIONS

1. Demonstrate a sales transaction.
2. Deliver a floral arrangement.
3. Calculate the price of floral products.
4. Assist in completing an inventory.
5. Create displays.
6. Maintain the floral shop area.
7. Prepare an advertisement.

UNIT I - FLORISTRY INDUSTRY

Lesson 1: Structure of Floristry Industry

Objective: The student will be able to identify the structure of the floristry industry.

Study Questions

1. **How does floristry relate to the floriculture industry?**
2. **What is the path of a floriculture product from producer to retail customer?**
3. **What is the function of a greenhouse grower?**
4. **What is the function of a wholesale florist?**
5. **What is the function of a retail florist?**
6. **How has the floristry industry evolved?**
7. **What are the current trends in floristry?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit I.

UNIT I - FLORICULTURE INDUSTRY

Lesson 1: Structure of Floristry Industry

TEACHING PROCEDURES

A. Introduction

In order to understand the floristry industry, it is important to be familiar with its past, present, and future. This lesson will examine how the floristry industry fits into the three major divisions of floriculture, which are grower, wholesale florist, and retail florist. The major flower production areas, the history and development of floral design, and the importance of floristry in Missouri, the United States, and the world will be explored.

B. Motivation

Display a rose bush (with flowers on it), a cut rose, and a rose in a bud vase or in a corsage. Ask students if they know the meaning of floriculture and how the three major divisions all fit in with the examples.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how floristry and floriculture are related.

How does floristry relate to the floriculture industry?

a) Floriculture is the business of growing, harvesting, wholesaling, storing, designing, and selling flowers and potted plants.
b) Floristry is concerned mainly with the handling and designing of flowers and live plant materials at retail and wholesale levels.

2. Ask students if they know what happens to flowers between the time they are harvested and when they reach the consumer.

What is the path of a floriculture product from producer to retail customer?

a) Floriculture products are produced at many sites around the world.
b) After they are harvested, they may be packed and shipped via ground or air to wholesalers or to brokers who will then sell them to wholesalers. They may also be sent to an auction to be purchased by brokers or wholesalers. Retail florists may purchase floriculture products directly from local growers.
c) Wholesale markets sell flowers to retail outlets.
d) The retail florist prepares the plant materials for the customer.

3. Ask students what a greenhouse grower does.

What is the function of a greenhouse grower?

The greenhouse grower is in the business of producing flowering potted plants, foliage potted plants, cut flowers, and cut foliage.

4. Ask students to describe the function of a wholesale florist.

What is the function of a wholesale florist?

The wholesale florist purchases floriculture products from the growers and sells them to the retail florist. Products may also be purchased through floral brokers.

5. Ask students what a retail florist does and how this differs from a wholesale florist.

What is the function of a retail florist?

The retail florist arranges or prepares the floriculture product for sale to the general public.

6. Ask students how the floristry industry came into being.

How has the floristry industry evolved?

a) Pictures of flowers and flower arrangements can be found in paintings on the walls of Egyptian tombs.
b) The Romans used wreaths and garlands to decorate their homes. They were especially fond of very fragrant and brightly colored flowers.
c) In the Renaissance period, flower symbols were used extensively and had many religious associations.
d) The Baroque period followed the Renaissance in 17th and 18th century Europe. The style of the period is typified by a very elaborate use of flowers and curved lines, with flowers massed and very full.
e) The Victorian era placed a great emphasis on colors and patterns. It was during this period that flower arranging first became an art, and classes were even taught.
f) The Oriental style of floral design places importance on the form of individual flowers and the plant material, with line and negative space also being important. Each flower and plant material has meaning.
g) The art deco style was popular in the U.S. during the 1920s and 1930s. It is distinctive for its strong geometric lines and patterns.
h) During the 1960s and 1970s, tight geometric forms were popular.

7. Ask students what some of the current trends in the floristry industry are.

What are the current trends in floristry?

a) Current trends are toward more service in the average florist shop. The majority of business is through the telephone.
b) Grocery stores and large department stores are expanding, some with very large and active retail flower shops. These stores have more cash-and-carry or walk-in trade.
c) The emphasis is shifting towards a more European style - that of having more flowers in the home and in a more casual setting.
    1) Flowers will need to be more easily available
    2) Attractively priced
    3) Plants and cut flowers must last longer and be easier to care for

F. Other Activities

1. Have students collect pictures of flower arrangements and make a notebook of them. Arrangements could be grouped by style or for special occasions (ex. Christmas).

2. If an art museum is nearby, have the students visit it and observe how the flowers are used in various paintings. What style was used for the time period of the painting?

G. Conclusion

Floristry is a division of the floriculture industry. While floriculture is the business of growing, harvesting, storing, designing and selling flowers, floristry is mainly concerned with handling and designing flowers and live plant materials. Throughout human history, flowers and flower arrangements have been used for special occasions. Today, customers are purchasing flower products from florists that are conveniently located. Customers are also demanding plants and cut flowers that last longer and are easier to care for.

H. Competency

Identify the structure of the floristry industry.

I. Answers to Evaluation

1. d
2. a
3. b
4. c
5. a
6. d
7. b
8. c
9. a
10. f
11. e

UNIT I - FLORISTRY INDUSTRY Name _____

Lesson 1: Function and Evolution of the Floristry Industry Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is the best description of what floriculture is?

   a. Business of designing and selling flowers and live plant materials
   b. Business of designing and selling potted plants
   c. Business of growing, harvesting, and storing flowers and potted plants
   d. Business of growing, harvesting, storing, wholesaling, designing, and selling flowers and potted plants

2. What is the primary concern of floristry?

   a. Business of designing and selling flowers and live plant materials
   b. Business of designing and selling potted plants
   c. Business of growing, harvesting, and storing flowers and potted plants
   d. Business of growing, harvesting, storing, designing, and selling flowers and potted plants

3. What is the function of the retail florist?

   a. Arranges the floriculture product for sale to greenhouse growers
   b. Arranges the floriculture product for sale to the general public
   c. Prepares cut foliage and cut flowers to be used by the wholesale florist
   d. Prepares plants for use in the landscape

4. What are the main products of a greenhouse grower?

   a. Bedding plants, cut flowers, and cut foliage
   b. Bedding plants, flowering potted plants, and cut flowers
   c. Flowering potted plants, foliage potted plants, cut flowers, and cut foliage
   d. Flowering potted plants, cut flowers, bedding plants, and landscaping potted plants

5. What is today's floristry customer looking for in plant materials?

   a. Plants that last a long time and are easy to care for
   b. Designs that have an Oriental style and are made to last
   c. Potted plants that are free of insects and are large in size
   d. Designs that have large central flowers and are made to last

Match the description on the right with the correct term on the left.

6. _____ Romans
7. _____ Renaissance
8. _____ Baroque period
9. _____ Victorian era
10. _____ Oriental style
11. _____ Art deco style

a. Time when flower arranging became recognized as an art
b. Flower symbolism used
c. Elaborate use of flowers, massive and full
d. Used wreaths and garlands
e. Emphasized strong geometrical lines
f. Importance placed on individual flowers

UNIT I - FLORISTRY INDUSTRY

Lesson 2: Career Opportunities

Objective: The student will be able to describe career opportunities in floristry.

Study Questions

1. **What career opportunities are available in the wholesale florist industry?**
2. **What are the skills needed by people in each of the job areas at the wholesale level?**
3. **What career opportunities are available in the retail florist industry?**
4. **What are the skills needed by people in each of the job areas at the retail level?**
5. **What career opportunities are related to floristry?**
6. **What opportunities exist for continuing professional development?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit I.
2. Activity Sheet
   a) AS 2.1: Careers in Floristry

UNIT I - FLORISTRY INDUSTRY

Lesson 2: Career Opportunities

TEACHING PROCEDURES

A. Review

Lesson 1 discussed floristry as a part of the floriculture industry. This lesson will focus on career opportunities in floristry. In recent years, flower sales have risen dramatically. Some of this growth can be attributed to an increase in population, but people are also becoming more interested in green and growing things. Flower sales will likely continue to increase. As sales increase, educated workers in the floristry field will be in greater demand.

B. Motivation

Ask students to list job opportunities in the floristry industry.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what jobs exist with a wholesale florist. Discuss why it is important for employees to be trained to perform other duties that may lie outside their job descriptions.

What career opportunities are available in the wholesale florist industry?

a) General manager
   1) Hires and fires personnel
   2) Manages personnel
   3) Prepares employee work schedules
   4) Establishes salaries and commissions
   5) Oversees buying of supplies and flowers
   6) Keeps profit margin in line

b) Cut flower manager
   1) Hires and fires personnel
   2) Manages personnel in manager's absence
   3) Buys cut flowers, cut greens, potted flowering plants, and foliage plants
   4) Oversees cutting of flowers
   5) Oversees cleaning of coolers
   6) Keeps perishable products moving

c) Supply manager
   1) Hires and fires personnel
   2) Manages personnel in manager's absence
   3) Buys all supplies
   4) Oversees stocking of shelves
   5) Coordinates all holiday shows
   6) Prepares flyers for specials and shows
   7) Oversees advertising
   8) Monitors inventory
      (a) Adds new items to inventory

(b) Maintains correct price structure on supplies
(c) Closes out old products
(d) Keeps inventory in line with current trends
(e) Informs all employees of upcoming specials and new pricing updates

9) Designs displays for wholesale

d) Office manager
1) Mails statements and invoices
2) Writes checks
3) Maintains payroll
4) Issues customer credit
5) Makes collection calls and responds to accounts payable phone calls

e) Receptionist
1) Answers phone and directs calls
2) Sets up new accounts
3) Greets customers and answers questions

f) Sales representative
1) Sells supplies to florists
2) Keeps up with the inventory
3) Knows what new items have arrived

g) Road sales representative
1) Travels on sales route
2) Delivers orders

h) Bookkeeper
1) Keeps books of the business

i) Data processor
1) Enters data into the computer terminal
2) Prepares customer invoices

j) Flower packer
1) Packs customer orders

k) Delivery person
1) Delivers flower orders
2) Takes care of potted plants

l) General personnel
1) Unpack flowers
2) Fill orders
3) Keep store clean
4) Clean coolers
5) Rotate flowers
6) Wash buckets
7) Stock shelves
8) Work cash register

2. Ask students what particular skills each of these positions requires.

What are the skills needed by people in each of the job areas at the wholesale level?

a) Manager
1) Good communication skills
2) Excellent business management skills
3) Good math skills
4) Ability to maintain good customer and employee relations
5) Leadership skills

b) Cut flower manager
1) Good communication skills

2) Excellent business management skills
3) Good math skills
4) Ability to maintain good customer and employee relations

c) Supply manager
1) Good communication skills
2) Design skills
3) Artistic ability

d) Office manager
1) Organizational skills
2) Clerical skills

e) Receptionist
1) Good communication skills
2) Especially good telephone skills

f) Sales representative
1) Good communication skills
2) Good salesperson
3) Broad knowledge of products
4) Plant identification skills
5) Knowledge of supply uses

g) Road sales representative
1) Good communication skills
2) Good salesperson
3) Broad knowledge of products
4) Plant identification skills
5) Knowledge of supply uses

h) Bookkeeper
1) Organizational skills
2) Clerical skills

i) Data processor
1) Data entry skills

j) Flower packer
1) Skilled in handling flowers
2) Knowledge of how to care for plants

k) Delivery person
1) Good driving skills
2) Ability to make minor automotive repairs
3) Knowledge of how to care for plants

l) General personnel
1) Good sales skills
2) Organizational skills

3. Ask students what career opportunities exist in the retail florist industry.

What career opportunities are available in the retail florist industry?

a) Shop owner: Often, the owner is the manager as well. If owners are unfamiliar with the floristry industry, they may hire a manager, at least until they feel comfortable running the shop.

b) Manager
1) Employs and trains employees
2) Supervises designers, sales people, and delivery people
3) Orders flowers and supplies for the shop
4) Prepares employee work schedules
5) Prices products to be sold

6) Oversees sales promotions and advertising

c) Designer
   1) Designs and constructs arrangements
      (a) Corsages and boutonnieres
      (b) Funeral designs
      (c) Wedding bouquets
   2) Designs shop or window displays

d) Sales representative
   1) Assists and advises customers
   2) Takes telephone orders
   3) Packages orders
   4) Unpacks and processes cut flowers and potted plants
   5) Cares for potted plants

e) Delivery person
   1) Delivers finished arrangements and plants to customers
   2) Repairs any arrangements damaged during delivery
   3) Routes deliveries
   4) Checks with customers by phone to see when they will be at home to receive their orders
   5) Keeps delivery van clean and in good working condition
   6) Cares for potted plants

f) Office worker
   1) Sends out statements
   2) Takes care of paper work as needed
   3) Orders supplies as approved by manager or owner

g) Bookkeeper
   1) Keeps the books of the business

4. Ask students what particular skills each of these positions require. Discuss the importance of employees receving cross-training.

What are the skills needed by people in each of the job areas at the retail level?

a) Shop owner
   1) Good business skills
   2) Communication skills
   3) Ability to maintain good customer and employee relations

b) Manager
   1) Good business skills
   2) Communication skills
   3) Ability to maintain good customer and employee relations
   4) Leadership skills

c) Designer
   1) Artistic ability
   2) Communication skills
   3) Sales ability

d) Sales representative (Designers may also work in sales, although some larger shops hire sales representatives to wait on customers and answer the telephone.)
   1) Artistic ability
   2) Communication skills
   3) Sales ability
   4) Knowledge of processing cut flowers
   5) Knowledge of how to care for potted plants

e) Delivery person
   1) Good driving skills
   2) Ability to make minor automotive repairs
   3) Ability to maintain upkeep and cleanliness of delivery van
   4) Some design skills to repair arrangements damaged in transit
   5) Knowledge of how to care for potted plants

f) Office worker
   1) Organizational skills
   2) Clerical skills
   3) Accounting skills

g) Bookkeeper
   1) Organizational skills
   2) Clerical skills
   3) Accounting skills

5. Ask students what career opportunities are directly related to the floristry industry.

What career opportunities are related to floristry?

a) Interiorscaping
b) Teaching
c) Custom floriculture designing
d) Horticulture therapy

6. Ask students what opportunities exist for further developing skills in these fields.

What opportunities exist for continuing professional development?

a) Design shows - Wholesale florists often offer open houses several times throughout the year displaying what is new to the industry and hiring top designers to give florists new design ideas.
b) Design schools - There are schools that offer concentrated courses in floral design. Often, they will meet for a period of several weeks in which students will learn a variety of different design techniques.
c) Workshops
   1) Professional organizations such as the Society of American Florists (SAF), the American Floral Marketing Council (AFMC), and the American Institute of Floral Design (AIFD) hold workshops for their members. AIFD has a very selective membership of designers who have been required to pass difficult entry requirements. The SAF is an excellent organization for a florist to join.
   2) The major wire services such as Florist Transworld Delivery (FTD), American Floral Services (AFS), Redbook, Telefloral, Florifax International, and Carik Services, Inc. will hold progams and workshops.
   3) In Missouri, the Missouri Florist's Association holds annual meetings with well-attended workshops and design competitions.
d) College courses - Various universities often offer short courses ranging from a day to a week. They often include a large trade show.
e) A number of magazines are targeted specifically to the floral industry, and they feature new designs and products.

F. Other Activities

1. Use phone books to identify local career opportunities.

2. Invite local florists to be guest speakers.

3. Visit local retail florists.

4. If possible, have students attend a local design show or the Missouri Florist's Association meeting.

G. Conclusion

Many career opportunities are available in the floristry field. This area is rapidly expanding and will provide many jobs in the future.

H. Competency

Describe career opportunities in floristry.

I. Answers to Activity Sheet

Answers will vary depending on student interests.

J. Answers to Evaluation

1. d
2. c
3. d
4. d
5. b
6. a

UNIT I - FLORISTRY INDUSTRY Name _____

Lesson 2: Career Opportunities Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Some duties of a cut flower manager include:

   a. Buying all the cut flowers and greens.
   b. Overseeing the processing of all flowers and greens.
   c. Keeping perishable inventory moving.
   d. All of the above.

2. What position in a wholesale operation requires design skills?

   a. Manager
   b. Cut flower manager
   c. Supply manager
   d. Delivery person

3. What skill would a designer in a flower shop not necessarily need?

   a. Artistic ability
   b. Knowledge of plant and flower materials
   c. Good communication skills
   d. Knowledge of how to keep a vehicle in good running order

4. Which organization provides wire service workshops?

   a. Society of American Florists
   b. Missouri Florists Association
   c. American Institute of Floral Design
   d. Florists Transworld Delivery (FTD)

5. Which of the following is a career opportunity related to floristry?

   a. Forestry
   b. Interiorscaping
   c. Landscaping
   d. Xerioscaping

6. Which individuals would need artistic ability in the retail floristry industry?

   a. Designer and sales representative
   b. Designer and manager
   c. Designer and delivery person
   d. Sales representative and manager

Lesson 2: Career Opportunities Name _____

Careers in Floristry

Select four retail flower shop positions that you might choose as a career. Fill in the table below for each position, using the information provided in the lesson.

Retail Flower Shop Career or Title	Skills	Duties
ex. Floral designer	1. Artistic ability, etc.	1. makes floral arrangements, etc.

Select four wholesale flower shop positions that you might choose as a career. Fill in the table below for each position, using information provided in the lesson.

Wholesale Flower Shop Career or Title	Skills	Duties

UNIT II - PLANT IDENTIFICATION

Lesson 1: Plant Botany

Objective: The student will be able to describe the factors involved in identifying plants.

Study Questions

1. **What are the four basic parts of a plant?**
2. **What are the functions of the basic parts of a plant?**
3. **What are the parts of a flower?**
4. **What are the inflorescence types?**
5. **What are the types of leaf arrangements?**
6. **What are the types of venation?**
7. **What are the different leaf types?**
8. **What are the common leaf margins?**
9. **How are annuals, perennials, and biennials different?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit II.

UNIT II - PLANT IDENTIFICATION

Lesson 1: Plant Botany

TEACHING PROCEDURES

A. Introduction

To identify plants, it is necessary to be able to identify the different plant parts and to know their functions.

B. Motivation

Place a blooming plant in front of the class. See how many students can identify the basic parts of the plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to name the basic parts of a plant.

What are the four basic parts of a plant?

a) Root
b) Stem
c) Leaf
d) Flower

2. Ask students to list the functions of the basic parts of a plant.

What are the functions of the basic parts of a plant?

a) Roots
   1) Serve as an anchor
   2) Draw moisture and nutrients from the growing medium and translocate them to the stem
   3) Store food
b) Stems
   1) Hold plant erect
   2) Display the leaves to light
   3) Translocate water, minerals, and food to the leaves, roots, and flowers
   4) Store food
c) Leaves
   1) Major site for photosynthesis, the production of food
   2) Allow gas exchange with the atmosphere
   3) Store food
d) Flowers
   1) Contain specialized reproductive organs
   2) Attract pollinating insects
   3) Produce seeds and fruit

3. Ask the students if they can identify the basic parts of a flower.

What are the parts of a flower?

a) Pistil - female parts
   1) Ovary - the enlarged portion at the base of the pistil that contains ovules that will develop into seeds
   2) Stigma - receives and holds the pollen grains
   3) Style - connects the stigma with the ovary and serves as the passageway for the pollen tube to enter the ovary

b) Stamen - male parts
   1) Anther - contains the pollen
   2) Filament - supports the anther and connects it to the flower

c) Sepals - vegetative part of the flower
   The sepals are the outer covering of the flower bud. The collective name of the sepals is the calyx. The function of the calyx is to protect the flower when it is in the bud stage.

d) Petals - vegetative part of the flower
   The collective term for the petals is the corolla. The petals are often brightly colored. They protect the stamen and pistil in the bud stage and attract pollinating insects.

4. Point out that when a flower has more than one bloom per stem, this is called an inflorescence. Ask students to identify the different types of inflorescence. The common inflorescence patterns in floral plants are listed below.

What are the inflorescence types?

a) Solitary (ex. hibiscus, carnation)
b) Spike (ex. gladiolus)
c) Raceme (ex. snapdragon)
d) Panicle (ex. phlox)
e) Corymb (ex. candytuft)
f) Compound corymb (ex. throatwort)
g) Cyme (ex. geranium)
h) Compound cyme (ex. baby's breath)
i) Cincinnus (ex. freesia)
j) Scorpioid (ex. statice)
k) Umbel (ex. agapanthus)
l) Compound umbel (ex. Queen Anne's lace)
m) Spadix (ex. calla lily)
n) Catkin (ex. pussy willow)
o) Head (ex. chrysanthemum, daisy)

5. Ask students if they know the basic leaf arrangements on plants.

What are the types of leaf arrangements?

a) Alternate - leaves are attached one to a node along the stem. Roses are a good example of a plant that has alternate leaf arrangement.
b) Opposite - leaves are attached opposite each other on the stem. Carnations have opposite leaves.
c) Whorled - leaves are attached together in a whorl around the stem. Lemon verbena and sweet woodruff have whorled leaves.

6. Ask students if they know the different types of leaf venation.

What are the types of venation?

a) Palmate - venation in the shape of a palm that spreads out from the base of the leaf. Galax leaves have palmate venation.
b) Parallel - venation in which the veins on the leaf are parallel to each other. Lilies have leaves with parallel venation.
c) Pinnate - venation in which one main vein comes down the blade of the leaf with side veins coming off it. Salal or lemonleaf plants have pinnate venation.

7. Ask students if they know the different leaf types.

What are the different leaf types?

a) Simple leaf - a leaf with only one blade
b) Compound leaf - a leaf with more than one blade. The smaller blades of the compound leaf are called leaflets. Rose leaves are compound leaves.

8. Ask students if they know what the common leaf margins are. The very edge of the leaf is called the margin.

What are common leaf margins?

a) Entire
b) Undulate
c) Serrate
d) Doubly serrate
e) Dentate
f) Crenate

9. Ask the students if they know what is meant by annual, perennial, and biennial.

How are annuals, perennials, and biennials different?

a) Annuals come up from seed, bloom, set seed, and die in one year.
b) Perennials come up year after year.
c) Biennials come up from seed, grow for a year, die down, and bloom the second year.

F. Other Activities

1. Obtain a taxonomy key and have the students try to identify a plant by using the key.

2. Supply the students with a drawing of a flower and have them label the various parts.

3. Distribute drawings of various leaf types and leaf margins and have students label them.

4. Supply the students with an individual gladiolus flower and have them locate its various parts.

5. Have students compile leaf collections, specifically locating leaves of different arrangements, margins, and venation.

G. Conclusion

Plants are complex structures that vary widely according to plant parts, leaf types, and flower structures. The flower shop employee needs to know these different structures and types in order to correctly identify them.

H. Competency

Describe the factors involved in identifying plants.

I. Answers to Evaluation

1. drawing - instructor's discretion
2. a. F
   b. M
   c. F
   d. F
   e. M
3. c
4. b
5. b
6. d
7. b
8. d
9. a
10. c
11. c
12. a
13. b

UNIT II - PLANT IDENTIFICATION Name _____

Lesson 1: Plant Botany Date _____

EVALUATION

Complete the following short answer question.

1. Draw a plant and label the following: root, stem, leaf, and flower.

2. Identify which part of the flower is female or male by placing an F for female or an M for male.

   a. Stigma _____

   b. Anther _____

   c. Ovary _____

   d. Style _____

   e. Filament _____

Circle the letter that corresponds to the best answer.

3. Which of the following functions does the stem NOT perform in a plant's life cycle?

   a. Holds plant erect
   b. Manufactures food
   c. Anchors the plant
   d. Stores food

4. What is NOT a function of the roots?

   a. Translocate water
   b. Manufacture food
   c. Anchor the plant
   d. Store food

5. What is a function of the leaf?

   a. Attracts insects
   b. Manufactures food
   c. Takes in water
   d. Holds the plant erect

6. Which of the following is NOT a type of inflorescence?

   a. Solitary
   b. Spadix
   c. Panicle
   d. Pinnate

7. A rose has:

   a. Opposite leaves.
   b. Alternate leaves.
   c. Whorled leaves.
   d. Pinnate leaves.

8. Where in a flower would the pollen sacs be found?

   a. Ovary
   b. Filament
   c. Stigma
   d. Anther

9. Which type of venation is described by one main vein with side veins coming out of it?

   a. Pinnate
   b. Parallel
   c. Palmate
   d. Panicle

10. The term margin is used to describe the very edge of a leaf. Which of the following are examples of leaf margin?

    a. Dentate, panicle and catkin
    b. Serrate, umbel, and undulate
    c. Entire, dentate, and crenate
    d. Undulate, spinose, and raceme

Match each term with the description on the left.

11.	_____	Comes up every year	a. annual
12.	_____	Lives for only one year	b. biennial
13.	_____	Grows one year, blooms the next, then dies	c. perennial

UNIT II - PLANT IDENTIFICATION

Lesson 2: Identifying Plants

Objective: The student will be able to identify plants and plant parts used in the floristry industry.

Study Questions

1. **What are the major categories of plants used in floristry?**
2. **What is the difference between the common name and the scientific name of a plant?**
3. **What are the most popular cut flowers used by florists?**
4. **What are the most popular cut foliages that florists use?**
5. **What are the most popular flowering potted plants that florists use?**
6. **What are the most popular potted foliage plants?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit II.
2. Activity Sheets
   a) AS 2.1: Flowering Potted Plants
   b) AS 2.2: Potted Foliage Plants

UNIT II - PLANT IDENTIFICATION

Lesson 2: Identifying Plants

TEACHING PROCEDURES

A. Review

As discussed in Lesson 1, the parts of a plant are used to help identify it. Workers in a flower shop also need to know the names of the plant materials they work with. Customers will expect employees to be familiar with and know the uses and care of plants.

B. Motivation

Display some of the common flowers used by florists and see how many the students are able to identify.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what plants are used in the floral industry.

What are the major categories of plants used in floristry?

a) Cut flowers
b) Cut foliage
c) Flowering potted plants
d) Potted green foliage
e) Bedding plants

2. Ask students why plants have scientific names.

What is the difference between the common name and the scientific name of a plant?

a) A plant may have many common names, some peculiar to a particular region. Common names are often confusing because two different plants may have the same common name.
b) Linnaeus, a Swedish botanist, developed a two-name system for naming plants. He gave all plants just two Latin names as their scientific names. The first part of the scientific name is known as the genus or generic name. All the plants that have the same generic name belong to the same genus. These plants are all closely related to each other and share common characteristics. The second name he gave plants is the species or specific name. All plants of the same species look almost exactly alike. Within a species, plants are often broken down into varieties. The variety name is called a cultivar, or cultivated variety. When scientific names are printed, they are either underlined or printed in italics. The generic name is always written first, beginning with a capitalized letter. The species name is last and begins with a lowercase letter.

3. Ask students which cut flowers are most commonly used in a flower shop.

What are the most popular cut flowers used by florists?

Scientific Name	Common Name(s)
Alstroemeria aurantiaca	alstroemeria lily, Peruvian lily
Anthurium andraeanum	anthurium, flamingo lily
Antirrhinum majus	snapdragon
Astilbe x arendsii	astilbe
Callistephus chinensis	China aster
Cattleya	cattleya orchid hybrid
Celosia cristata	cockscomb
Chamelaucium unicinatum	waxflower
Cymbidium	cymbidium orchid
Delphinium elatum	delphinium
Dendranthema frutescens	Marguerite daisy
Dendranthema x morifolium	florist's chrysanthemum, pompon mum, football mum, Fuji mum, spider mum
Dendrobium	dendrobium
Dianthus caryophyllus	carnation
Dianthus caryophyllus nana	miniature carnation
Erica carnea	spring heather
Freesia x hybrida	freesia
Gardenia jasminoides	gardenia
Gerbera jamesonii	gerbera daisy, Transvaal daisy
Gladiolus x hortulanus	garden gladiolus
Gypsophila elegans	baby's breath
Hyacinthus orientalis	hyacinth
Iris x xiphium	Dutch iris
Leucanthemum x superbum	shasta daisy
Liatris spicata	liatris, blazing star
Lilium sp.	Oriental lily, stargazer
Lilium hybridum	Asiatic lily
Limonium sinuatum	statice
Matthiola incana	flowering stock
Narcissus pseudonarcissus	daffodil
Paeonia lactiflora	peony
Paphiopedilum x hybrid	ladyslipper orchid
Phalaenopsis	phaelaenopsis (butterfly) orchid
Polianthes tuberosa	tuberose
Protea sp.	protea
Rosa x hybrida	sweetheart rose, floribunda rose
Rosa x hybrida, Class Hybrid Tea	hybrid tea rose
Stephanotis floribunda	stephanotis
Strelitzia reginae	bird of paradise
Tagates sp.	marigold
Tulipa hybrid	tulip
Zinnia elegans	zinnia

4. Ask students the names of cut foliage that florists use.

What are the most popular cut foliage that florists use?

Scientific Name	Common Name(s)
Asparagus asparagoides	smilax
Asparagus densiflorus 'Sprengeri'	sprengeri, asparagus fern
Asparagus macowanii	Ming fern
Asparagus setaceus	plumosa fern
Asparagus virgatus	tree fern
Buxus sempervirens	boxwood
Camellia japonica	common camellia
Chamaedorea sp.	jade
Chamaedorea sp.	emerald
Cordyline terminalis	ti leaf
Cytisus scoparius	Scotch broom
Eucalyptus polyanthemos	silver dollar gum, eucalyptus
Galax urceolata	galax
Gaultheria shallon	salal, lemonleaf
Hedera helix	ivy
Lycopodium sp.	lycopodium, princess pine, club moss
Myrtus communis	myrtle
Nephrolepis exultata	Boston fern, sword fern, flat fern
Pittosporum tobira	pittosporum
Podocarpus macrophyllus	podocarpus, yellow podocarpus
Rumohra adiantiformis	leatherleaf, baker fern
Ruscus sp.	ruscus
Vaccinium ovatum	florist's huckleberry
Xeropyllum tenax	bear grass

5. Ask students which flowering potted plants are most commonly used by florists.

What are the most popular flowering potted plants that florists use?

Scientific Name	Common Name
Ageratum houstonianum	ageratum
Begonia x semperflorens-cultorum	wax begonia
Begonia x tuberhybrida	tuberous begonia
Calceolaria hybrida	pocketbook plant
Catharanthus roseus	vinca, Madagascar periwinkle
Clematis x Jackmanii	clematis
Coleus x hybridus	coleus
Cyclamen persicum	florist's cyclamen
Dendranthema x morifolium	florist's chrysanthemum
Euphorbia pulcherrimma	poinsettia
Exacum affine	Persian violet
Hemerocallis	day lily
Hibiscus rosasinensis	hibiscus
Hippeastrum x hybridum	amaryllis
Hydrangea macrophylla	French (florist's) hydrangea
Impatiens wallerana	impatiens

Kalanchoe blossfeldiana	kalanchoe
Lilium longiflorum	Easter (trumpet) lily
Lobularia maritima	sweet alyssum
Pelargonium x domesticum	regal (Lady Washington) geranium
Pelargonium x hortorum	(zonal) geranium
Pelargonium peltatum	ivy geranium
Petunia x hybrida	common garden petunia
Primula malacoides	fairy primrose
Primula x polyanthus	primrose, primula (polyanthus)
Rhododendron sp.	azalea
Saintpaulia ionantha	African violet
Salvia splendens	salvia
Schlumbergia bridgesii	Christmas cactus
Schlumbergia truncata	Thanksgiving cactus, crab (claw) cactus
Senecio cineraria	dusty miller
Senecio x hybridus	
Sinningia speciosa	gloxinia
Solanum pseudocapsicum	Jerusalem cherry
Viola x wittrockiana	pansy

6. Ask students what potted foliage plants florists use the most.

What are the most popular potted foliage plants?

Aechmea chantinii	bromeliad
Araucaria heterophylla	Norfolk Island pine
Aglaonema commutatum	aglaonema, Chinese evergreen
Aphelandra squarrosa	zebra plant
Brassaia actionophylla	schefflera, umbrella plant
Caladium x hortulanum	fancy-leaved caladium
Chamaedorea elegans	parlor palm
Chlorophytum comosum	spider plant
Cissus rhombifolia	grape ivy
Codiaeum variegatum pictum	croton
Crassula argentea	jade plant
Dieffenbachia maculata	spotted dumb cane
Dracaena cincta	red edge dracaena, Madagascar dragon tree
Dracaena fragrans 'Massangeana'	corn plant dracaena
Echinocactus sp.	barrel cactus
Epipremnum aureum	golden pothos, devil's ivy
Euphorbia splendens	crown-of-thorns
Ficus benjamina	Benjamin fig, weeping fig
Ficus elastica 'Decora'	'Decora' rubber tree, rubber tree
Ficus pumila	creeping fig, rubber plant
Fittonia verschaffeltii	nerve plant
Gynura aurantiaca 'Sarmentosa'	purple passion plant, velvet plant
Heptapleurum arbicolum	dwarf schefflera, dwarf octopus tree
Hoya carnosa	wax plant
Justicia brandegeana	shrimp plant
Maranta leuconeura kerchoviana	prayer plant
Monstera deliciosa	cutleaf philodendron, swiss cheese plant
Neoregelia carolinae 'Tricolor'	tricolor blushing bromeliad
Nephrolepis exaltata	Boston fern
Opuntia sp.	prickly pear cactus

Peperomia argyreia	watermelon peperomia
Peperomia caperata	emerald ripple peperomia
Peperomia obtusifolia 'Variegata'	variegated peperomia
Philodendron scandens oxycardium	heartleaf philodendron
Pilea cadierei	aluminum plant
Pilea involucrata	friendship plant
Pilea microphylla	artillery plant
Pilea nummulariifloria	creeping Charlie
Plectranthus mummularis	Swedish ivy
Sansevieria trifasciata	gold-edged snake plant, mother-in-law's tongue
Saxifraga stolonifera	strawberry plant
Sempervivum tectorum calcareum	hen and chicks
Spathiphyllum clevelandii	peace lily
Syngonium podophyllum	nephthytis, arrowhead
Tolmiea menziesii	pickaback plant
Zebrina pendula	wandering Jew

F. Other Activities

1. Take a field trip to a local flower shop or wholesaler and note the variety of plants available.

2. Have students put together an identification guide for plants commonly used by florists, including information (scientific names, common names, uses, availability, etc.) and a picture of each plant.

3. Obtain plant identification posters and charts from the Society of American Florists for student use.

G. Conclusion

Florists use a wide variety of cut flowers, cut foliages, flowering potted plants, and foliage plants. Successful employment depends upon the ability of an employee to identify these plants and know their uses.

H. Competency

Identify plants and plant parts used in the floristry industry.

I. Answers to Activity Sheets

AS 2.1

Scientific Name	Common Name	Characteristics	Growing Conditions
Calceolaria crenatiflora	pocketbook plant	has a profusion of brightly colored blooms that resemble a pouch or lady's pocketbook; colors include red, yellow, and orange	needs medium light, humidity, and moisture

Exacum affine	**German (Persian) violet**	maximum height of 2 feet or less; small leaves; mass of small blue, purple, or white flowers with yellow stamens and a delicate fragrance	requires medium light, humidity, and moisture
Hippeastrum x hybridum	amaryllis	**has large strap-like leaves; produces as many as four to six huge (5" to 9" across) lily-like flowers in clusters; may be red, white, pink, or salmon in color**	needs medium humidity, bright light, and high moisture
Schlumbergia truncata	Thanksgiving cactus, crab (claw) cactus	densely branching, mainly pendent stems with thin, flat, medium green segments 1½ inches long with a prominent green rib; white, pink, red, or orange blooms at the end of the stem	**should not be exposed to full summer sunlight; needs high humidity and medium moisture; must have short days in order to bloom**
Sinningia speciosa	gloxinia	may have single or double flowers; has profuse large, open, bell-shaped flowers above thick, velvety foliage; jewel-like red, purple, white, or pink blooms	keep evenly moist and shaded from direct sunlight; needs low humidity

AS 2.2

Scientific Name	Common Name	Characteristics	Growing Conditions
Aerocaria heterophylla	Norfolk Island pine	**resembles a small pine tree**	needs good light in order to keep its symmetrical growth habit
Euphorbia splendens	crown-of-thorns	stems are brown with thorns on all sides; leaves are bright green, from 2" to 2½" long near the growing tips; flowers are in clusters with bright red or yellow bracts	full sun and warm temperatures are required
Gynura aurantiaca 'Sarmentosa'	**purple passion plant, velvet plant**	vining plant with soft purple velvet leaves	needs a 65°F nighttime temperature, bright light, and evenly moist soil
Maranta leuconeura kerchoviana	prayer plant	**green leaves with brown spots up the mid-rib; has the unusual habit of the leaves closing upright at night**	requires medium light and high humidity; soil should be kept moist, but allowed to dry between waterings

Syngonium podophyllum	nephthytis, arrowhead	leaves are about 3 inches long and are arrowhead-shaped	**grows best in bright, indirect light; soil should be kept barely moist; prefers a daytime temperature of 75° to 85° F**

J. Answers to Evaluation

1. d
2. a
3. cg
4. pp
5. cf
6. fp
7. cf
8. cg
9. cg
10. fp
11. pp
12. cf
13. genus, species

UNIT II - PLANT IDENTIFICATION Name _____

Lesson 2: Identifying Plants Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. A scientist who identifies and classifies plants is called a:

   a. Designer.
   b. Herpetologist.
   c. Forester.
   d. Taxonomist.

2. Who developed the two-name classification system for naming plants?

   a. Linnaeus
   b. Poinsett
   c. Socrates
   d. Homer

Matching: Identify whether each plant is a CF = cut flower, CG = cut foliage, FP = flowering potted plant, or PP= potted foliage plant.

3. _____ Leatherleaf

4. _____ Philodendron

5. _____ Liatris

6. _____ Azalea

7. _____ Snapdragon

8. _____ Emerald

9. _____ Swedish ivy

10. _____ Poinsettia

11. _____ Golden pothos

12. _____ Baby's breath

13. In the scientific name *Dianthus caryophylus, Dianthus* is the _____ name, and *caryophylus* is the _____ name.

Lesson 2: Identifying Plants Name _____

Flowering Potted Plants

Using the information provided in the lesson, complete the table below.

Scientific Name	Common Name	Characteristics	Growing Conditions
Calceolaria crenatiflora			
	German (Persian) violet		
		produces as many as four huge lily-like flowers in clusters; has large strap-like leaves; may be red, white, pink, or salmon in color	
			should not be exposed to full summer sunlight; needs high humidity and medium moisture; must have short days in order to bloom
Sinningia speciosa			

Lesson 2: Identifying Plants Name _____

Potted Foliage Plants

Fill in the table below using the information provided in the lesson.

Scientific Name	Common Name	Characteristics	Growing Conditions
		resembles a small pine tree	
Euphorbia splendens			
	purple passion plant, velvet plant		
		green leaves with brown spots up the mid-rib; has the unusual habit of the leaves closing upright at night	
			grows best in bright, indirect light; soil should be kept barely moist; prefers a daytime temperature of 75° to 85° F

UNIT III - POST-HARVEST HANDLING

Lesson 1: Plant Processes Affecting Shelf Life

Objective: The student will be able to describe how plant processes affect shelf life.

Study Questions

1. **What is photosynthesis?**
2. **How does photosynthesis affect the shelf life of plant materials?**
3. **How does transpiration affect the shelf life of plant materials?**
4. **What role does respiration play in the shelf life of plant materials?**
5. **How do water absorption and translocation differ between a cut flower and a potted plant?**
6. **How does ethylene gas affect the shelf life of plant materials?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

UNIT III - POST-HARVEST HANDLING

Lesson 1: Plant Processes Affecting Shelf Life

TEACHING PROCEDURES

A. Introduction

In order to work with flowers and plants, an understanding of some of the basic plant processes is necessary.

B. Motivation

1. Show the students a plant that has been properly taken care of and one whose basic growth processes have been ignored. Discuss the differences between the two.

2. Show the students a cut flower and a potted plant. Ask how they think the life processes carried out by plants differ between the two.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how plants are able to manufacture their food (i.e., sugar).

What is photosynthesis?

Photosynthesis is the process by which green, living plants convert carbon dioxide and water in the presence of light into simple sugar, which is food and energy for the plant.

a) Carbon dioxide gas enters the plant through the stomata located on the leaves.
b) Water is absorbed through the root hairs and then enters the leaves by the xylem tissues.
c) Light strikes the chlorophyll, which is present in the chloroplasts in the mesophyll cells of the leaf.
d) Light energy is absorbed, enabling a chemical reaction to take place between carbon dioxide and the hydrogen in the water. Glucose, a simple sugar, is produced and transported by the phloem tissues to other parts of the plant. Glucose is used by the plant for food and energy.
e) Oxygen is released as a by-product through the stomata. Water is also released when the stomata open.

2. Ask students how photosynthesis affects shelf life.

How does photosynthesis affect the shelf life of plant materials?

When a flower is cut from a plant, its root system is taken away, which interrupts the photosynthesis cycle that is responsible for creating a plant's energy. A flower needs additional energy to finish opening, so another source of energy should be provided by the florist. This energy is usually added in the form of a preservative. If some source of energy is not provided, the shelf life of plant materials will be shortened.

3. Ask students what transpiration is and how it affects how long a plant will live.

How does transpiration affect the shelf life of plant materials?

Transpiration is the process by which gases and water vapor move from an area of higher concentration to an area of lower concentration. This process usually takes place on the leaf surface, although it also occurs on the stems and petals. Fresh flowers usually have a higher concentration of water vapor than the air around them. Therefore, water vapor from the flowers moves out into the surrounding air. If this happens faster than the flowers are able to take up water through their stems, they will wilt. Transpiration is greatly influenced by environmental factors such as light, temperature, relative humidity, and wind. The florist should regulate transpiration by keeping plant materials cool, in an area of high humidity, and out of drafts.

4. Discuss with the students what respiration is and how it affects the shelf life of plant materials.

What role does respiration play in the shelf life of plant materials?

a) Cellular respiration is the controlled breaking down of glucose, releasing the energy for plant growth, absorption, translocation, and many other metabolic processes occurring within the cell.
b) Excess glucose molecules are often combined and stored in the form of starch in vacuoles within the cells.
c) Nearly all respiration occurs in the presence O_2 (aerobic respiration). However, some cellular respiration may occur for a short time without oxygen (anaerobic respiration).
d) The primary importance of respiration is that it enables the plant cell to release energy that is needed for many energy-requiring chemical reactions within the cell. In addition, respiration releases CO_2 and H_2O into the atmosphere.
e) Cellular respiration is a continuous process occurring twenty-four hours a day for as long as the organism lives.

5. Ask students how water absorption in a cut flower is different than in a potted plant.

How does water absorption and translocation differ between a cut flower and a potted plant?

a) A cut flower has been deprived of the roots that take up moisture and nutrients from the growing medium.
b) A potted plant has intact roots, which allows the plant to continue to carry out all plant processes.

6. Ask students what ethylene gas is and how it can make a difference in the longevity of plant materials.

How does ethylene gas affect the shelf life of plant materials?

a) Ethylene gas is produced by certain mature fruits such as apples, foliage, aging flowers, decaying plant materials, and incomplete combustion of oil and gas in heaters.
b) It is an odorless and colorless gas that will cause premature aging (senescence) and decaying of flowers.

F. Other Activities

Set up an experiment by placing some fresh flowers in an enclosed container with apples and some flowers in an enclosed container without apples. Observe them for several days, noting which flowers last longer.

G. Conclusion

An understanding of basic plant processes is necessary in order to grow plants and keep them in optimum condition.

H. Competency

Describe how plant processes affect shelf life.

I. Answers to Evaluation

1. b
2. a
3. d
4. c
5. Ethylene is an odorless and colorless gas that is produced by certain mature fruits such as apples, foliage, aging flowers, dead and decaying plant materials, and incomplete combustion of oil and gas in heaters. It will greatly increase the rate of aging and decaying of cut flowers.

UNIT III - POST-HARVEST HANDLING Name _____

Lesson 1: Plant Processes Affecting Shelf Life Date _____

EVALUATION

Match the word on the left with the description on the right.

_____1. Photosynthesis

_____2. Cellular respiration

_____3. Translocation

_____4. Transpiration

a. The controlled breaking down of glucose resulting in energy for plant metabolism

b. The conversion of carbon dioxide and water into carbohydrates by green plants in the presence of light

c. The movement of gases and water vapor from an area of higher concentration to one of lower concentration

d. The movement of water and nutrients within the plant

5. What is ethylene gas and why is it important to prevent its buildup in the flower shop cooler?

_____

_____

_____

_____

UNIT III - POST-HARVEST HANDLING

Lesson 2: Processing Cut Plant Materials

Objective: The student will be able to demonstrate the techniques of processing cut plant materials.

Study Questions

1. **What characteristics help to evaluate the quality of a cut flower?**
2. **What steps should be taken to process flowers upon receiving them from the wholesaler?**
3. **How should cut plant materials be stored?**
4. **What are the functions of a preservative in extending the life of cut plant materials?**
5. **What processing techniques are applied to completed designs?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

UNIT III - POST-HARVEST HANDLING

Lesson 2: Processing Cut Plant Materials

TEACHING PROCEDURES

A. Review

In Lesson 1 the various processes affecting the growth of plants and their effect on the shelf life of plants was discussed. While working in a flower shop, it is extremely important to be aware of how to extend the life of cut plant materials. They are perishable items, and profit can depend on how well a florist is able to preserve the flowers received in the shop.

B. Motivation

1. Show the students a wilted flower and ask if they would like to receive this for their birthday. After class discussion of why not, re-cut the stem and place the flower in fresh water. As the class continues and the flower perks up, point it out to the class. Discuss the importance of live plant materials receiving appropriate amounts of water.

2. Purchase a bunch of fresh flowers (roses usually work best). Divide the bunch equally into four groups. Place one group in a vase of plain water, one in a commercial preservative, one in equal parts of water and 7-Up®, and one in water and dissolved aspirin. Label the mixture of each vase. As a class, observe how long each group lasts.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know what to look for when evaluating cut flowers.

What characteristics help to evaluate the quality of a cut flower?

a) Quality of the foliage
   1) Crisp, turgid, rigid; not limp or wilted
   2) Vibrant color typical of the variety
   3) No insect or mechanical injury

b) Quality of the flowers
   1) Full of water (turgid); not limp or wilted
   2) Vibrant color typical of the variety
   3) No brown on flower petals
   4) No shedding of petals
   5) No insect or mechanical injury

2. Ask students if they know how to handle cut flowers after they receive them from the wholesaler.

What steps should be taken to process flowers upon receiving them from the wholesaler?

a) Unpack the flowers immediately upon receipt. If too busy to unpack the shipment, at least open the boxes and uncover the flowers.

b) Be sure to inspect all the flowers for damage or problems. If they show signs of gray mold (botrytis) or premature aging, notify the wholesaler or supplier immediately.
c) Check the number of flowers received against the bill to make sure bill is correct.
d) Immediately upon unpacking, cut the stems. For best rehydrating, cut the stems under water.
e) Remove foliage from the bottom portion of the stem.
f) Place the flowers in fresh water at a temperature of 100° to 110°F with a preservative.
g) Bunches and plastic sleeves should always be loosened.
h) Care cards should be attached to each arrangement and plant that is sold. If possible, a sample pack of preservatives should also be included.

3. Ask students if they know how cut plant materials should be stored.

How should cut plant materials be stored?

a) Wrap cut foliages to prevent desiccation and store them "dry" in the refrigerator, in a separate cooler if possible. Foliage such as croton, podocarpus, and eucalyptus should be put in water.
b) The best temperature for cut foliage and flowers is 34° to 40°F.
c) Keep the cooler clean.
d) Scrub flower buckets often and rinse them with a weak bleach solution. A mixture of one part bleach to 10 parts water is adequate.

4. Ask students if they know how a preservative works.

What are the functions of a preservative in extending the life of cut plant material?

a) Preservatives add nutrients to the water solution.
b) Preservatives often contain a disinfectant to help reduce or inhibit the growth of bacteria.
c) Some preservatives contain a surfactant that helps to break the stem's seal, allowing water to enter.

NOTE: Water quality may vary from region to region. The pH and total dissolved solids (TDS) are the two most important variable qualities. Florists should have a complete water analysis done to determine the pH and TDS of their water. The makers of floral preservatives usually produce several variations of their product that are each compatible with certain pH and TDS levels.

5. Ask students if they know what should be done to a finished arrangement in order to help the flowers last longer.

What processing techniques are applied to completed designs?

a) Add water so that it reaches the top of the container.
b) Add additional water daily.
c) Store the arrangement in a cool refrigerator, taking into consideration the needs of the different plant varieties.

F. Other Activities

1. Have students use classroom and/or library resource materials to compile a list of commonly used cut flowers and fillers, their estimated vase life, and the treatment they should receive from the florist.

2. Watch the video, Block 1 of *Floral Design - From Concepts to Beauty*, on the care and handling of cut flowers. Available from MVRC.

G. Conclusion

Flower shop employees must know how to properly handle, store, and care for cut plant materials. If they do not, the life of fresh cut flowers and foliages may be shortened, and they may quickly become unsalable, which would decrease the shop's profits.

H. Competency

Demonstrate techniques for the processing of cut plant materials.

I. Answers to Evaluation

1. b
2. c
3. d
4. b
5. d
6. a

UNIT III - POST-HARVEST HANDLING Name _____

Lesson 2: Processing Cut Plant Materials Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. What characteristics help to evaluate the quality of cut flowers received from the wholesaler?

   a. Stem length and flower size
   b. Quality of foliage and flower
   c. Quality of the container and water
   d. Number of leaves and blooms

2. Which of the following is NOT a characteristic of a quality cut flower?

   a. Free of insect damage
   b. Full of water
   c. Shedding petals
   d. Vibrant flower color

3. Which of the following is NOT a processing technique used when receiving flowers from the wholesaler?

   a. Flowers are unpacked immediately, if possible.
   b. Preservatives should be added to the water.
   c. Stems should be re-cut under water.
   d. Stems of some flowers should be crushed.

4. Why are preservatives used throughout the processing of cut flowers and foliages?

   a. They add plant nutrients such as ethylene.
   b. They extend the shelf life of the plant materials.
   c. They kill insects and diseases on the plant.
   d. They seal the stem's end, preventing bacteria from entering.

5. The useful life of a cut flower can be extended by:

   a. Cutting the base of the stems.
   b. Refrigeration.
   c. Using a preservative.
   d. All of the above.

6. What processing techniques are applied to the completed design?

   a. The arrangement is filled with water containing a preservative and is refrigerated.
   b. Only water and a preservative are added to keep the arrangement fresh.
   c. The arrangement is placed in a cool place to keep it fresh.
   d. Spray preservatives are added to the leaves and flowers.

UNIT III - POST-HARVEST HANDLING

Lesson 3: Caring for Potted Plants

Objectives: The student will be able to demonstrate care of potted plants.

Study Questions

1. **What characteristics help evaluate the quality of potted plants?**

2. **How are potted plants maintained in the retail florist shop?**

3. **What information is provided on a care tag?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

UNIT III - POST-HARVEST HANDLING

Lesson 3: Caring for Potted Plants

TEACHING PROCEDURES

A. Review

In Lesson 2 the care of cut flowers and foliage was discussed. This lesson will focus on the care of potted plants. Since florists sell potted plants in addition to cut flowers and arrangements, it is necessary for employees to be aware of the proper care of these plants.

B. Motivation

Provide the class with a flowering potted plant and ask what instruction they would give to a customer who had just purchased the plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what they should look for when evaluating a potted plant.

What characteristics help evaluate the quality of potted plants?

a) No signs of disease or insects
b) No signs of physical damage
c) Stage of development of the flowers

2. Ask students how to care for potted plants in a flower shop.

How are potted plants maintained in the retail florist shop?

a) Unwrap, unbox, and unsleeve potted plants immediately after receiving them.
b) Check for signs of insects, disease, and damage.
c) Remove all dead or damaged parts.
d) Water the plants if they are dry. Provide special care in watering plants that have plastic pot liners or foil around them so that they do not sit in water.
e) For display purposes, do not place the plants in a cold draft or close to a heater.
f) Remove dead and yellowing foliage once a week.
g) Water once a week or as needed for that type of plant.

NOTE: For individual care of plants, refer to MU guide sheets on Care of Flowering Potted Plants included in Appendix B.

3. Show students a care tag and ask if they know what information is printed on it.

What information is provided on a care tag?

a) Picture of the plant
b) Plant name

c) Watering instructions
d) Light requirements
e) Special instructions

F. Other Activities

Provide a collection of care tags and have the students read them--possibly giving a different one to each student so he or she can read it to the rest of the class.

G. Conclusion

H. Competency

Demonstrate the care of potted plants.

I. Answers to Evaluation

1. a
2. c
3. b
4. b
5. d

UNIT III - POST-HARVEST HANDLING

Name _____

Lesson 3: Caring for Potted Plants

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is the first thing you should do once a potted plant is unpacked?

   a. Check for insects, damage, and disease.
   b. Water immediately.
   c. Leave it in the box for a few hours until it becomes accustomed to the temperature.
   d. Mist foliage after opening the box.

2. What locations should be avoided in placing flowering potted plants for display in the flower shop?

   a. In a display case
   b. Near the main entrance, but away from drafts
   c. Near heaters and air conditioners
   d. In the display cooler

3. Why should the foil or container cover be removed when watering plants?

   a. Keeps the cover looking pretty
   b. Keeps the plant from sitting in water
   c. Allows light to reach the entire plant
   d. Allows air to evaporate water on the container

4. What information is included on a plant care tag?

   a. Care requirements and grower's name
   b. Care requirements and name and picture of plant
   c. Watering instructions and grower's name only
   d. Watering instructions and light requirements only

5. What should be done with a plant that has insects on it?

   a. It should be hosed down to wash off the insects.
   b. It should be sprayed with a bug killer.
   c. It should be thrown away.
   d. It should be isolated from other plants.

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 1: Floristry Tools and Supplies

Objective: The student will be able to identify and safely use tools and supplies.

Study Questions

1. **What tools are commonly used in floral shops?**
2. **What are the uses of the following tools: floral knife, wire cutter, ribbon scissors, floral shears, rose stripper, steel pick machine, bunch cutter, and glue gun?**
3. **What are the uses of common floristry supplies?**
4. **What safety precautions must be followed when using floristry tools?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Activity Sheet
   a) AS 1.1: Florist's Tools

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 1: Floristry Tools and Supplies

TEACHING PROCEDURES

A. Introduction

Many specialized tools are used in floral shops. A florist must be able to identify and safely use them.

B. Motivation

Demonstrate the use of some of the common floristry tools, such as a rose thorn stripper or pick machine.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know what tools florists use. Have these tools displayed.

What tools are commonly used in floral shops?

a) Floral knife
b) Wire cutters
c) Ribbon scissors
d) Floral shears
e) Rose stripper
f) Steel pick machine
g) Bunch cutter (tabletop or underwater)
h) Glue gun

2. Show students some of the tools and ask how they are used.

What are the uses of the following tools: floral knife, wire cutter, ribbon scissors, floral shears, rose stripper, steel pick machine, bunch cutter, and glue gun?

a) Floral knife - cuts stems
b) Wire cutter - cuts wire
c) Ribbon scissors - cut ribbon and fabric
d) Floral shears - cut heavier material, such as wire and stems
e) Rose stripper - removes thorns from roses
f) Steel pick machine - attaches steel picks to stems and other objects for insertion
g) Bunch cutter - cuts bunches of flower stems
h) Glue gun - attaches objects in designs

3. Ask students how some of the following supplies are used.

What are the uses of common floristry supplies?

a) Wire
   1) Florist wire - 18" lengths; #16-#30 gauge; binds material and strengthens stems; used in making corsages, boutonnieres, and wedding bouquets
   2) Paddle wire - continuous roll; #16-#30 gauge; used in garlands
   3) Chicken wire - 12" and 18" widths; 150 ft rolls; covers floral foam in large arrangements

b) Tape
   1) Floral tape - covers stem wire
   2) Waterproof tape - secures floral foam in containers

c) Glue and adhesive
   1) Pan glue - for dipping stems and other materials
   2) Glue sticks (cool and hot melt) - cool for fresh flowers, foliage, and balloons; hot for dried and silk arrangements, accessories, ribbons, holding devices
   3) Floral adhesive (rubber cement) - for fresh designs

d) Paints (aerosol sprays) - enhance flowers or accent colors

e) Dyes
   1) Dip dyes - flowers are immersed in dye
   2) Stem dyes - flower stems are allowed to absorb the color

f) Corsage and boutonniere pins - secure corsages and boutonnieres to garments

g) Metal picks - used in a pick machine to help insert stems and other material into floral foam

h) Wooden picks - attach bows to potted plants and serve as stems for clusters of dried or silk flowers

i) Floral foam - secures flowers and materials in arrangements

j) Anchor pins - hold floral foam in a container

k) Greening pins - secure moss to floral foam

l) Hyacinth stakes - used to stake blooming plants, but can also be used to help support flowers in a very large arrangement

m) Water picks - plastic tubes filled with water with rubber lids that have holes in them; stems are pushed through the hole

n) Orchid grass (Easter grass) - shredded paper used to cushion flowers in a box, usually orchid corsages

o) Corsage and rose boxes - boxes made especially for packing corsages and unarranged flowers

p) Sure stick - used to hold dry floral foam in a container

q) Foil - used in covering the pots of potted plants

r) Corsage bags - used to cover corsages, boutonnieres, and wedding bouquets

s) Enclosure cards and envelopes - used to enclose greetings from the sender

t) Cardette - holds enclosure cards

u) Care and handling tags - provide information on the care of potted plants or arrangements

v) Chenille stems - attach bows to arrangements, secure pew bows, create faces and figures in novelty arrangements

w) Candle stakes - used to secure candles in floral foam

4. Ask students what safety precautions should be followed when using these tools and supplies.

What safety precautions must be followed when using floristry tools?

a) Knife - Pull the knife through the stem to form a slanted cut, keeping thumb and fingers out of the way.

b) Other cutting tools - Use the proper tool for each project (e.g. wire cutters for wire, ribbon scissors for ribbon). Watch to keep fingers from being cut.

c) Glue gun - Hot glue guns are VERY hot and can cause painful burns. As with all electrical appliances, be sure to keep the glue gun away from water.

d) Steel picks - The sides of the steel picks are razor sharp. Care must be taken in handling them.

F. Other Activities

Make a display of some of the common floristry tools.

G. Conclusion

The florist must learn to use a large number of special tools and supplies in order to create floral designs. Safety precautions must be observed when using some of these tools in order to avoid injury.

H. Competency

Identity and safely use tools and supplies.

I. Answers to Activity Sheet

1.	wire cutters	cuts wire	for the wire cutters, scissors, and shears, students should note that the proper tool should be used and that caution should be taken to avoid having fingers cut
2.	ribbon scissors	cut ribbon and fabric	
3.	floral shears	cut heavier material, such as wire and stems	
4.	rose stripper	removes thorns from roses	
5.	steel pick machine	attaches steel picks to stems and other objects	care must be taken in handling sharp steel picks
6.	bunch cutter	cuts bunches of flower stems	
7.	glue gun	attaches objects in designs	use caution to avoid burns from hot glue; keep away from water

J. Answers to Evaluation

1. c
2. c
3. b
4. a
5. a
6. d
7. a
8. b
9. b

UNIT IV - MECHANICS OF FLORAL DESIGN

Name _____

Lesson 1: Floristry Tools and Supplies

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. To cover exposed florist wire, the best tape to use is:

   a. Oasis tape.
   b. Scotch tape.
   c. Floral tape.
   d. Waterproof tape.

2. Which pick is very sharp and can easily cut you?

   a. Water pick
   b. Wooden pick
   c. Metal pick
   d. Knife pick

3. Which is a U-shaped metal pin used to secure moss to arrangements?

   a. Corsage pin
   b. Greening pin
   c. Pick pin
   d. Boutonniere pin

4. Which pick is used to secure bows to potted plants?

   a. Wooden pick
   b. Steel pick
   c. Water pick
   d. Knife pick

5. Which tool may be used to cut stems under water?

   a. Bunch cutter
   b. Pick machine
   c. Rose stripper
   d. Wire cutter

6. Why are water picks used?

   a. To anchor stems in floral foam
   b. To anchor foliage in the container
   c. To provide a holding device for stems
   d. To provide water to individual stems

7. Which type of wire would you use to strengthen stems?

   a. Florist wire
   b. Paddle wire
   c. Chicken wire
   d. Baling wire

8. What is the best tool for cutting the stems of flowers?

   a. Floral shears
   b. Floral knife
   c. Ribbon scissors
   d. Wire cutter

9. What is used to secure flowers and materials in arrangements?

   a. Chenille stems
   b. Floral foam
   c. Orchid grass
   d. Sure stick

Lesson 1: Floristry Tools and Supplies Name _____

Florist's Tools

List the common floristry tools, their uses, and any safety precautions that should be taken in their use.

Tool	Uses	Safety Precautions
ex. floral knife	cutting stems	cut away from hands, keep knife sharp

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 2: Constructing Bows

Objective: The student will be able to construct bows using basic ribbon widths.

Study Questions

1. **What are the common fabrics and widths of ribbons?**
2. **What tips make bow construction easier?**
3. **What are the steps in constructing a bow?**
4. **What is a jiffy bow?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheet
   a) JS 2.1: Constructing a Bow

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 2: Constructing Bows

TEACHING PROCEDURES

A. Review

The last lesson addressed tools and supplies commonly used in floristry. This lesson will discuss bows, which are an integral part of many designs, from corsages to potted plants to funeral pieces. Every worker in a flower shop should be proficient in making bows of different sizes from various materials.

B. Motivation

1. Show students a completed bow and length of ribbon. Ask if they know how to get the length of ribbon to look like the completed bow.

2. Show examples of corsages with bows of varying sizes. Some bows could be too small and some too large for the corsage. Ask students which corsage they would purchase. Why? Point out that some corsages might not be purchased because the bow is an inappropriate size.

C. Assignment

D. Supervised Study

E. Discussion

1. Show the students several different sizes and fabrics of ribbons to give them an idea of the variety available. If possible, have ribbons from different manufacturers to show the slight variations in width.

What are the common fabrics and sizes of ribbons?

a) Fabrics
   1) Satin
   2) Velvet
   3) Wired ribbon
   4) Burlap
   5) Cotton
   6) Lace

b) Sizes - ribbon widths may vary slightly depending on the manufacturer
   1) #3 (⅝") - corsages
   2) #9 (1⅜") - floral arrangements
   3) #40 (2⅞") - wedding pew bows and funeral pieces

2. Point out to students that constructing a bow can be tricky. A list of helpful tips has been compiled to make it easier.

What tips make bow construction easier?

a) Gather all materials before beginning.
b) Keep the right face of the ribbon turned outward.
c) Use the ribbon directly from the bolt.

d) Hold the bow in one hand while working the ribbon back and forth with the other hand.
e) Make the bow in proportion to the arrangement; it should not dominate the arrangement, but serve as an accessory.
f) Make sure tail length is in proportion to ribbon width. The tail should generally be no longer than the longest loop of the bow.
g) Use a bow without a center loop to tuck under a flower or deep within an arrangement.
h) Construct bows used on church pews out of #40 ribbon.
i) Make some bows in advance.
j) Practice making bows.

3. Ask the students if they know how to construct a bow. Demonstrate for them how to make a bow. After the demonstration, have students practice making bows using various ribbon widths.

What are the steps in constructing a bow?

a) With the right side out, begin with a tail or length of ribbon about 2" long.
b) Make a loop around the left thumb (right thumb if left handed).
c) Twist the ribbon one turn under the thumb, gripping the ribbon with the thumb and middle finger.
d) Make a loop in the ribbon, bringing the ribbon back between the thumb and middle finger, twisting the ribbon, and then form a loop on the other side.
e) Continue making loops until the desired number of loops is reached.
f) After making the last loop, leave another tail to match the first one.
g) Cut the ribbon tails at an angle.
h) Tie off the ribbon with wire, chenille, or ribbon. Slip the tie under the thumb, then carefully tighten the bow together.
i) Insert the bow into the corsage, arrangement, or plant.

4. Show the students an unmade jiffy bow and ask if they know what it is. Demonstrate how a jiffy bow is made.

What is a jiffy bow?

Jiffy bows, or pull bows, are ribbons that can quickly and easily be made into bows by pulling a smaller string. This forms the loops and makes a perfect bow in a short time.

F. Other Activities

1. Have students make a bow using the various widths (#3, #9, and #40) of ribbon.

2. Have students cut a small piece of #3, #9, and #40 ribbon to label and tape in their notebooks.

G. Conclusion

The designs of the florist are often completed by the inclusion of a bow. Often designers themselves make the bows out of ribbon of different materials and widths that has been purchased for that purpose, although ready-made jiffy bows may also be used.

H. Competency

Construct bows using basic ribbon widths.

I. Answers to Evaluation

1. c
2. d
3. c
4. a
5. d

UNIT IV - MECHANICS OF FLORAL DESIGN

Name _____

Lesson 2: Constructing Bows

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which size ribbon is often used for corsages?

   a. #9
   b. #40
   c. #3
   d. #2

2. #9 ribbon can be used for:

   a. Corsages.
   b. Wedding pew bows.
   c. Terrarium.
   d. Potted plants.

3. What is the most commonly used material for ribbon?

   a. Burlap
   b. Velvet
   c. Satin
   d. Cotton

4. Why is it important to twist the ribbon when using single-faced ribbon?

   a. By twisting the ribbon, the right side is always out.
   b. By twisting the ribbon, the right side is facing forward
   c. Twisting the ribbon creates a puffy look.
   d. Twisting the ribbon gives it a crinkled look.

5. What size ribbon is used for bows to be attached to church pews?

   a. #3
   b. #9
   c. #30
   d. #40

JS 2.1 Constructing a Bow

Objective: Upon completion of this job sheet, the student will be able to construct a bow.

Materials and Equipment:

1. #3, #9, or #40 ribbon
2. Wire or chenille
3. Ribbon shears
4. Corsage, arrangement, or plant

Procedure:

1. Select the appropriate size ribbon.

2. With the right side out, begin with a tail or length of ribbon about 2" long.

3. Make a loop around your left thumb, or the right thumb if left handed (Figure 1.1).

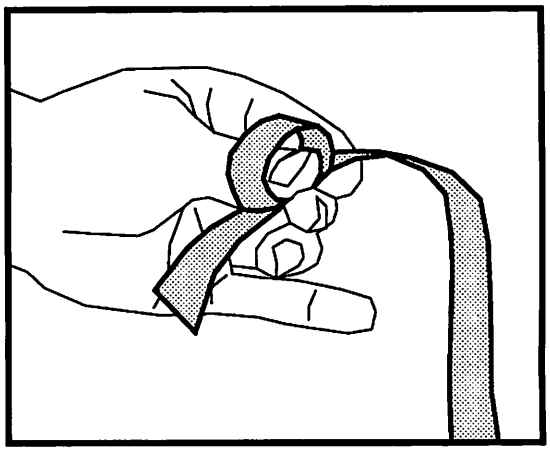


Figure 1.1

4. Twist the ribbon one turn under your thumb, gripping the ribbon with the thumb and middle finger (Figure 1.2).

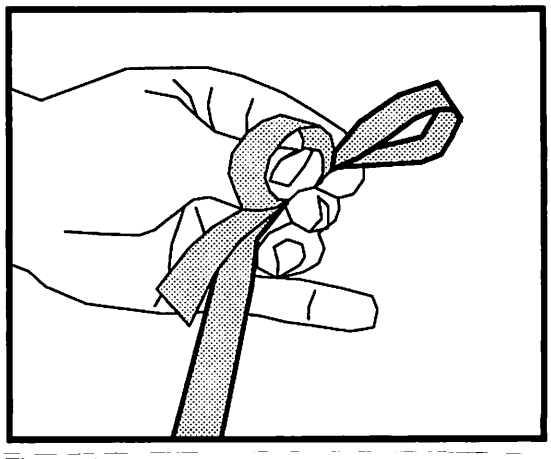


Figure 1.2

5. Make a loop in the ribbon, bringing the ribbon back between the thumb and middle finger, twisting the ribbon, and then form a loop on the other side (Figure 1.3).

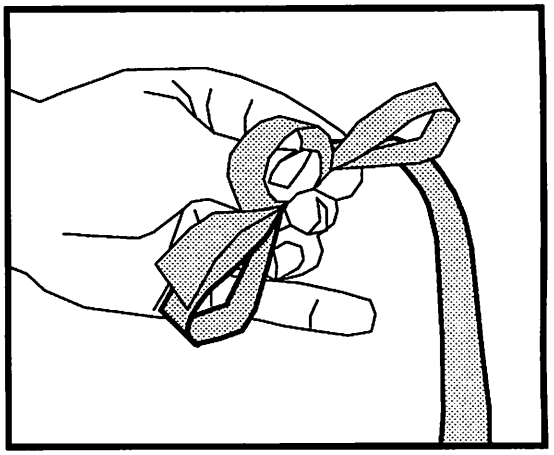


Figure 1.3

6. Continue making loops until the desired number of loops is reached (Figure 1.4).

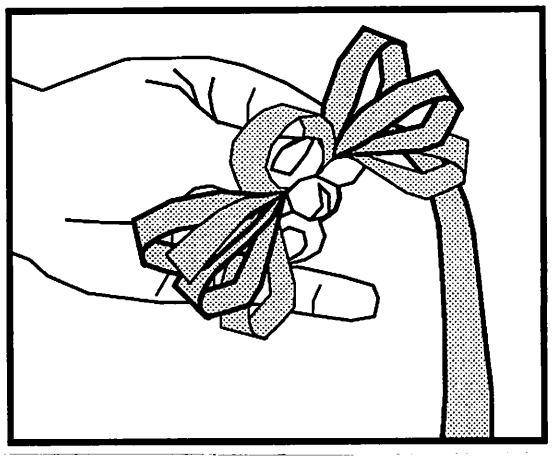


Figure 1.4

7. After making the last loop, leave another tail to match the first one.

8. Cut the ribbon tails at an angle.

9. Tie off the ribbon with wire, chenille, or ribbon. Slip the tie under your thumb, then carefully tighten the bow together (Figure 1.5).

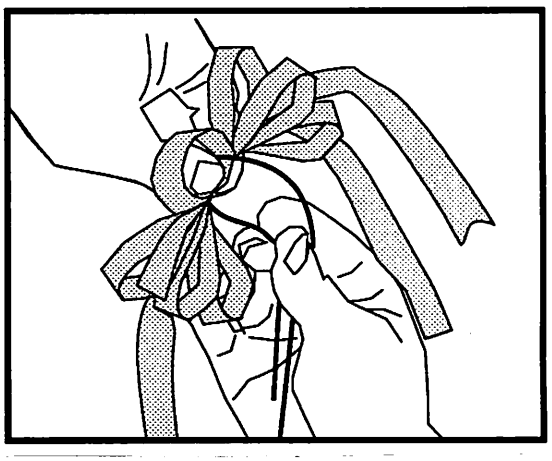


Figure 1.5

10. Insert the bow into a corsage, arrangement, or plant.

Evaluation Criteria:

Points:

_____ If a single-faced ribbon is used, the right side is always kept to the outside

_____ Center loop is present

_____ At least three loops are present on each side

_____ Ribbon tails are cut at an angle

_____ Bow is tied off tightly and securely

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 3: Containers

Objective: The student will be able to select and prepare appropriate containers.

Study Questions

1. **What are some of the common styles or shapes of containers?**
2. **What materials are commonly used to construct containers?**
3. **What factors affect the selection of a container?**
4. **What holding devices are commonly used?**
5. **What factors affect the selection of a holding device?**
6. **How is floral foam prepared for use in an arrangement?**
7. **How is a frog anchored to a container?**
8. **How is a grid constructed to anchor flowers?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets
   a) JS 3.1: Preparing Floral Foam
   b) JS 3.2: Anchoring a Frog to a Container
   c) JS 3.3: Constructing a Grid

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 3: Containers

TEACHING PROCEDURES

A. Review

In the last lesson, bow construction tips and techniques were presented. This lesson will focus on selecting and preparing the container for an arrangement.

B. Motivation

Display several containers in front of the classroom. If possible, have arrangements in inappropriate containers and ask the students what is wrong with the displays.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what styles or shapes of containers florists commonly use.

What are some of the common styles or shapes of containers?

a) Bowls
b) Trays
c) Tall vases
d) Urns
e) Compotes

2. Ask students what materials are commonly used to construct containers.

What materials are commonly used to construct containers?

a) Plastic - less expensive; available in many colors and styles
b) Glass - usually clear, green, or frosted; some are less expensive
c) Ceramics - more expensive; good for permanent arrangements
d) Wicker baskets - need liners
e) Papier-mâché - temporary; usually used for sympathy arrangements

3. Ask students what things they need to consider when choosing a container for an arrangement.

What factors affect the selection of a container?

a) Size of the finished arrangement
b) Size and weight of the flowers
c) Color of the container in relation to the arrangement
d) Use or occasion of the finished product
e) Price
f) Mood or tone added to the arrangement by the container

4. Ask students how arrangements are held in containers.

What holding devices are commonly used?

a) Floral foams - wet foams for fresh arrangements; dry foams for silk and dried arrangements
b) Shredded Styrofoam™
c) Styrofoam™
d) Pin holder, or frog
e) Marbles

5. Ask students what factors should be considered when deciding what holding device to use.

What factors affect the selection of a holding device?

a) Material used (dried, fresh, or silk)
b) Weight and size of the arrangement
c) Thickness of the flower stem
d) Type of container
e) Price of the arrangement
f) Use of the arrangement
g) Transport of the arrangement

6. Ask students how to properly soak wettable floral foam for use in arranging fresh flowers.

How is floral foam prepared for use in an arrangement?

a) Allow the foam to naturally soak up water - do not force it. When it stops bubbling, the foam is saturated. Leave 1" of foam above the lip of the container, 1 ½" for larger stems. Leave space between the container and the foam to hold water.
b) If the foam is not tightly wedged into the container, secure the foam using waterproof tape. The type of container usually determines whether or not waterproof tape is used.

7. Ask students how a frog or pin holder is secured to a container.

How is a frog anchored to a container?

A frog, or pin holder, can be glued with pan melt glue if it will be in the container permanently. If not, use a roll of florist clay. Form the clay into a ring around the edge of the frog, pressing it firmly into the container.

8. Ask students what a grid is and how it can be used to arrange flowers.

How is a grid constructed to anchor flowers?

a) A grid is constructed by taping several rows of clear waterproof tape horizontally and then vertically across the top of the container.
b) Foliage can also be used to construct a grid. After the leaves that will be under water are removed, stems are placed in the vase at an angle to create a tight interlocking grid. This process is also called lacing.

F. Other Activities

Collect pictures of various containers that could be used for floral arranging. Indicate the best occasion for the use of each one.

G. Conclusion

Designers may choose from many different styles, sizes, materials, and colors when selecting the appropriate container to be used for a particular floral arrangement. They must also be familiar with various holding devices in order to utilize the best one for a particular arrangement.

H. Competency

Select and prepare appropriate containers.

I. Answers to Evaluation

1. a
2. c
3. b
4. b
5. a
6. d

UNIT IV - MECHANICS OF FLORAL DESIGN Name _____

Lesson 3: Containers Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following containers is inexpensive and temporary?

   a. Papier-mâché
   b. Plastic
   c. Glass
   d. Wicker

2. What material is used to temporarily anchor a frog to a container?

   a. Tape
   b. Pan melt glue
   c. Florist clay
   d. Grid

3. What must a designer do to prepare a wicker basket for a fresh arrangement?

   a. Add floral foam.
   b. Add a liner.
   c. Construct a grid.
   d. Lace the flower stems.

4. Dry foam should be used for:

   a. Arranging fresh flowers.
   b. Arranging dried flowers.
   c. Creating a dish garden for a desert scene.
   d. Arranging fresh fruit.

5. What happens when floral foam becomes saturated?

   a. The foam stops bubbling.
   b. The foam rises to the top.
   c. The foam turns brown.
   d. All of the above.

6. What kind of tape should be used to anchor foam to the container?

   a. Floral tape
   b. Green masking tape
   c. Invisible tape
   d. Waterproof tape

JS 3.1: Preparing Floral Foam

Objective: Upon completion of this job sheet, the student will be able to prepare floral foam for use in an arrangement.

Materials and Equipment:

1. Floral foam
2. Water
3. Knife
4. Container for arrangement

Procedure:

1. Place the foam in water.

2. Allow the foam to naturally soak up water - do not push it under.

3. When it stops bubbling, the foam is saturated. Remove it from the water.

4. Cut the foam to fit the container.

5. Place the foam in the container. Leave 1" of foam above the lip of the container, 1½" for larger stems. Leave space between the container and the foam to hold water.

6. If the foam is not tightly wedged into the container, secure the foam to the container using waterproof tape. One piece is usually enough except for very large pieces of foam.

Evaluation Criteria:

Points:

_____ Foam was properly soaked (allowed to soak up water without being pushed under the water)

_____ Bubbling stopped before the foam was removed from the water

_____ Foam was cut to fit the container

_____ Waterproof tape was used to hold foam in container if needed (if the foam does not fit tightly into the container, the arrangement might fall over)

_____ Total Points

JS 3.2: Anchoring a Frog to a Container

Objective: Upon completion of this job sheet, the student will be able to anchor a frog to a container.

Materials and Equipment:

1. Frog
2. Pan melt glue
3. Florist clay
4. Container for arrangement
5. Heat-proof container to melt glue
6. Hot plate

Procedure:

Permanent arrangement:

1. Heat the glue in the pan.
2. Make sure the frog and container are clean and dry.
3. Place a few drops of glue where the frog will be placed.
4. Quickly position the frog over the glue, pressing it firmly down.
5. Allow the glue to dry before arranging flowers.

Temporary arrangement:

1. Roll a piece of florist clay into a long cylinder or "snake."
2. Make sure the frog and container are clean and dry.
3. Place the clay around the bottom edge of the frog. Excess clay can be pinched off and saved for later use.
4. Firmly press the frog into the container.

Evaluation Criteria:

Points

_____ Holder and container are clean and dry

_____ Frog is securely fastened to the container

To test, lift the container by holding onto the frog. The anchoring should be secure enough to bear the weight of the container.

_____ Total Points

JS 3.3: Constructing a Grid

Objective: Upon completion of this job sheet, the student will be able to construct a grid to anchor flowers.

Materials and Equipment:

1. Container
2. Clear waterproof tape
3. Foliage, such as leatherleaf
4. Water

Procedure:

Constructing a Grid Using Tape:

1. Place several rows of tape about ½" apart across the top of the container. Make sure the ends of the tape do not extend very far over the edge of the container (about ½").

2. Place several rows of tape about ½" apart perpendicular to the first rows of tape. They will form a checkerboard grid like that shown in Figure 3.1.

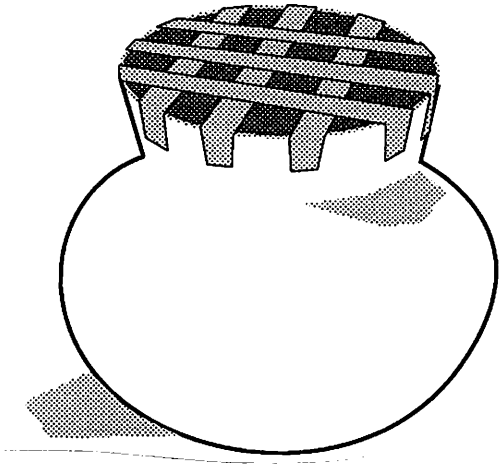


Figure 3.1

Constructing a Grid Using Foliage:

1. Fill the container two-thirds full with water.

2. Remove the leaves on the foliage that will be under water.

3. Insert the stems at an angle to create a tight interlocking grid. See Figure 3.2.

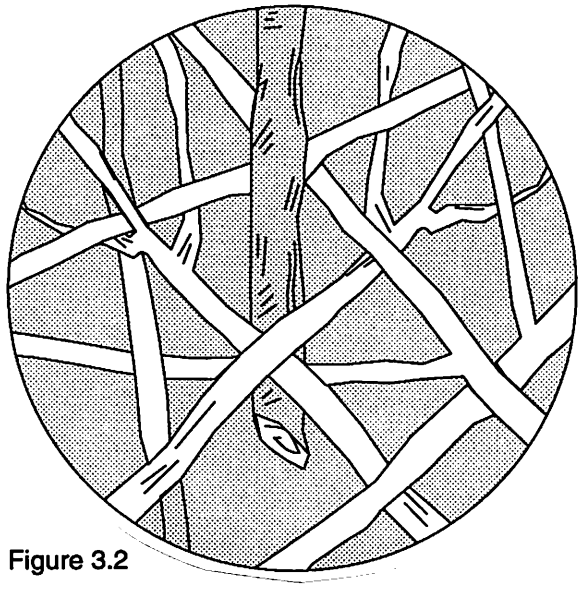


Figure 3.2

Evaluation Criteria:

Points:

Tape grid:

_____ Tape is ½" apart across the top of the container both horizontally and vertically

_____ Sides of the tape extend about ½" over the top of the container

Foliage grid:

_____ Container is two-thirds full of water

_____ Stems are inserted into the container to create an interlocking grid to support the flowers

_____ All leaves are removed that will be under water

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 4: Wiring and Taping

Objective: The student will be able to perform basic wiring and taping techniques.

Study Questions

1. **Why are flowers wired?**
2. **What are the different gauges of florist wire and how are they used?**
3. **What are the different wiring methods?**
4. **How is a flower wired using the piercing method?**
5. **How is a flower wired using the insertion method?**
6. **How is a flower wired using the clutch method?**
7. **How is a flower wired using the hook method?**
8. **How is a flower wired using the hairpin method?**
9. **How is a leaf wired using the stitch method?**
10. **How is a flower wired using the straight-wire method?**
11. **What is floral tape and why is it used?**
12. **How is floral tape used?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets
   a) JS 4.1: Wiring Flowers
   b) JS 4.2: Taping Flowers

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 4: Wiring and Taping

TEACHING PROCEDURES

A. Review

Lesson 3 presented information on properly preparing the container. This lesson will present techniques for wiring and taping flowers for use in floral designs.

B. Motivation

Give students tape, wire (several different gauges), and some flowers. Without demonstrating the proper techniques, ask them to wire the flowers for use in an arrangement. Then have them tape a flower.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why flowers are wired. Show examples of flowers that have been wired and ones that have not been wired.

   Why are flowers wired?

   a) Roses are often wired in arrangements to ensure that they do not develop "bent necks."
   b) Wire is used to strengthen weak stems.
   c) Wire is used in arrangements that will be transported long distances.
   d) Wire is used for shaping flowers.
   e) In corsages, wire is used to replace stems, eliminating the bulkiness of the stem and leaving the flower flexible.

2. Ask students what the different gauges of floral wire are and how they are used.

   What are the different gauges of florist wire and how are they used?

   a) 18 gauge - used in making floral headpieces and tying off wedding pew bows; also serves as a base for wrist corsages
   b) 24 gauge - commonly used in corsages; usually for roses, carnations, and heavy flowers
   c) 26 and 28 gauges - commonly used in corsages; for more delicate flowers

3. Ask students what the different wiring methods are.

   What are the different wiring methods?

   a) Piercing - roses, carnations, and other flowers with a large calyx
   b) Insertion - daffodils, asters, and other flowers with well-attached heads
   c) Clutch - filler flowers and small mass flowers like baby's breath and statice
   d) Hook - chrysanthemums, daisies, and other flowers with flattened heads, hard centers, and no apparent calyx

e) Hairpin - tubular flowers like stephanotis
f) Stitch - foliage with broad leaves like camellia and ivy
g) Straight-wire - strengthens stems and supports necks of flowers like roses

4. Ask students how a flower is wired using the piercing method.

How is a flower wired using the piercing method?

a) Insert the wire halfway through the calyx of the flower.
b) Bend both ends down.
c) Slightly twist the wire together.

5. Ask students how a flower is wired using the insertion method.

How is a flower wired using the insertion method?

a) Insert the wire inside the stem.
b) Push the wire up until the wire is in the flower head.
c) Make sure the wire is not visible in the head.

6. Ask students how a flower is wired using the clutch wire method.

How is a flower wired using the clutch method?

a) Wrap a light wire around the stem several times.
b) Bend the wire ends alongside the stem.

7. Ask students how a flower is wired using the hook wire method.

How is a flower wired using the hook method?

a) Insert the wire into the base of the flower head until it comes out the top.
b) Bend a small hook in the top of the wire.
c) Pull the hook back into flower.
d) Make sure the wire is not visible in the head.

8. Ask students how a flower is wired using the hairpin method.

How is a flower wired using the hairpin method?

a) Bend the wire into a large U-shape and insert a small piece of moist cotton into the bend.
b) Pull the wire down into the center of the flower.
c) Wrap it around the stem.

9. Ask students how a leaf is wired using the stitch method.

How is a leaf wired using the stitch method?

a) Insert the wire midway up the leaf blade, making a small stitch by piercing the wire through the back of the leaf and then back through the other side, crossing the central rib.
b) Bend the wire down alongside the central rib.
c) Wrap one end of the wire around both the stem and the other end of the wire.

10. Ask students how to wire a flower with a stem for use in an arrangement.

How is a flower wired using the straight-wire method?

a) Stick the end of the wire into the base of the flower.
b) Wind the wire down between the leaves on the stem.

11. Ask students what floral tape is and why it is used.

What is floral tape and why is it used?

a) Florist's tape, or floral tape, is crepe paper with a light waxy coating. When stretched, it will become sticky and adhere to itself.
b) Floral tape is used in corsages to cover the wire. It secures the wire to the flower stem, tapes flowers together, and holds moisture around the stem ends.

12. Ask students how floral tape is used. Demonstrate taping a stem. Have students tape a length of wire. Point out that if the designer is left-handed the technique would be performed using the opposite hands.

How is floral tape used?

a) Place the flower in the left hand. Hold the tape in the right hand.
b) Begin at the calyx of the flower.
c) Wrap the stem tightly with tape.
d) With the left hand, turn the flower while stretching and pulling the tape at a downward angle with the right hand.
e) Make sure the tape is smooth and not bulky.

F. Other Activities

Have students put together a wire sampler for them to keep that includes pieces of wire in gauges 16 through 30.

G. Conclusion

Flowers may be wired or taped for use in floral designs. The designer chooses which wiring method to use based on the type of flower and/or purpose for wiring. Taping is used when constructing corsages.

H. Competency

Perform basic wiring and taping techniques.

I. Answers to Evaluation

1. c
2. a
3. d
4. a
5. c
6. b
7. a
8. d

UNIT IV - MECHANICS OF FLORAL DESIGN

Name _____

Lesson 4: Wiring and Taping

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Floral tape is used to:

   a. Hold stems and flower arrangements up.
   b. Tape boxes shut.
   c. Cover wire in corsages and boutonnieres.
   d. Hold an oasis in a container.

2. #18 wire is:

   a. Thicker than #22 wire.
   b. Nonexistent.
   c. Used to wire baby's breath.
   d. 18" long.

3. Which of the following is NOT a reason why a flower is wired?

   a. Wiring adds flexibility to flowers.
   b. Wiring allows flowers to be shaped.
   c. Wiring strengthens weak stems.
   d. Wiring adds a new look to the arrangement.

Match the wiring technique on the right with the appropriate flower. Some responses may be used more than once.

4. _____ Rose
5. _____ Chrysanthemum
6. _____ Baby's breath
7. _____ Carnation
8. _____ Daffodil

a. Piercing method
b. Clutch method
c. Hook method
d. Insertion method
e. Hairpin method

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JS 4.1: Wiring Flowers

Objective: Upon completion of this job sheet, the student will be able to wire flowers using appropriate wiring techniques.

Materials and Equipment:

1. Various gauges of wire
2. Variety of flowers (e.g. rose, carnation, pompon, baby's breath)
3. Knife
4. Wire cutters

Procedure:

1. Select the appropriate size wire for the flower to be wired.
2. Cut off the stem about ¼" below the calyx or the base of the flower if it is to be used in a corsage.
3. Determine the best wiring method for the type of the flower.
4. Wire the flower following appropriate techniques.

Piercing Method

1. Insert the wire halfway through the calyx of the flower.
2. Bend both ends down.
3. Slightly twist the wire together (Figure 1.1).

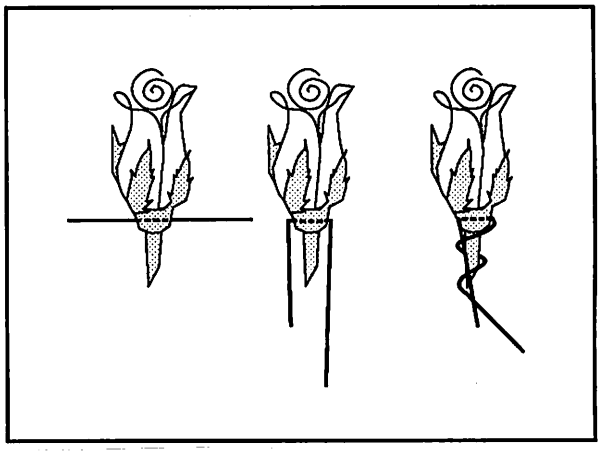

Figure 1.1

Insertion Method

1. Insert the wire inside the stem.
2. Push the wire up until the wire is in the flower head (Figure 1.2).
3. Make sure the wire is not visible in the head.

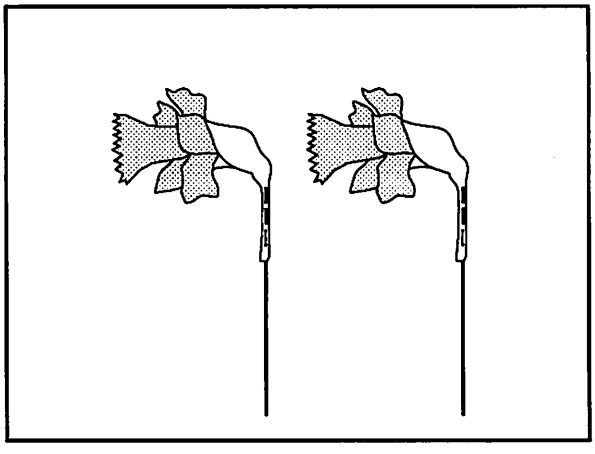

Figure 1.2

Clutch Method

1. Wrap a light wire around the stem several times.
2. Bend the wire ends alongside the stem (Figure 1.3).

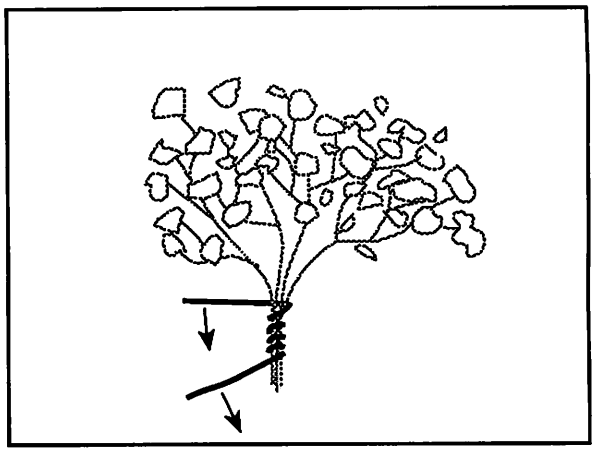

Figure 1.3

Hook Method

1. Insert the wire into the base of the flower head until it comes out the top.
2. Bend a small hook in the top of the wire.
3. Pull the hook back into the flower (Figure 1.4).
4. Make sure the wire is not visible in the head.

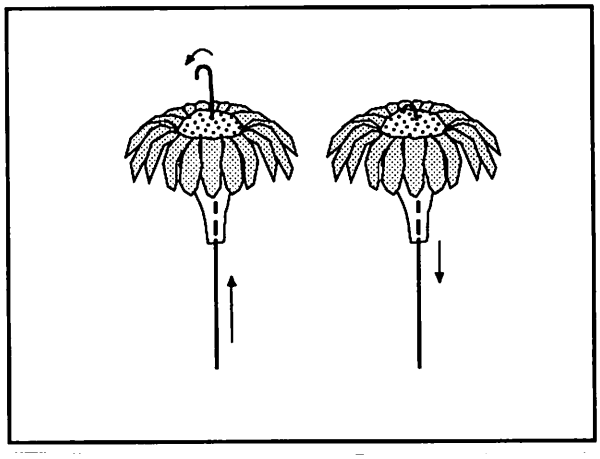

Figure 1.4

Hairpin Method

1. Bend the wire into a large U-shape and insert a small piece of moist cotton into the bend.
2. Pull the wire down into the flower (Figure 1.5).
3. Wrap it around the stem.

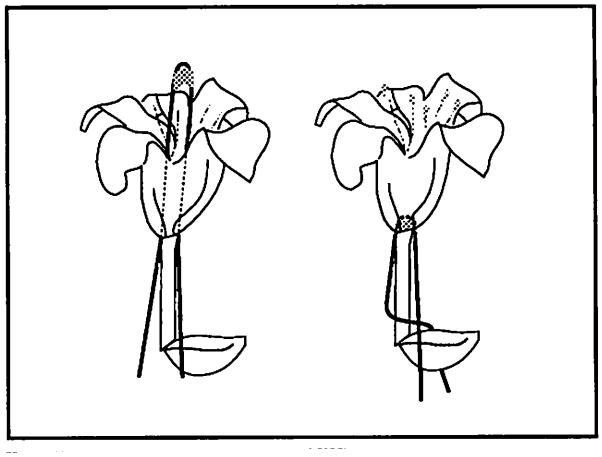

Figure 1.5

Stitch Method

1. Insert wire halfway up the leaf blade, making a small "stitch" by piercing through the back of the leaf near the central rib and then back through the other side.

2. Bend wire down alongside the central rib.

3. Wrap one end of the wire around the stem and the other end of the wire (Figure 1.6).

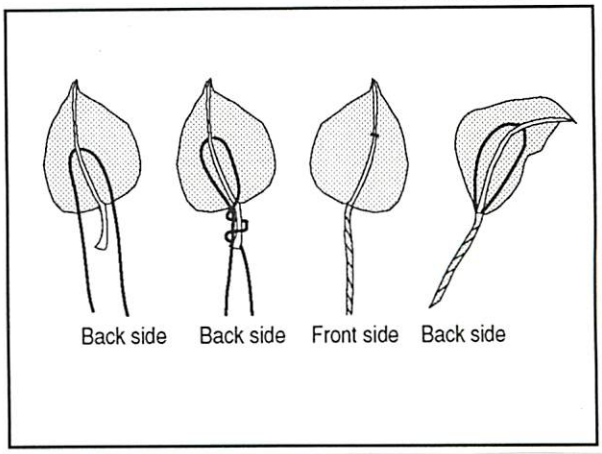

Figure 1.6

Straight-Wire Method

NOTE: The stem is not removed for this method, which is used mainly for vase arrangements.

1. Stick the end of the wire into the base of the flower.

2. Wind the wire down between the leaves of the stem.

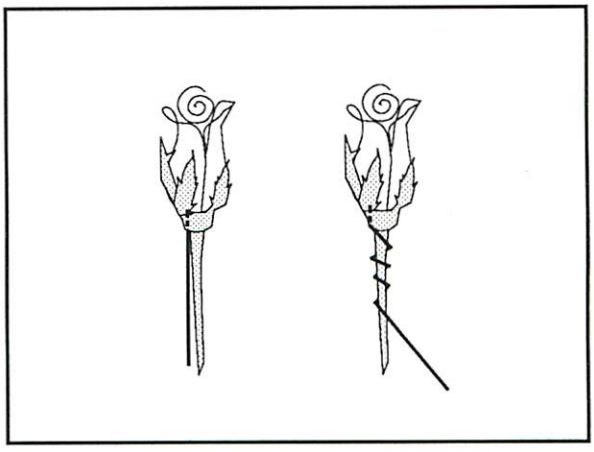

Figure 1.7

Evaluation Criteria:

Points:

_____ Stem is cut off if flowers are to be used for a corsage

Piercing Method:

_____ Wire is the appropriate weight for the flower to be wired (the doubled wire can support the weight of the flower when held horizontally)

_____ Wire is inserted half way through the calyx

_____ Ends of the wire are bent down

_____ Wires are slightly twisted together

Insertion Method:

_____ Wire is inserted inside the stem

_____ Wire is not visible inside the head

Clutch Method:

_____ Wire is wrapped firmly around the stems

_____ Appropriate weight wire is used for the flower to be wired (too heavy a wire will not wrap well around delicate stems/flowers)

Hook Method:

_____ Wire is inserted in the base of the flower head

_____ Hook is not visible in the head

Hairpin Method:

_____ Wire is bent into a large U-shape with cotton inserted

_____ Wire is pulled down into the flower

_____ Wire is wrapped correctly around the stem

Stitch Method:

_____ Wire is inserted halfway up the leaf blade

_____ Wire has been inserted in and out of the mid-rib of the leaf with a small amount of wire visible

_____ Wire is wrapped around the stem

Straight-Wire Method:

_____ Wire is inserted into the base of the flower

_____ Wire is wound down between the leaves of the stem

_____ Total Points

JS 4.2: Taping Flowers

Objective: Upon completion of this job sheet, the student will be able to tape flowers using the appropriate technique.

Materials and Equipment:

1. Floral tape
2. Flowers that have already been wired

Procedure:

1. Hold the flower in your left hand. Hold the tape in the right.

   NOTE: If you are left handed, reverse the placement of the flower and tape for this procedure.

2. Begin at the calyx of the flower (Figure 2.1).

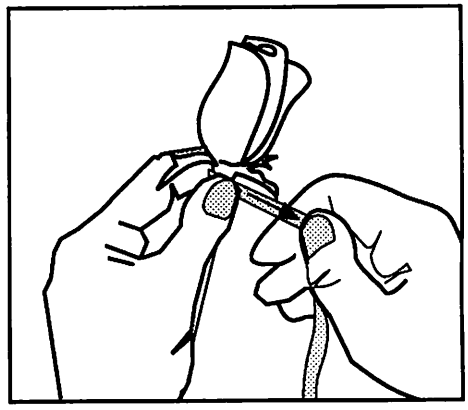

Figure 2.1

3. Wrap the stem tightly with tape.

4. With your left hand, turn the flower while stretching and pulling the tape at a downward angle with the right hand (Figures 2.2 and 2.3).

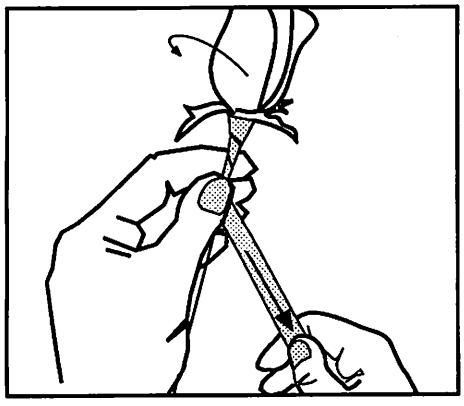

Figure 2.2

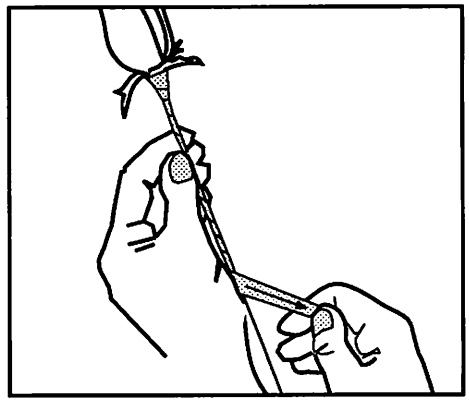

Figure 2.3

5. Make sure the tape is smooth and not bulky (Figure 2.4).

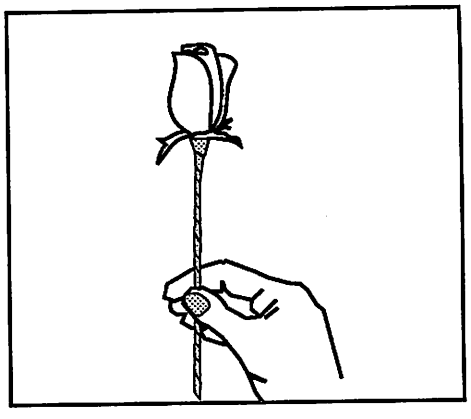

Figure 2.4

Evaluation Criteria:

Points:

_____ If the flower has a calyx, the tape should cover the lower half of the calyx

_____ Tape has been stretched and pulled the length of the wire

_____ If the tape is properly stretched, the tape will be lighter in color and will be difficult to pull off the wire

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 5: Packaging Flowers and Arrangements for Delivery

Objective: The student will be able to package flowers and arrangements for delivery.

Study Questions

1. **How are cut flowers wrapped and boxed for sale?**
2. **How are floral designs protected during transportation?**
3. **How are potted plants dressed?**
4. **How are plant sleeves used?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets
   a) JS 5.1: Wrapping Cut Flowers
   b) JS 5.2: Boxing Cut Flowers
   c) JS 5.3: Preparing Designed Arrangement for Transportation
   d) JS 5.4: Dressing Potted Plants
   e) JS 5.5: Sleeving Potted Plants

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 5: Packaging Flowers and Arrangements for Delivery

TEACHING PROCEDURES

A. Review

The previous lesson addressed why flowers are wired and taped and presented information on wiring and taping techniques. This lesson will focus on packaging techniques.

Properly wrapping flowers and arrangements for delivery not only adds to the attractiveness of the product, but also offers protection against physical damage and extreme temperatures during delivery.

B. Motivation

1. Show students a wrapped rose box with a bow tied around it. Ask if they would like to receive such a package.

2. Have a student sleeve a plant before instructing the class on the proper procedure. Discuss why it is important to properly sleeve a plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask the students how cut flowers are wrapped and boxed for sale.

How are cut flowers wrapped and boxed for sale?

a) Wrapping - Cut flowers that are not arranged are purchased cash-and-carry are usually wrapped in green waxed tissue paper. To wrap cut flowers in paper, follow these steps.
   1) Lay a sheet of florist paper on the work table.
   2) Arrange a few leaves of foliage, such as leatherleaf fern, pointing toward one corner of the paper.
   3) Place flowers on top of the foliage. If possible, avoid piling flower heads on top of each other.
   4) Fold the lower corner of the paper up over the stems.
   5) Fold in each side.
   6) Roll the paper around the flowers.
   7) The paper is then cone-shaped and needs to be tightened around the lower end of the stems and flared out at the flower end.
   8) Tie a ribbon around the wrap or staple the ends.

b) Boxing
   1) Packaging flowers in a white cardboard box
      (a) Line the box with florist paper with paper extending on either side.
      (b) Arrange a layer of foliage on the bottom of the box.
      (c) Arrange flowers on top of the foliage. If using roses, the florist may use water picks or secure a floral pack to the bottom and insert the stems. Flowers should be placed in rows with as little overlap of heads as possible.
      (d) Mist the flowers and foliage lightly with water.

(e) Place a care tag and a pack of floral preservative in the box.
(f) Fold the paper over the flowers and foliage.
(g) Add the lid to the box.
(h) Secure the box with ribbon.
(i) Add a bow secured with an enclosure card for delivery.

2) Packaging flowers in a clear plastic box
(a) Line the bottom of the box with foliage.
(b) Layer the flowers.
(c) Use foam or water picks if packaging delicate flowers such as roses.
(d) Mist the flowers and foliage.
(e) Snap the box shut.
(f) Add a bow and enclosure card.

2. Ask students how flower arrangements are prepared for delivery.

How are floral designs protected during transportation?

a) Floral arrangements are often wrapped for delivery, especially if the weather is very cold. They are usually wrapped in florist paper.
1) Set arrangement in center.
2) Bring up four corners to top.
3) Staple.

b) Compote (footed container) arrangements need to be placed in a box specially designed for transporting arrangements or in a box with crumpled paper stuffed around the base of the arrangement.

c) A plastic sack may be placed around some arrangements.

d) During warm weather, wrapping may not be necessary.

3. Ask students what should be done to make potted plants more attractive.

How are potted plants dressed?

a) Groom the plant; remove yellow or dying leaves and old flowers.
b) Clean the outside of the pot.
c) Check the plant for insects.
d) Insert a care tag.
e) Water and drain the plant well.
f) Cover the pot.
1) Select foil and ribbon to complement the plant.
2) Cut the foil to the appropriate size.
3) Place the plant on the foil with the best side toward you.
4) If folding down the top edges, do so now.
5) Make sure the front of the foil will cover the pot.
6) With the left hand, gently gather the foil while working around the left side.
7) With the right hand, gently pull the corners upward while working around the pot.
8) After all the foil is around the pot, bend the front two corners down to frame the front.
9) Make a bow with #40 or #9 ribbon.
10) Insert the bow with wooden pick.
11) Some plants come from the grower with pre-formed speed covers on the pots. These covers are available in many colors and sizes.
12) For more expensive plants, a wicker basket is often used for a cover.

4. Show students a plant sleeve. Ask what it is and how it is used.

How are plant sleeves used?

a) Plant sleeves are pieces of material, such as plastic, fiber mesh, or paper, shaped into a cone.
b) Slip a plant into the sleeve, fold the top over, then staple it shut.
c) The sleeve protects the potted plant during delivery and from cold weather.
d) If it is extremely cold, double sleeving may be necessary.
e) Plants should be sleeved just before shipping. They should be removed from the sleeves as soon as possible. Never store a potted plant in a sleeve, because it can cause the premature aging of the plant.

F. Other Activities

G. Conclusion

Properly packaging flowers and arrangements ensures that they will be in good condition for the customer or recipient of a delivery. Cut flowers should be either wrapped or boxed for delivery. Floral designs must also be wrapped appropriately for delivery in order to protect them. Potted plants should be dressed for sale and prepared for delivery, which can be done most easily by using a plant sleeve.

H. Competency

Package flowers and arrangements for delivery.

I. Answers to Evaluation

1. c
2. b
3. c
4. a
5. b

Name _____

Lesson 5: Packaging Flowers and Arrangements for Delivery

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. When wrapping cut flowers for delivery, how should they be placed on the sheet of wrapping paper?

   a. Parallel to the top
   b. Upside down
   c. Pointing toward one corner
   d. Pointing toward the center

2. What else is often included with cut flowers in a box?

   a. Delivery instructions and packet of preservative
   b. Packet of preservative and care card
   c. Care card and delivery instructions
   d. Delivery instructions and water mister

3. What ribbon sizes are generally used to decorate potted plants?

   a. #3 and #9
   b. #9 and #27
   c. #9 and #40
   d. #27 and #40

4. Why are plant sleeves necessary?

   a. They protect the plant during delivery.
   b. Sleeves add decoration.
   c. Plant sleeves help dress the plant.
   d. They are unnecessary.

5. Which technique helps prevent the flowers from being crushed when being wrapped or boxed?

   a. Arranging flowers by alternating them from one end of the box to the other end
   b. Arranging flowers so that heads are not directly on top of other heads
   c. Arranging foliage between layers of flowers
   d. Arranging flowers with stems in foam or water picks

JS 5.1: Wrapping Cut Flowers

Objective: Upon completion of this job sheet, students will be able to wrap cut flowers using the appropriate technique.

Materials and Equipment:

1. Cut flowers and foliage
2. Green waxed tissue paper
3. Ribbon or stapler
4. Scissors

Procedure:

1. Lay a sheet of florist paper on the worktable.

2. Arrange a few leaves of foliage, such as leatherleaf, pointing toward one corner of the paper.

3. Place flowers on top of the foliage. If possible, avoid piling flower heads on top of each other.

4. Fold the lower corner of the paper up over the stems (Figure 1.1).

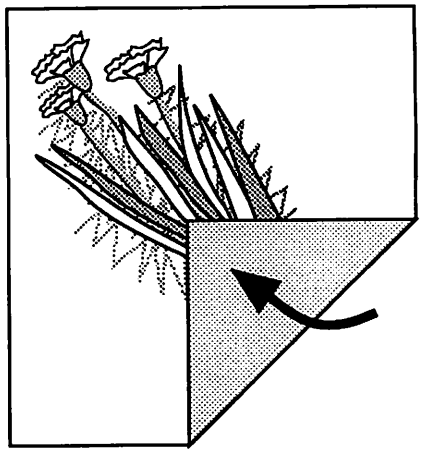

Figure 1.1

5. Fold in each side (Figure 1.2).

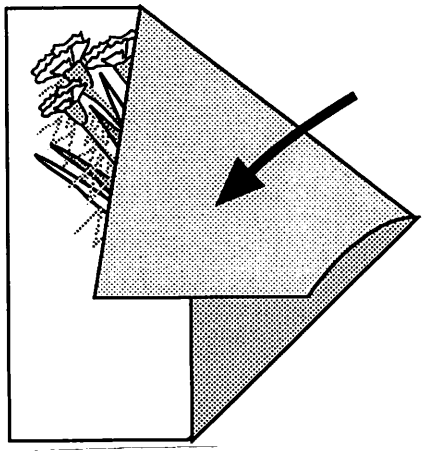

Figure 1.2

6. Roll the paper around the flowers (Figure 1.3).

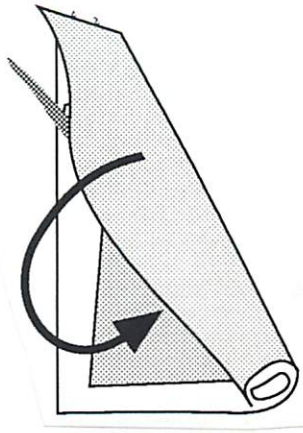

Figure 1.3

7. The paper is then cone-shaped and needs to be tightened around the lower end of the stems and flared out at the flower end.

8. Tie a ribbon around the wrap or staple the ends (Figure 1.4).

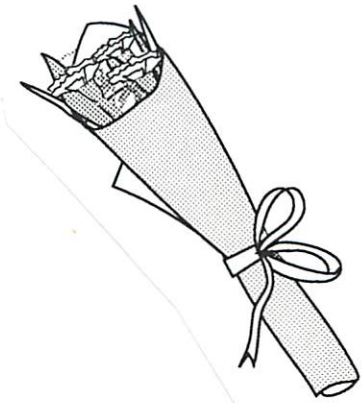

Figure 1.4

Evaluation Criteria:

Points:

_____ Sheet of florist paper is in proportion to the size of the flowers

_____ Foliage is placed on florist paper

_____ Flowers are arranged properly (heads are not piled on top of each other)

_____ Paper is folded neatly from bottom and sides

_____ Paper is rolled around the flowers

_____ Ribbon is tied around the wrapper or the ends are stapled

_____ Total Points

JS 5.2: Boxing Cut Flowers

Objective: Upon completion of this job sheet, students will be able to box cut flowers using the appropriate technique.

Materials and Equipment:

1. Flowers and foliage
2. Clear plastic box
3. Cardboard box
4. Florist paper
5. Foam or water picks, if appropriate
6. Ribbon
7. Scissors
8. Water mister
9. Appropriate care tag
10. Floral preservative
11. Enclosure card

Procedure: White Cardboard Box

1. Line the box with florist paper with paper extending out on either side.

2. Arrange a layer of foliage on the bottom of the box.

3. Arrange flowers on top of the foliage. If roses are used, a floral pack made of a piece of floral foam soaked in water and wrapped in foil may be secured to the bottom and the stems inserted into it. Water picks may also be used. Flowers should be placed in rows with as little overlap of heads as possible (Figure 2.1; shows water picks).

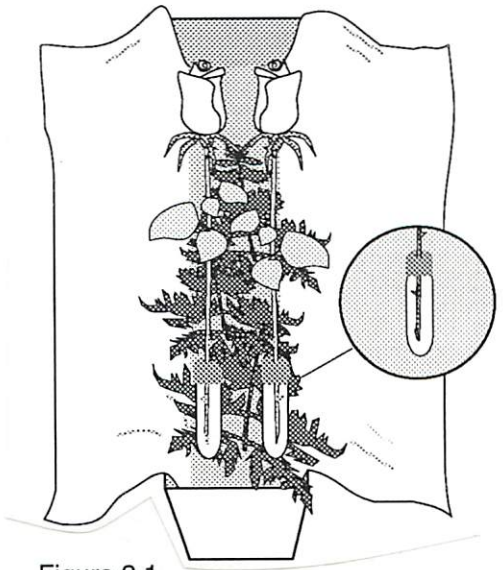

Figure 2.1

4. Mist the flowers and foliage lightly with water.

5. Place a care tag and a pack of floral preservative in the box.

6. Fold the paper over the flowers and foliage.

7. Add the lid to the box.

8. Secure the box with ribbon (Figure 2.2).

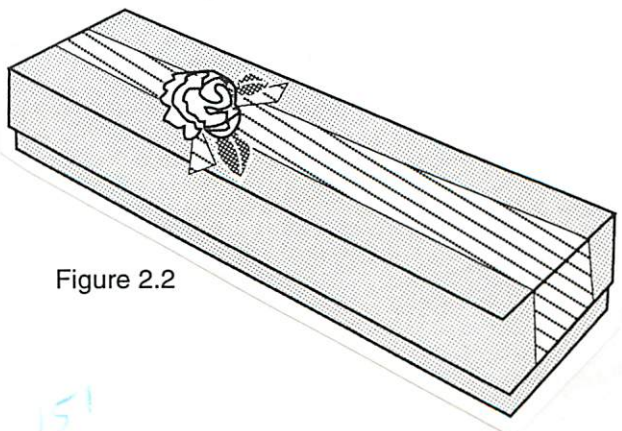

Figure 2.2

9. Add a bow secured with an enclosure card for delivery.

Procedure: Clear Plastic Box

1. Line the bottom of the box with foliage.
2. Layer the flowers.
3. Use foam or water picks if packaging delicate flowers such as roses.
4. Mist the flowers and foliage (Figure 2.3).

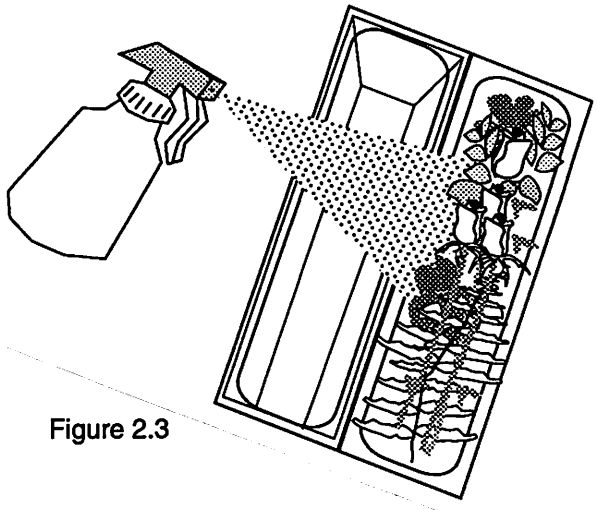

Figure 2.3

5. Snap the box shut.
6. Add a bow and enclosure card (Figure 2.4).

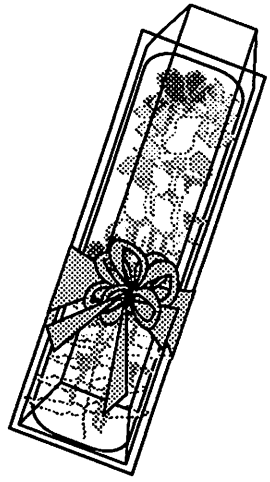

Figure 2.4

Evaluation Criteria:

Points:

_____ If a white cardboard box is used, it is lined with florist paper

_____ Box is lined with foliage

_____ Flowers are layered

_____ Water picks or foam is used if the flowers are perishable (ex. roses)

_____ Flowers and foliage are lightly misted

_____ Bow is attached

_____ Enclosure card is included

_____ Total Points

JS 5.3: Preparing Designed Arrangement for Transportation

Objective: Upon completion of this job sheet, students will be able to prepare a designed arrangement for transportation.

Materials and Equipment:

1. Designed arrangement
2. Florist green waxed tissue paper
3. Stapler

Procedure:

1. Set the arrangement in the center of a large piece of green waxed tissue paper.

2. Gather the four corners.

3. Staple at the top, avoiding any flowers or foliage.

Evaluation Criteria:

Points:

_____ Arrangement is centered on green waxed tissue paper

_____ Arrangement is covered neatly and completely, without damaging the flowers or foliage

_____ Total Points

150

JS 5.4: Dressing Potted Plants

Objective: Upon completion of this job sheet, students will be able to dress potted plants using the appropriate technique.

Materials and Equipment:

1. Potted plant
2. Foil
3. Ribbon
4. Scissors
5. Wooden pick

Procedure:

1. Select foil and ribbon to complement the plant.

2. Cut the foil to an appropriate size.

3. Place the plant on the foil with the best side toward you.

4. If folding down the top edges, do so now (Figure 4.1).

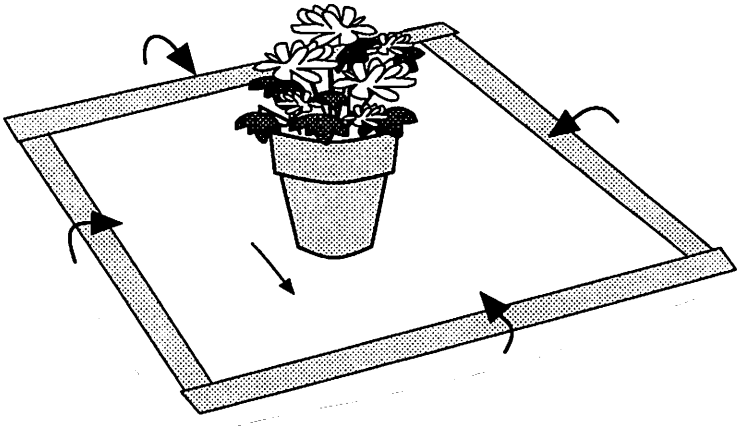

Figure 4.1

5. Make sure the front of the foil will cover the pot. (Figure 4.2)

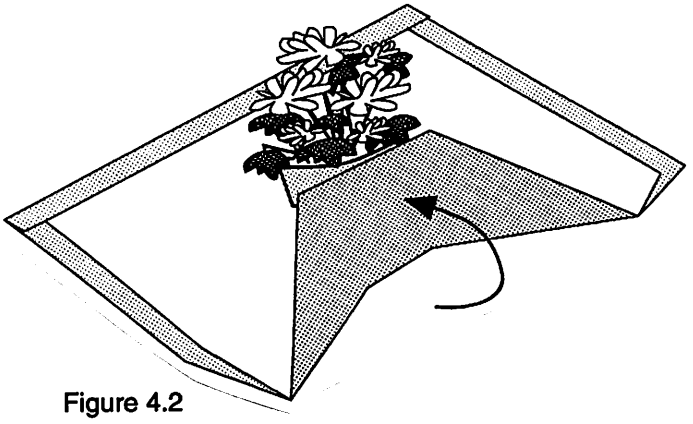

Figure 4.2

6. With your left hand, gently gather the foil as you work around the left side.

7. With your right hand, gently pull the corners upward as you work around the pot. (Figure 4.3)

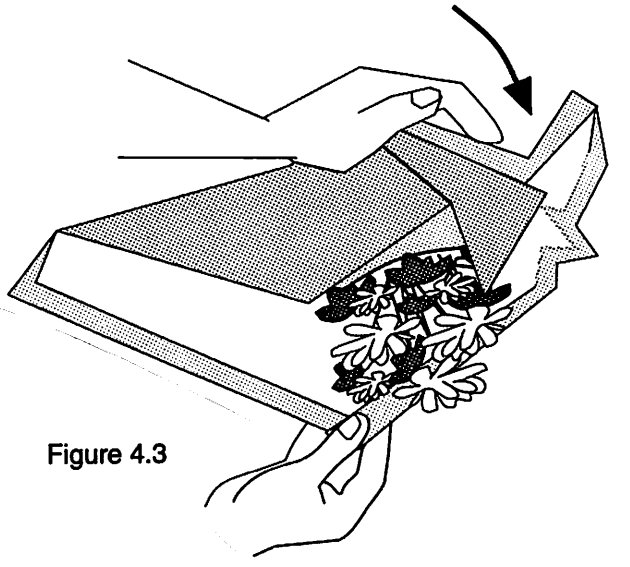

Figure 4.3

8. After all the foil is around the pot, bend the front two corners down to frame the front (Figure 4.4)

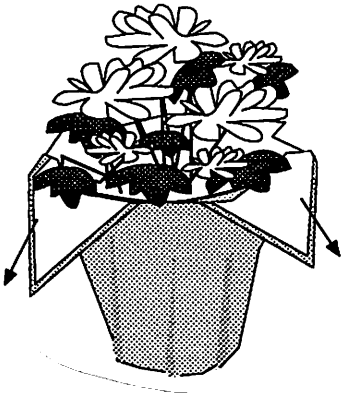

Figure 4.4

9. Make a bow with #40 or #9 ribbon.

10. Insert the bow with a wooden pick. (Figure 4.5)

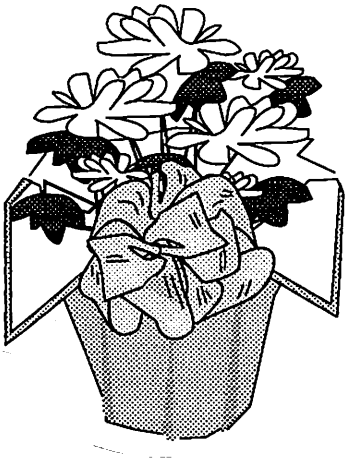

Figure 4.5

Evaluation Criteria:

Points:

_____ Foil complements plant, especially flower color

_____ Foil is the correct size

_____ Front of the foil covers the pot

_____ Foil is pulled up and around the pot

_____ Bow is inserted

- _____ Bow is a complementary color for the plant and the foil
- _____ Bow is made correctly
- _____ Bow is inserted in the appropriate place (the best side or "front" of the plant)

_____ Total Points

JS 5.5: Sleeving Potted Plants

Objective: Upon completion of this job sheet, students will be able to sleeve potted plants using the appropriate technique.

Materials and Equipment:

1. Potted plant
2. Plant sleeve
3. Sleeve stand
4. Stapler

Procedure:

1. Select a sleeve size to fit the plant.

2. Slip the plant in the sleeve. If using a sleeve stand, pull the sleeve up over the plant on the stand (Figures 5.1 and 5.2).

3. Fold the top over.

4. Staple the sleeve shut, avoiding stapling the plant material.

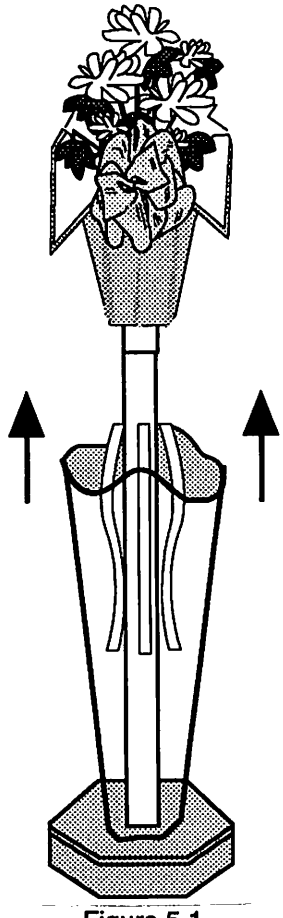

Figure 5.1

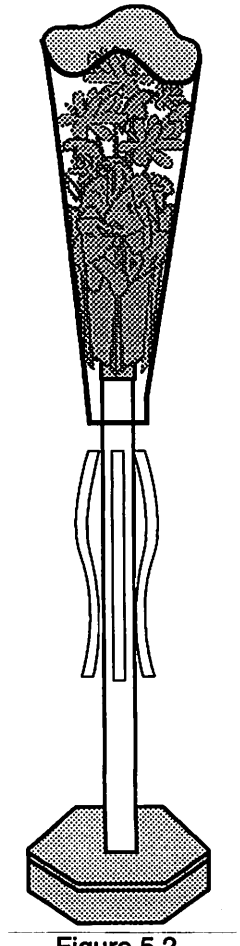

Figure 5.2

Evaluation Criteria:

Points:

_____ Sleeve fits the pot size and plant (plant is not injured by being sleeved)

_____ Sleeved plant can be picked up by the sleeve

_____ Plant is not dwarfed by too much sleeve

_____ Sleeve covers the entire plant with enough extra sleeve to fold over the top

_____ Top is folded over neatly and stapled shut

_____ No part of the plant has been caught in the fold

_____ Total Points

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 1: Identifying Basic Principles of Design

Objective: The student will be able to identify basic principles of floral arranging and elements of design.

Study Questions

1. **What are the principles of floral arranging?**
2. **What is focal point and how is it achieved?**
3. **Why is balance important in an arrangement?**
4. **How are scale and proportion achieved in a design?**
5. **What are the basic elements of design?**
6. **What six color harmonies are suitable for arrangements?**
7. **What are the rules of design?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit V.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 1: Identifying Basic Principles of Design

TEACHING PROCEDURES

A. Introduction

The major work of a florist is designing and arranging flowers. These tasks require special talent. A designer needs to have knowledge of not only where the arrangement will be used, but also what an appropriate container would be and what flowers, foliage, and accessories to use. The most difficult part is being able to combine all of these materials into a pleasing arrangement. To be able to do this, it is important to know the principles of arranging and the elements of design.

B. Motivation

Place two flower arrangements before the class, one that is well designed and one that is poorly designed. Ask the students which one they prefer and why.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know any of the principles of floral arranging.

What are the principles of floral arranging?

a) Design
b) Balance
c) Scale and proportion
d) Harmony
e) Focal point
f) Accent
g) Rhythm
h) Repetition
i) Unity

2. Display an arrangement before the class. Ask where the focal point of the arrangement is. How did the designer achieve the focal point?

What is focal point and how is it achieved?

a) The focal point is the point of emphasis located toward the bottom and center of the arrangement.
b) It is achieved by using larger or more brightly colored flowers.

3. Ask students why balance is an important element in an arrangement.

Why is balance important in an arrangement?

If an arrangement is unbalanced, it causes people to feel dissatisfied.

4. Ask students how a designer achieves scale and proportion in a design.

How are scale and proportion achieved in a design?

Scale and proportion are achieved by not using very large and very small flowers in the same arrangement or overly large flowers in very small containers.

5. Ask students to list the basic elements of design.

What are the basic elements of design?

a) Line
b) Form
c) Pattern
d) Texture
e) Color

6. Ask students what the six color harmonies suitable for arrangements are.

What six color harmonies are suitable for arrangements?

a) Monochromatic - various shades, tints, and tones of one color
b) Analogous - two or three colors near each other on the color wheel
c) Direct complementary - colors directly opposite each other on the color wheel
d) Split complementary - one color plus the two colors on either side of the complementary color
e) Triad harmonies - three colors equidistant from each other on the color wheel
f) Polychromatic - many colors

7. Ask students what the rules of design are.

What are the rules of design?

a) Arrangements should be 1½ to 2 times the height or length of the container.
b) Do not use more than four colors.
c) Do not use more than three kinds of flowers.
d) Keep large flowers toward the bottom and center of the arrangement, the small ones toward the top and edges.
e) Do not crowd flowers together.
f) Place dark colors toward the bottom of the arrangement.
g) If the flowers are all the same size, maintain a ratio of three light flowers for every dark one.
h) If using less than 12 flowers in an arrangement, use an odd number of them.
i) A flower or leaf should be used to interrupt the line of the container.

F. Other Activities

1. Construct a color wheel. Label all of the different color combinations.

2. Look at pictures of arrangements. Have students analyze what they like and do not like about them.

3. Give each student a picture of an arrangement and have them analyze the design in the form of a written report and/or an oral report to the class.

G. Conclusion

Designers need to know and be able to incorporate the principles of floral arranging in their work. In order to create effective designs, they must learn the various elements of design and the color harmonies. The beginning designer should follow the basic rules of design, but the more experienced designer may sometimes disregard them.

H. Competency

Identify basic principles of floral arranging and elements of design.

I. Answers to Evaluation

1. a
2. a
3. b
4. b
5. d
6. c
7. b
8. a
9. b

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN Name _____

Lesson 1: Identifying Basic Principles of Design Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is a basic principle of floral arranging?

   a. Design
   b. Line
   c. Pattern
   d. Color

2. Which of the following is the underlying skeleton or linear pattern that holds an arrangement together?

   a. Line
   b. Form
   c. Scale
   d. Pattern

3. Monochromatic color harmony is produced by:

   a. Using the colors that are opposite each other on the color wheel.
   b. Using various shades, tints, and tones of one color.
   c. Using several colors which are near each other on the color wheel.
   d. Using many colors.

4. Which of the following is a basic element of design?

   a. Balance
   b. Color
   c. Unity
   d. Focal point

5. Why is balance important in an arrangement?

   a. Without balance, the arrangement will fall over.
   b. Without balance, the arrangement will not sell.
   c. An unbalanced arrangement uses colors on opposite sides of the color wheel.
   d. An unbalanced arrangement causes people to feel dissatisfied.

6. Where is the focal point of an arrangement usually located?

   a. Just above the center of the arrangement.
   b. Toward the right side and at the bottom.
   c. Toward the bottom and center of the arrangement.
   d. Toward the top and center of the arrangement.

7. To achieve scale and proportion in an arrangement, do NOT use which of the following?

   a. Very dark flowers
   b. Very large and very small flowers
   c. Flowers of complimentary colors
   d. Flowers in triad harmonies

8. What ratio should be maintained if flowers of the same size are used?

   a. Three light flowers to every dark flower
   b. Two light flowers to every dark flower
   c. One dark flower to every three light flowers
   d. One dark flower to every light flower

9. If a container is six inches tall, how tall should the arrangement be?

   a. Six to nine inches
   b. Nine to twelve inches
   c. Twelve to fifteen inches
   d. Fifteen to twenty inches

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 2: Identifying Design Shapes

Objective: The student will be able to identify design shapes.

Study Questions

1. **What are the basic straight-line arrangements?**
2. **What are the basic curved arrangements?**
3. **What are the different contemporary designs and techniques?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia, Instructional Materials Laboratory, 1996, Unit V.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 2: Identifying Design Shapes

TEACHING PROCEDURES

A. Review

Lesson 1 presented information about design principles and elements. This lesson will focus on design shapes. All floral designs begin with an idea of the general shape they will follow when completed. Many different design shapes exist, but some are more widely used than others. Newer, more contemporary design shapes are emerging in anticipation of the future of floral design.

B. Motivation

Have arrangements made in several of the design shapes. Ask the students what general shapes the arrangements have.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know the basic line arrangements using straight lines.

What are the basic straight-line arrangements?

a) Horizontal - low and flat with a long horizontal line; used for centerpieces
b) Vertical - oriented straight up and no wider than the container
c) Inverted-T - horizontal and vertical lines dominate
d) Symmetrical triangle - sides should be equal
e) Asymmetrical triangle - unequal sides and angles
f) Right angle - L-shaped arrangement

2. Ask students if they know the basic arrangements with curved lines.

What are the basic curved arrangements?

a) Hogarth - serpentine line
b) Circle - round and the same on all sides
c) Crescent - half-moon shaped; focal point is low and near the center
d) Oval - egg-shaped

3. Ask students if they know the names of any contemporary designs.

What are the different contemporary designs and techniques?

a) Traditional or classical
   1) Mille fleurs - naturalistic; incorporates many different flowers and colors
   2) Biedermeier - formal arrangement with flowers of the same type placed in rows in a conical shape
   3) Phoenix - mound of flowers with taller flowers or branches rising from the center

4) Waterfall - cascade of flowers down the side of the arrangement

b) Naturalistic
   1) Botanical - one flower represented through five phases of life, which are stem, blossom, foliage, buds, and roots/bulbs
   2) Vegetative - represents flowers in their natural setting
   3) Landscape - includes elements that represent the natural landscape

c) Linear
   1) Western - symmetrical or asymmetrical line arrangements with stems that appear to come from one central point
   2) Parallel system - vertical design in which different types of plants are grouped together with the stems parallel to each other
   3) New convention -vertical groupings of flowers and foliage are repeated lower in the design with flowers placed at right angles to them
   4) Formal linear - uses flowers and foliage sparingly, emphasizing line and negative space

d) Modernistic or experimental
   1) Sheltered - parts of the design are hidden from the first viewing
   2) Pavé - groups of flowers in contrasting colors are placed closely together in a low, flat pattern
   3) Pillowing - small tufts of flowers are scattered through the arrangement
   4) New wave - uses plant materials that have been changed from their natural state in some way (braided, dyed, etc.) in designs that disregard rules of design
   5) Abstract - non-realistic free-form designs

F. Other Activities

G. Conclusion

Designers must know the design shapes that they may use in creating floral arrangements, including straight-line, curved, and contemporary designs.

H. Competency

Identify design shapes.

I. Answers to Evaluation

1. a
2. c
3. d
4. b
5. a
6. b
7. b
8. b
9. a
10. b
11. a
12. a

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN Name _____

Lesson 2: Identifying Design Shapes Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which statement is true of a symmetrical triangle arrangement?

   a. It must be equal on both sides.
   b. It has unequal angles.
   c. It is very informal.
   d. It uses a combination of horizontal and vertical lines.

2. Which classical arrangement is typified by being low and mounded with a spray of flowers or branches coming out the top?

   a. Sheltered
   b. Botanical
   c. Phoenix
   d. Mille fleurs

3. Which traditional design incorporates many different kinds and colors of flowers?

   a. Biederman
   b. Sheltered
   c. Phoenix
   d. Mille Fleurs

4. Which style of naturalistic arrangement represents the five stages in the life of the main flower?

   a. Phoenix
   b. Botanical
   c. High style
   d. Mille Fleurs

5. Which type of arrangement is frequently used for centerpieces?

   a. Horizontal
   b. Inverted-T
   c. Right angle
   d. Symmetrical triangle

6. Which arrangement shape is said to have a serpentine or "lazy S" line?

   a. Crescent
   b. Hogarth
   c. Landscape
   d. Waterfall

Match the arrangement with the appropriate shape.

7. ____Circle
8. ____Hogarth
9. ____Right angle
10. ____Oval
11. ____Horizontal
12. ____Vertical

a. Straight-line shape
b. Curved-line shape

UNIT VI - TYPES OF DESIGNS

Lesson 1: Uses of Floral Designs

Objective: The student will be able to identify how floral designs are used.

Study Questions

1. **Where are different types of floral designs displayed in the home?**
2. **What types of floral designs are used for weddings?**
3. **What types of floral designs are used for funerals?**
4. **How are flowers worn?**
5. **How do you customize designs for holidays and special occasions?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

Unit VI - TYPES OF DESIGNS

Lesson 1: Uses of Floral Designs

TEACHING PROCEDURES

A. Introduction

Floral designs have many and varied uses. Occasions such as weddings and funerals require specialized designs, while flowers are also used in homes and businesses every day.

B. Motivation

Ask students to relate the last time they or someone in their family received flowers.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to list logical places to locate flower designs in their homes.

Where are different types of floral designs displayed in the home?

a) Dining room table - traditionally a centerpiece
b) Coffee table - centerpiece
c) Fireplace mantle - may use two asymmetrical triangles
d) End table
e) Night stand
f) Vanity
g) Bathroom vanity
h) Foyer - tall, thin arrangements
i) Piano
j) Doors
k) Walls

2. Ask students what floral designs are used in weddings.

What types of floral designs are used for weddings?

a) Bridal bouquet
b) Attendant flowers
c) Corsages and boutonnieres
d) Ring bearer and flower girl flowers
e) Ceremony designs
    1) Altar flowers
    2) Candelabra decorations
    3) Aisles
    4) Kneeling bench
    5) Canopy
    6) Virgin Mary statue
    7) Unity candle

8) Guest book
9) Aisle runner

f) Reception
1) Cake flowers
2) Punch table
3) Gift table
4) Buffet or food table
5) Individual tables

3. Ask students to list the types of floral designs used for funerals.

What types of floral designs are used for funerals?

a) Casket spray - full or half spray
b) Casket garland
c) Casket scarf
d) Casket blanket
e) Flowers inside the casket
f) Standing sprays, or easel sprays
g) Flat sprays
h) Baskets
i) Pedestal arrangements
j) Set pieces - design constructed in special shapes
k) Wreaths
l) Flowering potted plants
m) Dish gardens

4. Ask students to list ways that flowers are worn.

How are flowers worn?

a) Corsages
b) Boutonnieres
c) Leis
d) Floral hair pieces
e) Hat and veil floral pieces

5. Ask students how designs are made to represent holidays and special occasions.

How do you customize designs for holidays and special occasions?

a) Accessories such as picks, ribbons, and chenille in seasonal shapes may be added.
b) Some flowers and foliage are identified with specific seasons. For example, holly is identified with Christmas and the Easter lily with Easter.

F. Other Activities

1. Have students look through magazines and list how many ways they see floral designs being used or flowers being worn.

2. Select a short movie. Have students watch it and then describe how they see floral designs being used in it.

3. Have students describe how they have seen flowers used.

G. Conclusion

Flowers are an important part of people's lives, not only during holidays and for special occasions such as weddings and funerals, but on other occasions as well. They can express many sentiments, such as joy, sorrow, and congratulations.

H. Competency

Identify how floral designs are used.

I. Answers to Evaluation

1. b
2. c
3. a
4. a. Adding seasonal picks, ribbons in appropriate holiday colors and designs, and chenille in seasonal shapes
   b. Using flowers or foliage associated with a particular season

UNIT VI - TYPES OF DESIGNS

Name _____

Lesson 1: Uses of Floral Designs

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which design is best to use on a coffee table?

   a. Right angle arrangement
   b. Centerpiece
   c. Wreath
   d. One-sided arrangement

2. What is a set piece?

   a. A standard bridal bouquet or attendant bouquet
   b. A design for a kneeling bench or casket scarf
   c. A funeral floral design constructed in a special shape or in the emblem of an organization
   d. A Christmas design that is displayed on a metal or wooden easel

3. Where can flowers be placed during a wedding ceremony in a church?

   a. Aisles, altar, unity candle, and guest book
   b. Altar, entryway, gift table, and unity candle
   c. Candelabra, gift table, standing sprays, and set pieces
   d. Set pieces, aisle runners, guest book, and candelabra

4. List two ways that designs can be customized for holidays or special occasions.

   a. _____

   _____

   b. _____

   _____

UNIT VI - TYPES OF DESIGNS

Lesson 2: Corsages and Boutonnieres

Objective: The student will be able to construct flowers to wear.

Study Questions

1. **How is a corsage worn?**
2. **What are the basic parts of a corsage?**
3. **How are corsages constructed?**
4. **How is a boutonniere different from a corsage?**
5. **How is a corsage packaged?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
   a) JS 2.1: Constructing Corsages

UNIT VI - TYPES OF DESIGNS

Lesson 2: Corsages and Boutonnieres

TEACHING PROCEDURES

A. Review

Lesson 1 presented information on how flowers are used. This lesson will provide greater detail about flowers that are worn. Today, flowers usually are worn for special occasions such as weddings. The flowers that women wear are referred to as corsages, and the flowers that men wear are called boutonnieres.

B. Motivation

Show students a plain un-wired flower. Pin it on yourself or one of the students. Ask if they think it looks attractive or is very easy to wear. Have a corsage made up and pin that on someone or yourself. Ask what the difference is between the two.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to list all the ways a corsage may be worn.

How is a corsage worn?

a) Left shoulder
   1) Curved slightly over the shoulder
   2) Usually worn upright
b) Wrist
c) Hair
d) Waist
e) Neck
f) Ankle
g) Carried
h) Pinned to a purse

2. Ask students if they know what the basic parts of a corsage are.

What are the basic parts of a corsage?

a) Flowers
b) Foliage
c) Filler
d) Wire
e) Tape
f) Bow

3. Ask students how to construct a corsage.

How are corsages constructed?

a) To construct a single-flower corsage:
   1) Prepare a flower by wiring and taping.
   2) Add filler to the back of the flower.
   3) Add foliage to the back of the filler.
   4) Tape all three together.
   5) Add a bow that has been tied off with wire, twisting this wire around the flower's wire.
   6) Cut off the excess wire, leaving 1½" to 2" of wire. Make sure the wires are taped.
   7) Shape the wire into the desired shape.
   8) Put a corsage pin in the corsage at an angle so that the pointed end is not exposed.
   9) Place the corsage in a bag or box.

b) To construct a two-flower corsage:

NOTE: Carnations or cymbidium orchids are usually used, so this is a larger corsage.
   1) Make two one-flower corsages, but leave the smaller of the two flowers with a longer, stronger stem.
   2) Place the smaller flower just above the other flower.
   3) Wrap and tape.
   4) Add a bow.
   5) Trim the stem to about 2". Shape the stem.
   6) Always include at least two corsage pins with this larger corsage.
   7) Place the corsage in a bag or box.

c) To construct a three-flower corsage:
   1) Wire and tape three flowers in graduating sizes.
   2) Place the bud the highest, the second largest flower right under it, and the largest flower slightly under this one.
   3) Tape filler behind each.
   4) Add foliage behind fillers.
   5) Tape all three together.
   6) Add a bow under the three flowers.
   7) Trim the stem to about 2". Shape the stem.
   8) Always include at least two corsage pins with this larger corsage.
   9) Place the corsage in a bag or box.

d) To construct a five-flower corsage:
   1) Make a three-flower corsage and a two-flower corsage
   2) Place the corsages together at the stem ends. Bend the stem of the two-flower corsage so that it will lay flat against the stem of the three-flower corsage. Wrap all the stems together, being sure not to leave too large a space between the two groups of flowers.
   3) Tie the bow with ribbon in between the two groups, eliminating the necessity of taping again.
   4) Trim the stem to about 2". Shape the stem.
   5) Always include at least two corsage pins with this larger corsage.
   6) Place the corsage in a bag or box.

4. Ask students what the differences are between a boutonniere and a corsage.

How is a boutonniere different from a corsage?

a) Boutonniere

1) Boutonnieres are worn by men on their lapels, usually close to the buttonhole. Roses or carnations are commonly used in single-flower boutonnieres.
2) Boutonnieres are smaller than corsages.
3) Pins used to hold boutonnieres have smaller heads and are shorter than corsage pins
4) Boutonnieres are generally composed of only one flower or a composite of several small ones.

b) Corsage
1) Corsages are worn by women, usually on the left shoulder.
2) They are usually larger than boutonnieres, with more flowers and a bow.

5. Ask students how to package a corsage.

How is a corsage packaged?

a) Cellophane (plastic) bag
1) Lightly mist the inside of the bag.
2) Place the flower so the seam of the bag is on the bottom.
3) Neatly fold the bag closed.
4) Insert a corsage pin to hold the bag closed or staple the bag.

b) Clear plastic box or cardboard box
1) Line the box with Easter grass or green waxed paper.
2) Close the lid securely.

F. Other Activities

G. Conclusion

Corsages and boutonnieres are often sold for special occasions. Florists must therefore be able to construct them both, as well as corsages consisting of different numbers of flowers. The proper packaging is also important to ensure that corsages and boutonnieres are in good condition for the customer.

H. Competency

Construct flowers to wear.

I. Answers to Evaluation

1. b
2. b
3. d
4. a
5. c

UNIT VI - TYPES OF DESIGNS

Name _____

Lesson 2: Corsages and Boutonnieres

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. The longer pin with the larger head is used to:

   a. Pin on a boutonniere.
   b. Pin on a corsage.
   c. Pin on boutonnieres and corsages.
   d. Close the corsage bag.

2. Which of the following is a difference between a corsage and a boutonniere?

   a. A corsage is worn by a woman or man.
   b. A corsage has a bow.
   c. A boutonniere has larger flowers.
   d. A boutonniere can be worn on the wrist.

3. Corsages can be packed in which of the following?

   a. Clear plastic boxes
   b. Cellophane bags
   c. Cardboard boxes
   d. All of the above

4. Where is a corsage usually worn?

   a. Left shoulder
   b. Right shoulder
   c. Left lapel
   d. Right lapel

5. Which of the following would NOT be good to use in a boutonniere?

   a. Flowers, filler, and tape
   b. Flowers, foliage, and wire
   c. Flowers, filler, and bow
   d. Flowers, foliage, and filler

JS 2.1: Constructing Corsages

Objective: Upon completion of this job sheet, students will be able to construct corsages.

Materials and Supplies Needed:

1. Flowers
2. Filler
3. Foliage
4. Wire
5. Ribbon
6. Florist tape
7. Ribbon scissors
8. Wire cutters
9. Floral knife

Procedure:

Single-flower corsage:

1. Prepare the flower by wiring and taping.
2. Add filler to the back of the flower.
3. Add foliage to the back of the filler.
4. Tape all three together (Figure 1.1). Remember to turn the flower with one hand while pulling the tape at a downward angle with the other hand.

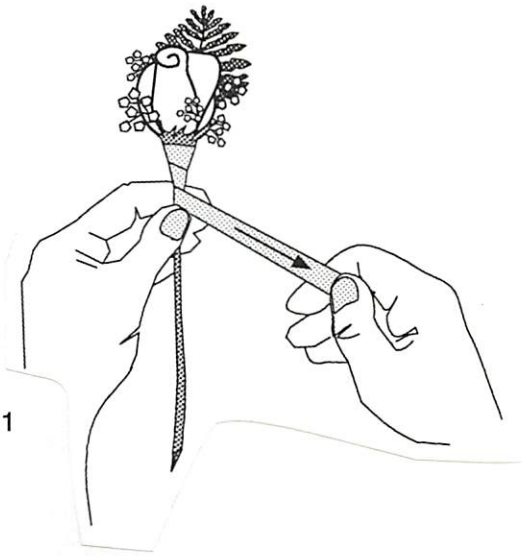

Figure 1.1

5. Add a bow that has been tied off with wire. Twist this wire around the wire of the flower.
6. Cut off excess wire, leaving 1½" to 2" of wire. Make sure the wires are taped.
7. Shape wire into the desired shape.
8. Put a corsage pin in the corsage at an angle so that the pointed end is not exposed.
9. Place the corsage in a bag or box.

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Two-flower corsage:

NOTE: Usually carnations or cymbidium orchids are used making this a larger corsage.

1. Make two one-flower corsages, but leave the smaller of the two flowers with a longer, stronger stem.

2. Place the smaller flower just above the other flower.

3. Wrap and tape (Figure 1.2).

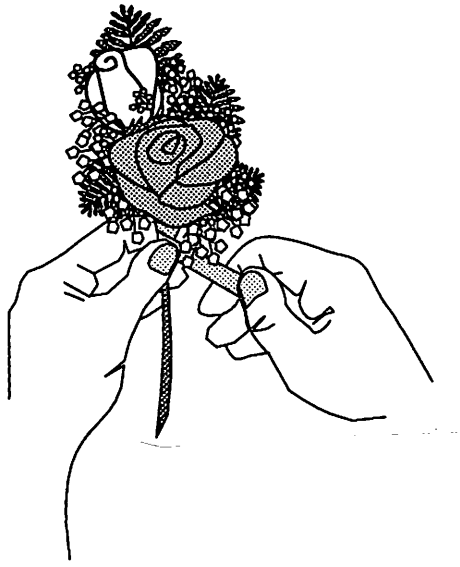

Figure 1.2

4. Add a bow (Figure 1.3).

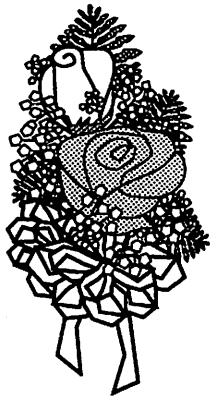

Figure 1.3

5. Always include at least two corsage pins with this larger corsage.

6. Place the corsage in a bag or box.

Three-flower corsage:

1. Wire and tape three flowers in graduating sizes.

2. Place the bud the highest, the second largest flower right under it, and the largest flower slightly under this one.

3. Tape filler behind each.

4. Add foliage behind filler.

5. Tape all three together (Figure 1.4).

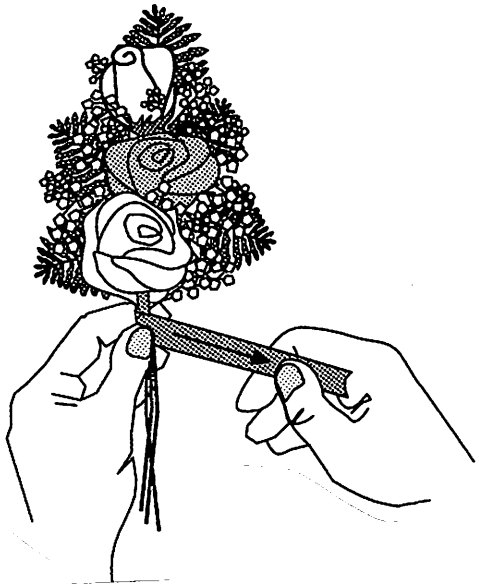

Figure 1.4

6. Add a bow under the three flowers (Figure 1.5).

Figure 1.5

7. Trim the stem to about 2". Shape the stem.

8. Always include at least two corsage pins with this larger corsage.

9. Put the corsage in a bag or box.

Five-flower corsage:

1. Make a three-flower corsage and a two-flower corsage.

2. Place the corsages together at the stem ends. Bend the stem of the two-flower corsage so that it will lay flat against the stem of the three-flower corsage. Wrap all the stems together, being sure not to leave too large a space between the two groups of flowers (Figure 1.6).

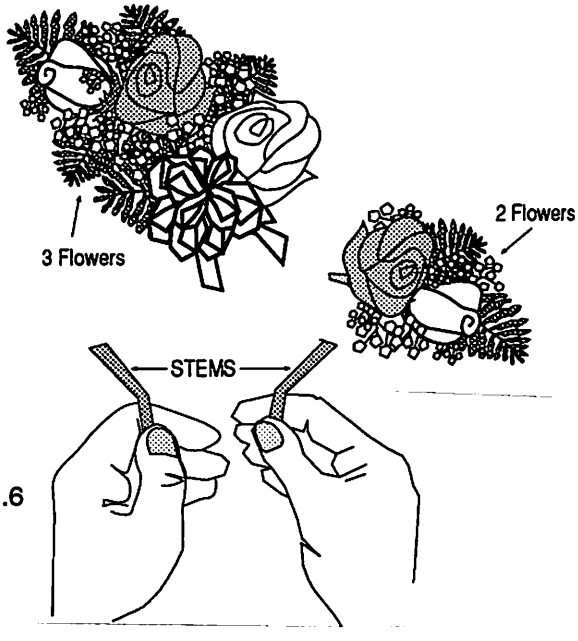

Figure 1.6

3. Tie the bow with ribbon in between the two groups, eliminating the necessity of taping again.

4. Trim the stem to about 2". Shape the stem (Figure 1.7).

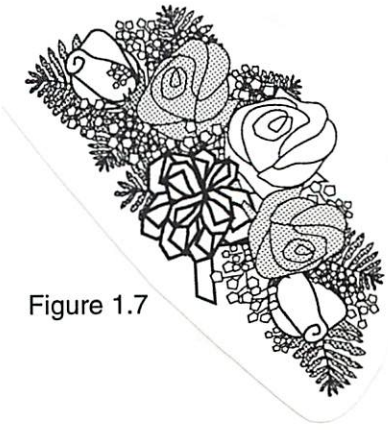

Figure 1.7

5. Always include at least two corsage pins with this larger corsage.

6. Put the corsage in a bag or box.

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Evaluation Criteria:

Points:

_____ Flowers are wired correctly

_____ Tape is pulled tight

_____ Flowers are taped halfway up the calyx

_____ Corsage is finished off with all wires covered by tape

_____ Ribbon is made correctly

_____ Ribbon is the right size for the corsage

_____ Foliage, filler, and accessories are in proportion to the size of the flowers

_____ Pin is placed in corsage correctly

_____ Corsage is bagged or boxed

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 3: Bud Vases

Objective: The student will be able to construct a bud vase.

Study Questions

1. **How is a bud vase constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

2. Job Sheet

   a) JS 3.1: Constructing a Bud Vase

UNIT VI - TYPES OF DESIGNS

Lesson 3: Bud Vases

TEACHING PROCEDURES

A. Review

Lesson 2 presented information on how to construct corsages. In this lesson, students will learn techniques used in constructing a bud vase. A bud vase is one of the major types of arrangements that florists produce. Bud vases are usually inexpensive and easy for customers to carry home. They are often given as gifts and used in hospital rooms, on offices desks, etc.

B. Motivation

Construct two bud vases, one with the flowers just stuck in and the other arranged. Show them to the students and ask which one they prefer.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how to make a bud vase.

How is a bud vase constructed?

a) Select a vase.
b) Fill the vase with water containing a preservative.
c) Place the major flowers to outline the basic shape of the arrangement.
d) Add foliage.
e) Add the filler flower.
f) Add a bow.

F. Other Activities

1. Ask a florist to visit and demonstrate some of the novelty bud vases (ex. chrysanthemum kitten).

2. Have students construct a bud vase for a specific holiday.

G. Conclusion

Since bud vases are frequently purchased by customers, florists need to know how to construct them in order to produce these very popular arrangements both quickly and efficiently.

H. Competency

Construct a bud vase.

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JS 3.1: Constructing a Bud Vase

Objective: Upon completion of this job sheet, the student will be able to construct a bud vase arrangement.

Materials and Equipment:

1. Bud vase
2. Water containing preservative
3. Flowers
4. Filler
5. Foliage
6. Ribbon
7. Ribbon scissors

Procedure:

1. Select a container. Make sure it is clean.

2. Fill it with water to which a preservative has been added.

3. Place the major flowers to establish the basic height. The height is generally 1½ to 2 times the height of the container (so the tallest flower in a standard eight-inch bud vase would be 16 inches tall). If using more than one flower, vary the height of the flowers so that they are evenly spaced out with the tallest. If using flowers of varying sizes, the largest should be placed at the bottom of the arrangement (Figure 1.1).

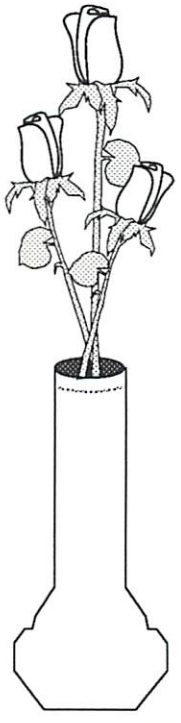

Figure 1.1

4. Add foliage, usually about three stems of leatherleaf. Other foliage can also be used with the leatherleaf or substituted for it. Use enough foliage stems to hold the flowers in place (Figure 1.2).

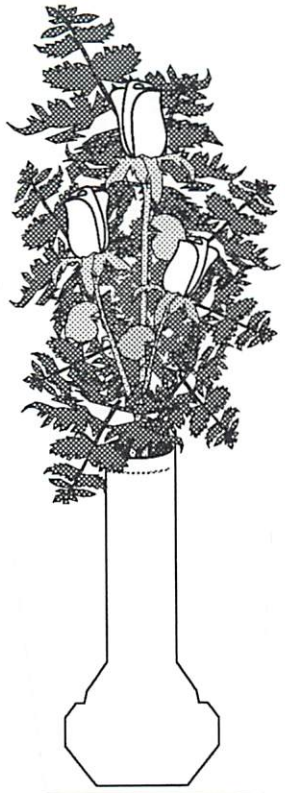

Figure 1.2

5. Add filler flowers if desired. Baby's breath is frequently used, but statice, latifolium, Queen Ann's lace, and other fillers also work well.

6. A bow may be added slightly above the edge of the base for an accent. A #3 ribbon is usually used. Wire it onto a wooden pick, a flower, or a foliage stem (Figure 1.3).

Figure 1.3

Evaluation Criteria:

Points

_____ Bud vase is clean

_____ Water with a preservative has been added

_____ Top flower is 1½ to 2 times the height of the container

_____ Flowers are evenly spaced out

_____ If different sized flowers are used, the smallest is the tallest and the largest is lowest

_____ Foliage frames the flowers and holds the flowers in place

_____ If filler is used, it does not overpower or dominate the bud vase

_____ If a bow is used, it is well constructed and complements flower color

_____ Bow is slightly above the lip of the vase

UNIT VI - TYPES OF DESIGNS

Lesson 4: One-sided Arrangements

Objective: The student will be able to construct a one-sided arrangement.

Study Questions

1. **How is a one-sided arrangement constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

2. Job Sheet

   a) JS 4.1: Constructing a One-sided Arrangement

UNIT VI - TYPES OF DESIGNS

Lesson 4: One-sided Arrangements

TEACHING PROCEDURES

A. Review

The last lesson described how a bud vase is constructed. This lesson will focus on the one-sided arrangement, which is used in places where it will not be viewed from all sides.

B. Motivation

Place a full arrangement where a one-sided arrangement should be placed. Ask students if they are dissatisfied with its placement.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how to construct a one-sided arrangement.

How is a one-sided arrangement constructed?

a) Choose the line or shape of the arrangement.
b) Select flowers, filler, and foliage.
c) Select a container.
d) Prepare the floral foam.
e) Establish the lines of the arrangement.
f) Fill in the lines.
g) Add the foliage and filler.
h) Finish off the back.
i) Refill the container with water and a preservative.

F. Other Activities

1. Have students draw designs of some one-sided arrangements and show the line movement of each design.

2. Have students collect pictures of one-sided arrangements and show the line movement of the designs.

G. Conclusion

Designers should be able to construct an attractive one-sided arrangement. Following the steps given above will allow them to do so efficiently.

H. Competency

Construct a one-sided arrangement.

JS 4.1: Constructing a One-sided Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a one-sided arrangement.

Materials and Equipment:

1. Container
2. Floral foam
3. Flowers, filler, and foliage
4. Waterproof tape, if needed
5. Wire, if needed
6. Floral shears or knife
7. Wire cutters, if needed

Procedure:

1. Choose the line or shape of the arrangement.
2. Select the flowers and foliage.
3. Select a container.
4. Prepare the floral foam and add water and preservative.
5. Establish the lines of the arrangement (Figure 1.1).

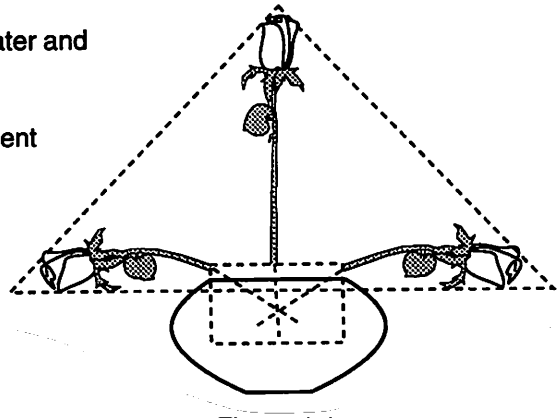

Figure 1.1

6. Fill in the lines (Figure 1.2).

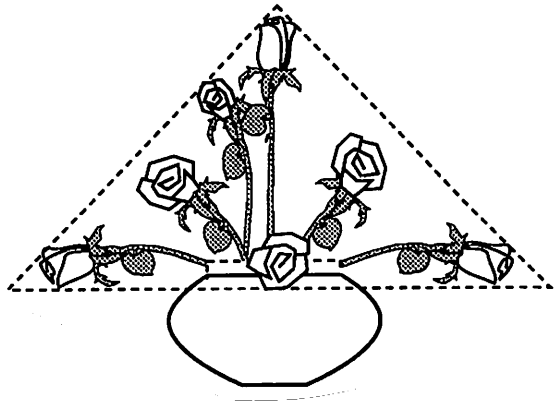

Figure 1.2

7. Add the foliage and filler (Figure 1.3).

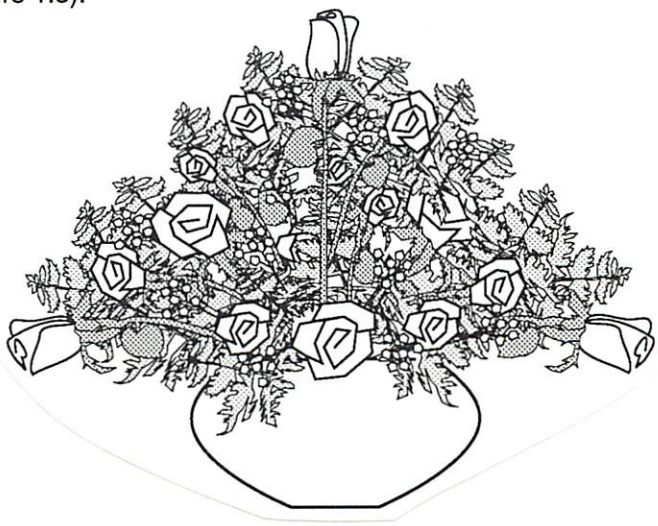

Figure 1.3

8. Finish off the back.

9. Refill the container with water mixed with a preservative.

Evaluation Criteria:

NOTE: Several steps may need to be checked off before the student can proceed to the next step.

Points:

_____ Container is clean

_____ Foam is soaked properly (allowed to soak up water without being pushed under the water)

_____ Foam is secured in the container

_____ Line is established

_____ Form of the arrangement is filled in

_____ Filler is added

- _____ Filler does not dominate
- _____ Filler is added evenly

_____ Foliage is added

- _____ Foliage complements the arrangement
- _____ Foliage covers the foam

_____ Design is balanced

_____ Back of the arrangement is finished

_____ Container is filled with water

_____ Preservative is used

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 5: Centerpieces

Objective: The student will be able to construct a centerpiece.

Study Questions

1. **How is a centerpiece constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

2. Job Sheet

   a) JS 5.1: Constructing a Centerpiece

UNIT VI - TYPES OF DESIGNS

Lesson 5: Centerpieces

TEACHING PROCEDURES

A. Review

The last lesson described the process of designing a single-sided arrangement. Many of the same steps will be used to construct a centerpiece.

B. Motivation

Have students sit around a table. Place a large, tall arrangement in the center. Ask if they think this arrangement would be a good centerpiece.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how a centerpiece is constructed.

How is a centerpiece constructed?

a) Choose the line or shape of the arrangement.
b) Select flowers, filler, and foliage.
c) Select a container; it is generally a low, flat container.
d) Prepare the floral foam.
e) Establish the lines of the arrangement.
    1) A centerpiece to be used on a dining room table should be low enough to see over when seated. The center flower is usually no taller than 12 to 14 inches.
    2) All stems should appear to emerge from the same central point.
    3) Insert a flower on each end to establish length. Length is determined by the length of the table; it is usually one-third the length of the table.
    4) Insert two flowers on the other two sides to establish width.
    5) Insert four more flowers diagonally in each of the corners. The flowers should be longer than those that establish width, but shorter than those used to establish height and length.
f) Fill in the lines.
g) Add the foliage and filler. Some designers add the foliage before inserting the flowers.
h) Refill the container with water mixed with a preservative.

F. Other Activities

1. Collect pictures of centerpieces. Arrange them by occasion or holiday.

2. Have the class construct centerpieces for a school banquet, possibly the FFA Parent-Member Banquet.

G. Conclusion

Designers should be able to construct centerpieces that are attractive from any angle, since they will be viewed from all sides. To create centerpieces efficiently, follow the steps above.

H. Competency

Construct a centerpiece.

I. Answers to Evaluation

1. c
2. a
3. d
4. a

Name _____

Lesson 5: Centerpieces

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. The center flower in a centerpiece is usually no taller than:

   a. 6" to 8".
   b. 8" to 10".
   c. 12" to 14".
   d. 16" to 18".

2. What is the first step in constructing a centerpiece?

   a. Choosing the line or shape of the arrangement
   b. Establishing the lines of the arrangement
   c. Selecting the flowers, foliage, and filler
   d. Selecting the container

3. The length of the arrangement is in proportion to what?

   a. The height of the arrangement
   b. The cost of the arrangement
   c. The width of the table
   d. The length of the table

4. If the foliage is not added after the lines are filled in, when is it most likely added?

   a. Before the flowers
   b. After the filler
   c. When each flower is added
   d. When the foam is prepared

JS 5.1: Constructing a Centerpiece

Objective: Upon completion of this job sheet, the student will be able to construct a centerpiece.

Materials and Equipment:

1. Container
2. Floral foam
3. Flowers, filler, and foliage
4. Waterproof tape, if needed
5. Wire, if needed
6. Floral shears or knife
7. Wire cutters, if needed

Procedure:

1. Choose the line or shape of the arrangement.
2. Select flowers, filler, and foliage.
3. Select a container.
4. Prepare the floral foam.
5. Add water mixed with preservative to the container.
6. Establish the lines.
   a. Insert the main or center flower to establish the height.
   b. Insert two flowers at the furthest lengths (Figure 1.1).

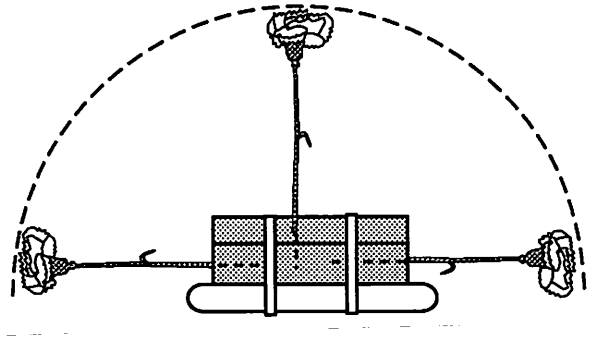

Figure 1.1

   c. Insert two flowers on the other two sides to establish width.
   d. Join the lower flowers to the center flower by inserting four more flowers diagonally in each of the opposite corners. Make them shorter than the vertical and horizontal flowers (Figure 1.2).

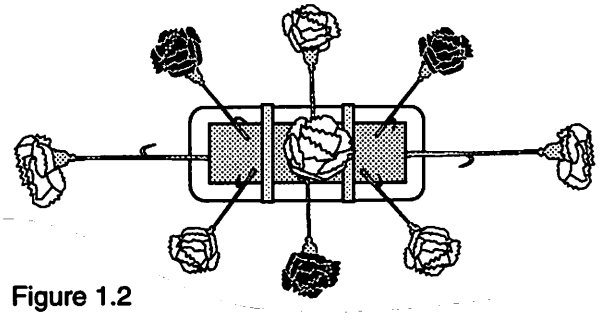

Figure 1.2

7. Fill in the lines (Figure 1.3).

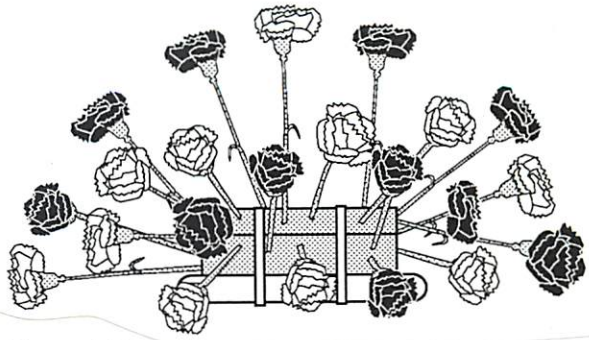

Figure 1.3

8. Add the foliage and filler (Figure 1.4).

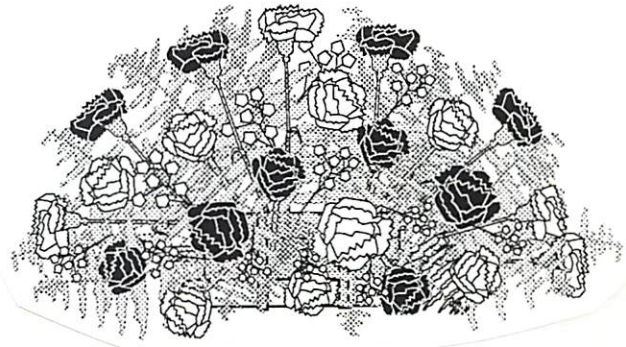

Figure 1.4

9. Refill the container with water and a preservative.

Evaluation Criteria:

NOTE: Several steps may need to be checked off before the student can proceed to the next step.

Points:

_____ Container is clean

_____ Foam is soaked properly by floating

_____ Foam is secured in the container

_____ Line is established

_____ Form of the arrangement is filled in

_____ Filler is added

- _____ Filler does not dominate
- _____ Filler is added evenly

_____ Foliage is added

- _____ Foliage complements the arrangement
- _____ Foliage covers the foam

_____ Design is balanced

_____ Container is filled with water

_____ Preservative is used

_____ Arrangement can be seen over when the viewer is seated at a table

_____ Arrangement is in scale with the table it is to decorate

_____ View of the arrangement is attractive from all sides

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 6: Wreaths

Objective: The student will be able to identify the uses of wreaths and construct a wreath using evergreens.

Study Questions

1. **What types of base materials can be used to construct a fresh green wreath?**

2. **What tips or pointers make constructing and decorating a wreath easier?**

3. **How is a wreath using evergreens in a Styrofoam™ or straw wreath base constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

2. Job Sheet

   a) JS 6.1: Constructing a Wreath Using Evergreens in a Styrofoam™ or Straw Wreath Base

UNIT VI - TYPES OF DESIGNS

Lesson 6: Wreaths

TEACHING PROCEDURES

A. Review

Lesson 5 provided information on how to construct a centerpiece. This lesson will focus on constructing wreaths.

B. Motivation

Display a finished evergreen wreath. Ask students where such a design might be displayed.

C. Assignment

D. Supervised Study

E. Discussion

NOTE: Fresh greens should not be stored in a flower cooler with fresh flowers. Greens emit ethylene gas, which causes fresh flowers to age and die. If a separate cooler is not available, store greens in a cool room. Wholesalers sell evergreens several ways. Branches that are 20 to 30 inches long are called boughs. Tips are shorter end pieces.

NOTE: Use floor wax diluted with water and Crowning Glory® as a seal when working with evergreens.

1. Ask students what types of base materials can be used to make an evergreen wreath.

What types of base materials can be used to construct a fresh green wreath?

a) Purchasing an undecorated green wreath and decorating it
b) Picking greens onto a Styrofoam™ or straw wreath frame
c) Wiring pieces of greens onto a wire frame
d) Using a hillman wreath frame and bending the prongs around the greens
e) Using a grapevine wreath and filling it in with fresh greens

2. Ask students if they have tried to decorate a wreath. Discuss the tips for making wreaths and pointers for decorating wreaths.

What tips or pointers make constructing and decorating a wreath easier?

a) Tips for making wreaths:
   1) It is best to start the greens at one point and from there work in one direction. If using a crescent accent, begin the design in the center and work outward in each direction.
   2) Set the wreath up or secure it to an easel when working on it to give a better perspective on the wreath.
   3) If using silks or other artificial materials, dip the stems into glue before sticking them into the wreath frame.

b) Pointers for decorating wreaths:
   1) The focal point is usually the bow. Gather the major decorations around it.
   2) If using a large decoration, such as a stuffed animal, place it at the bow and secure it firmly.
   3) If using other smaller decorations, it is better to keep them together than to scatter them.
   4) To attract further interest, try looping the ribbon around the wreath.

3. Ask students what the technique for constructing a wreath is.

How is a wreath using evergreens in a Styrofoam™ or straw wreath base constructed?

a) Cut the evergreens into six to eight inch lengths.
b) Gather several pieces together (usually three).
c) Anchor them into the wreath frame using greening pins.
d) Continue until the wreath frame is covered, being sure to the overlap the greens to hide the pins and the wreath frame.
e) Cut off sprigs if they stick out or are too long.
f) Make a bow using #40 ribbon.
g) Tie off the ribbon with heavy wire (about #18).
h) Wire the ribbon into the wreath with the wire coming out the back so that it can be twisted into a hook for hanging. If the ribbon is off center, use another piece of wire for the hook.
i) Wire or glue decorations onto the wreath. If the decorations are heavy, be sure to wire them on. Lighter decorations can be glued.

F. Other Activities

1. Construct wreaths using fresh greens on a grapevine wreath.

2. Visit a local florist and/or wholesaler to see what holiday materials they have and how they are used.

3. Have students learn and identify some of the more popular evergreens used for the holidays.

G. Conclusion

Wreaths are popular decorations purchased throughout the year, although they are especially in demand at Christmas. In order to meet this demand, the florist needs to know what materials can be used for making wreaths as well as how to construct and decorate them.

H. Competency

Construct an evergreen wreath.

I. Answers to Evaluation

1. d
2. b
3. d
4. a
5. c
6. b

UNIT VI - TYPES OF DESIGNS

Name _____

Lesson 6: Wreaths

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following are good bases for an evergreen wreath?

   a. Hillman wreath and plastic wreath
   b. Cloth wreath and hillman wreath
   c. Straw wreath and cloth wreath
   d. Straw wreath and grapevine wreath

2. To what length should the evergreen pieces be cut before they are inserted into the base wreath?

   a. Four to six inches
   b. Six to eight inches
   c. Eight to ten inches
   d. Ten to twelve inches

3. Which one of the following is not a base material used to construct a wreath?

   a. Hillman wreath frame
   b. Grapevine wreath frame
   c. Straw wreath frame
   d. Floral foam wreath frame

4. Why is it important to overlap the greens once they are inserted into the base wreath?

   a. Overlapping covers up the greening pins.
   b. Overlapping makes a bushier wreath.
   c. Overlapping prevents the greens from falling out.
   d. Overlapping is not necessary.

5. Where should major decorations be placed on the wreath?

   a. Place them on the inside of the wreath.
   b. Place them around the entire wreath.
   c. Place them around the bow.
   d. Place them opposite the bow.

6. To give proper perspective, where should the wreath be placed during construction?

   a. On the wall or door
   b. On an easel or standing on edge
   c. On the work table or door
   d. In the cooler

JS 6.1: Constructing a Wreath Using Evergreens in a Styrofoam™ or Straw Wreath Base

Objective: Upon completion of this job sheet, the student will be able to construct a wreath using evergreens in a Styrofoam™ or straw wreath base.

Materials and Equipment:

1. Styrofoam™ or straw wreath frame
2. Evergreens
3. Greening pins (#20 gauge wire cut into two-inch pieces and bent in a hairpin shape can be used instead)
4. Ribbon (#40)
5. Various decorations for the wreath
6. Floral knife or shears
7. Ribbon scissors

Procedure:

1. Cut the evergreens into six to eight inch lengths.

2. Gather several pieces together (usually three).

3. Anchor the pieces firmly into the wreath frame with the greening pins (Figure 1.1).

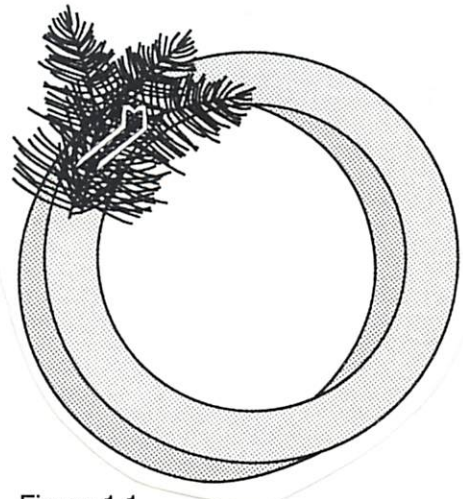

Figure 1.1

4. Continue until the wreath frame is covered, being sure to overlap the greens. Pin each successive bunch of greens so that they cover the pin from the previous bunch. Moving in one direction, continue around the frame until you have covered the entire wreath frame. No holes or gaps should be visible.

5. If some sprigs are too long and stick out, trim them after the wreath is completed.

6. Make a bow using #40 ribbon.

7. Tie off the ribbon with heavy wire (about #18).

8. Wire the ribbon into the wreath with the wire coming out the back so that it can be twisted into a hook for hanging (Figure 1.2). If the ribbon is to be off center, then use another piece of wire for the hook.

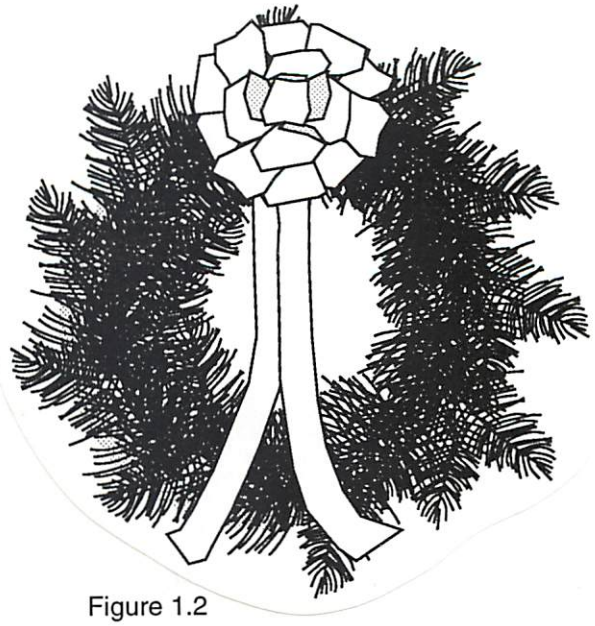

Figure 1.2

9. Wire or glue decorations onto the wreath.

Evaluation Criteria:

Points:

_____ Greens are firmly attached to base

_____ Base or wreath frame is completely covered

_____ Mechanics of attaching greens are not visible

_____ Sprigs are trimmed if necessary

_____ Bow is an appropriate size for the wreath

_____ Bow is attached firmly

_____ Decorations are attached firmly

_____ Decorations complement the design rather than detract from it

_____ Wreath has a focal point

_____ Hanger added to the back of the wreath

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 7: Silk Arrangements

Objective: The student will be able to construct a silk arrangement.

Study Questions

1. **What are the differences in using silk and fresh flowers?**

2. **What arranging tips make constructing silk arrangements easier and better?**

3. **How is a silk arrangement constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

2. Job Sheet

   a) JS 7.1: Constructing a Silk Arrangement

UNIT VI - TYPES OF DESIGNS

Lesson 7: Silk Arrangements

TEACHING PROCEDURES

A. Review

Many of the techniques used for constructing arrangements that were discussed in earlier lessons are used in constructing silk arrangements.

B. Motivation

Show the students a finished silk arrangement. Ask how it differs from a fresh arrangement.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what differs when constructing a silk arrangement and a fresh arrangement.

What are some of the differences in using silk and fresh flowers?

Silk arrangements are constructed in much the same way as fresh arrangements except for a few basic differences.

a) Silk flowers must be prepared or bent into shape.
b) Silk flowers are available in a wider variety of colors. Some silk flowers do not have a counterpart in nature.
c) Silk flowers are available all year.
d) The stems of silk flowers can be lengthened by wiring if they are too short.
e) The stems of silk flowers are made of wire, so they can be bent into different shapes.
f) A wire cutter should be used to cut the stems of silk flowers.

NOTE: There are two different kinds of silk flowers.

1) Molded, plastic-stemmed flowers - The flowers are made from polyester with petals heat molded in a die. The stems are wires that have been covered with plastic. This type of flower usually does not cost as much as hand-wrapped silk. They are usually sold by the dozen.

2) Hand-wrapped flowers - The petals are cut at a slant and then wired to a wire stem that has been hand-wrapped with floral tape. Because they are more labor intensive, they cost more. They are generally sold individually.

2. Ask students if they have made silk arrangements before and whether they had trouble when constructing them. Point out that the following tips make construction easier and better.

What arranging tips make constructing silk arrangements easier and better?

a) The construction of the arrangement needs to be very good since the design will be created to last a long time.
b) Stems should be glued into place while constructing the arrangement.
c) Cover the foam with sheet moss or Spanish moss.
d) If sheet moss is used, wet it, and it will conform to the side of the dry floral foam.
e) Do NOT glue sheet moss to the foam because doing so will make it difficult or even impossible to stick the stems through the glue.
f) Multiple-stem silk flowers usually include flowers at all stages of development. Cut these into pieces.
g) Silk bushes can be economical because they have a lot of foliage as well as flowers. Silk bushes should also be cut apart.
h) Save any unused greenery and stems for future arrangements.
i) If a stem is not stiff enough to pierce the foam, use a pick machine to put a pointed steel pick on the end of it.

3. Ask students how a silk arrangement is constructed.

How is a silk arrangement constructed?

a) Choose the basic shape the arrangement will take.
b) Choose the colors and flowers to use.
c) Select a container that will complement the flowers and their surroundings.
d) Assemble the tools and materials to be used.
    1) Dry foam or Styrofoam™
    2) Container and anchoring device
    3) Flowers and foliage
    4) Sheet moss or Spanish moss and fern pins or greening pins
    5) Wire cutters
    6) Pan melt glue, melted
e) Anchor the holding device in the container.
f) Cover the holding device with moss.
g) Dip the ends of the flowers in pan melt glue before inserting them into the foam.
h) Arrange the flowers in the desired shape.

F. Other Activities

Visit a wholesaler or craft store that has a large variety of silk flowers. Look at the different kinds and colors of flowers.

G. Conclusion

Silk or permanent flowers are an excellent addition to a flower shop. They fill specific needs for customers. Designers should know the differences in arranging fresh and silk flowers and be able to construct silk arrangements that will fill their customers' needs.

H. Competency

Construct a silk arrangement.

I. Answers to Evaluation

1. c
2. d
3. a
4. a
5. b
6. a
7. a
8. b
9. a

UNIT VI - TYPES OF DESIGNS

Name _____

Lesson 7: Silk Arrangements

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. To cut the stems on silk flowers, use:

   a. Ribbon scissors.
   b. Floral shears.
   c. Wire cutters.
   d. A floral knife.

2. How are silk flowers prepared for arranging?

   a. Wash and dry them.
   b. Spray them with spray starch.
   c. Dip them into a preservative.
   d. Bend them into their natural shapes.

3. How should the foam be prepared for a silk arrangement?

   a. Anchor the foam to the container by wedging or gluing it in the container.
   b. Wet the foam once it is in the container so that sheet moss will stick to it.
   c. Glue sheet moss to the foam to make sure it does not come off.
   d. Foam preparation is not needed since the foam comes with the container.

Mark "a" if the statement is true for silk flower arrangements or "b" for fresh flowers arrangements.

4. ____ Available in a wider variety of colors and types
5. ____ Use foliage to hide the foam
6. ____ Made to last a very long time
7. ____ Stems of flowers should be glued into place
8. ____ Stems of flowers cannot usually be bent into desired shapes
9. ____ Wire can increase stem lengths

a. Silk arrangement

b. Fresh arrangement

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JS 7.1: Constructing a Silk Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a silk arrangement.

Materials and Equipment:

1. Dry foam or Styrofoam™
2. Container
3. Silk flowers and silk foliage
4. Sheet moss or Spanish moss
5. Fern or greening pins
6. Wire cutters
7. Pan melt glue, melted
8. Wire and florist tape, if needed

Procedure:

1. Choose the basic shape the arrangement will take.
2. Choose the colors and flowers to use.
3. Select a container that will complement the flowers and their surroundings.
4. Assemble the tools and materials to be used.
5. Anchor the holding device in container.
6. Cover the holding device with moss.
7. Dip the ends of the flowers in pan glue before inserting them into the foam.
8. Arrange the flowers in the desired shape.

Evaluation Criteria:

Points:

_____ Container is clean

_____ Container complements and is in scale with the flowers

_____ Foam is secured in the container

_____ Dry foam or Styrofoam™ is covered with sheet moss or Spanish moss

_____ Flower ends have been dipped in pan glue before insertion

_____ Line is established

_____ Form of the arrangement is filled in

_____ Filler is added

- _____ Filler does not dominate
- _____ Filler is added evenly

_____ Foliage is added

- _____ Foliage complements the arrangement

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 8: Dried Arrangements

Objective: The student will be able to construct a dried arrangement.

Study Questions

1. **What are the different techniques for preserving fresh flowers and foliage?**
2. **How is it different to arrange with dried flowers as opposed to silk or fresh flowers?**
3. **How are dried arrangements constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
   a) JS 8.1: Constructing a Dried Flower Arrangement

UNIT VI - TYPES OF DESIGNS

Lesson 8: Dried Arrangements

TEACHING PROCEDURES

A. Review

Lesson 7 presented information on arranging with silk flowers and how that differs from fresh flowers. This lesson will address how arranging with dried flowers differs from both fresh and silk flowers as well as provide information about various drying techniques.

B. Motivation

Show students a dried arrangement in comparison to a silk one and ask what the differences are.

C. Assignment

D. Supervised Study

E. Discussion

NOTE: The word "preservative" is used with two different meanings in the area of floristry. Chemicals that are used to extend the life of fresh cut flowers by several days are called preservatives. However, these chemicals do not totally inhibit the natural aging process of plant materials. Flowers held in preservative solutions will eventually fade and die. On the other hand, "preserving" fresh flowers refers to several different processes that attempt to "permatize" a flower or a leaf. The process usually does not retain all the characteristics of the fresh plant material, but the resulting plant parts may be used in novel ways for flower arranging and presentation.

1. Ask the students how fresh flowers can be preserved.

What are the different techniques for preserving fresh flowers and foliage?

a) Drying
   1) Air drying
   2) Silica gel - flowers are buried in material for drying
b) Glycerinizing - uses one part glycerin to two parts water to preserve foliage
   NOTE: Ethylene glycol (antifreeze) is an excellent substitute for glycerin. However, it is poisonous if swallowed, so precautions should be taken.
c) Skeletonizing - uses boric acid to remove "flesh" from leaves
d) Pressing

2. Ask students what factors must be considered when arranging with dried flowers.

How is it different to arrange with dried flowers as opposed to silk or fresh flowers?

a) Dried flowers are often on their own dried stems. These stems are more brittle and less permanent than those of silk flowers.
b) Some dried flower stems may be very weak as well as brittle. To arrange these flowers, it may be necessary to use a pick machine and attach metal picks to the stems. Several flowers are usually grouped together when a pick is used.
c) A softer dry foam is available for the easier insertion of dried stems.

d) As with silk arrangements, cover the foam with sheet moss or Spanish moss.
e) Stem lengths can be increased by adding wire or taping picks.
f) Because dried flowers are often on their own dried stems, the stems are not able to bend.
g) Most dried flowers are lightweight, so it may be necessary to use a heavy container or to add weight to a lightweight container such as a basket.

3. Ask the students if they know how to arrange dried flowers.

How are dried arrangements constructed?

a) Choose the desired shape for the arrangement.
b) Choose the color and type of flowers, as well as the other material to be used.
c) Select the container that complements the selected arranging material.
d) Assemble the tools and materials that will be used.
    1) Dry foam or Styrofoam™
    2) Container and anchoring device
    3) Dried flowers and other material
    4) Sheet moss or Spanish moss
    5) Fern or greening pins
    6) Wooden or metal picks
    7) Melted pan melt glue
e) Anchor the holding device in the container.
f) Cover the foam with moss.
g) Arrange the flowers in the desired shape.
h) Dip the stem of each flower into the glue and insert the stems into the foam, arranging the flowers.

F. Other Activities

Dry flowers by using all the different methods described.

G. Conclusion

Arranging with flowers that have been preserved is quite similar to arranging with fresh or silk flowers, with a few exceptions. The most notable exception is that the stems of dried flowers are brittle and cannot bend.

H. Competency

Construct a dried arrangement.

I. Answers to Evaluation

1. b
2. b
3. d
4. a
5. d

Name _____

Lesson 8: Dried Arrangements

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is a good drying agent used to preserve flowers?

   a. Ammonium nitrate
   b. Silica gel
   c. Rubbing alcohol
   d. Glycerin

2. How many parts of water should be mixed with one part of glycerin to glycernize foliage?

   a. 1
   b. 2
   c. 4
   d. none

3. If stems are very brittle, what should be done to support them?

   a. Attach wire to the end of the stem.
   b. Attach wire around the length of the stem.
   c. Attach a wooden pick with a pick machine.
   d. Attach a metal pick with the pick machine.

4. Since dried flowers are lightweight, what special considerations should the container receive?

   a. It should be heavier, or a weight should be added.
   b. It should be made of plastic so it will hold the arrangement down.
   c. It should be filled with marbles to keep it down.
   d. No special considerations are needed.

5. What should be used to cover the foam in dried arrangement?

   a. Dried flowers
   b. Dried foliage or silk foliage
   c. Dried foliage or sheet moss
   d. Sheet moss or Spanish moss

JS 8.1: Constructing a Dried Flower Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a dried flower arrangement.

Materials and Equipment:

1. Dry foam or Styrofoam™
2. Container and anchoring device
3. Dried flowers and other material
4. Sheet moss or Spanish moss
5. Fern or greening pins
6. Wooden or metal picks
7. Melted pan melt glue

Procedure:

1. Choose the desired shape for the arrangement.
2. Choose the colors, dried flowers, and material to be used.
3. Select a container that complements the selected arranging material.
4. Assemble the tools and materials that will be used.
5. Anchor the holding device in the container.
6. Cover the foam with moss.
7. Plan the arrangement.
8. Dip the stem of each flower into the glue and insert it into the foam, arranging the flowers in the desired shape.

Evaluation Criteria:

Points:

_____ Container is clean

_____ Dry foam or Styrofoam™ is used

_____ Foam is secured in the container

_____ Foam is covered with sheet moss or Spanish moss

_____ Line is established

_____ Form of the arrangement is filled in

_____ Filler is added

- _____ Filler does not dominate
- _____ Filler is added evenly

_____ Preserved foliage is added

- _____ Foliage complements the arrangement

_____ Design is balanced

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 9: Dish Gardens

Objective: The student will be able to construct a dish garden.

Study Questions

1. **What factors should be considered when selecting plants for a dish garden?**
2. **What are the components of a dish garden?**
3. **How is a dish garden constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
   a) JS 9.1: Constructing a Dish Garden

UNIT VI - TYPES OF DESIGNS

Lesson 9: Dish Gardens

TEACHING PROCEDURES

A. Review

Lesson 8 presented information on constructing a dried arrangement. This lesson will focus on constructing a dish garden.

B. Motivation

Display a finished dish garden.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what factors need to be considered when selecting plants for a dish garden.

What factors should be considered when selecting plants for a dish garden?

Several factors need to be considered when determining the compatibility of the plants.

a) Cultural requirements
   1) Light requirements
   2) Water needs
   3) Temperature
b) Height
c) Rate of growth
d) Form
e) Color
f) Texture

2. Ask students what components are needed to construct a dish garden.

What are the components of a dish garden?

a) Appropriate container
b) Gravel or pebbles
c) Sterile medium
d) Plants
e) Sheet moss
f) Plant Shine®
g) Accessories or decorations

3. Ask students how to construct a dish garden.

How is a dish garden constructed?

a) Select an appropriately sized container, usually four to six inches deep.
b) Make sure the container is clean.
c) Cover the bottom of the container with gravel or pebbles.
d) Fill the container halfway with a sterilized medium.
e) Remove the plants from their pots.
f) Following the principles of design, place taller plants toward the back of the dish, shorter ones in front. Make sure there is soil in and around the roots of the plants.
g) If necessary to cover all the plant roots, fill the container almost to the top with more of the medium.
h) Press the soil firmly around the plants.
i) Water the plants, being careful not to over water them.
j) Cover the medium with sheet moss.
k) Clean the plant leaves with a commercial cleaner (such as Plant Shine®) or a damp cloth.
l) Fresh flowers can be placed in water picks and added to the dish garden. Silk flowers can be stuck directly into the soil. A seasonal accessory, like a holiday pick or a bow, can also be added.

F. Other Activities

Have the students construct a dish garden.

G. Conclusion

Selecting the proper plants and constructing a dish garden are skills that a floral shop employee must master.

H. Competency

Construct a dish garden.

I. Answers to Evaluation

1. c
2. b
3. d
4. b
5. c
6. a

UNIT VI - TYPES OF DESIGNS

Name _____

Lesson 9: Dish Gardens

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. A dish garden is:

   a. A dish carried into the garden.
   b. A dish with a fresh foliage arrangement.
   c. A container planted with multiples of live green plants.
   d. A dish that is used under potted plants.

2. What can cause plants to die in a dish garden?

   a. Proper drainage
   b. Over watering
   c. Sufficient water
   d. All of the above

3. Which of the following accessories can be added to a dish garden?

   a. Holiday picks
   b. Bows
   c. Fresh flowers
   d. All of the above

4. Following the principles of design, where should tall plants be placed in the design?

   a. Anywhere
   b. In the back
   c. In the front
   d. On both sides

5. The purpose of adding sheet moss to a dish garden is to:

   a. Keep insect populations low.
   b. Act as a mulch so it never needs water.
   c. Cover the soil to look like grass.
   d. Do nothing, so it should not be used.

6. Why is it important that the growing medium be sterile?

   a. So that it is free of diseases and weed seeds
   b. So that the rate of growth for the plant is consistent
   c. To keep it from drying out
   d. To protect plants from over watering

JS 9.1: Constructing a Dish Garden

Objective: Upon completion of this job sheet, the student will be able to construct a dish garden.

Materials and Equipment:

1. Appropriate container
2. Gravel or pebbles
3. Sterile medium (preferably soilless)
4. Plants
5. Sheet moss
6. Plant Shine®
7. Accessories or decorations

Procedure:

1. Select an appropriately sized container, usually four to six inches deep.
2. Make sure the container is clean.
3. Cover the bottom of the container with gravel or pebbles.
4. Fill the container halfway with a sterilized medium.
5. Remove the plants from their pots.
6. Following the principles of design, place the taller plants toward the back of the dish, and the shorter ones in front. Make sure there is soil in and around the roots of the plants (Figure 1.1).

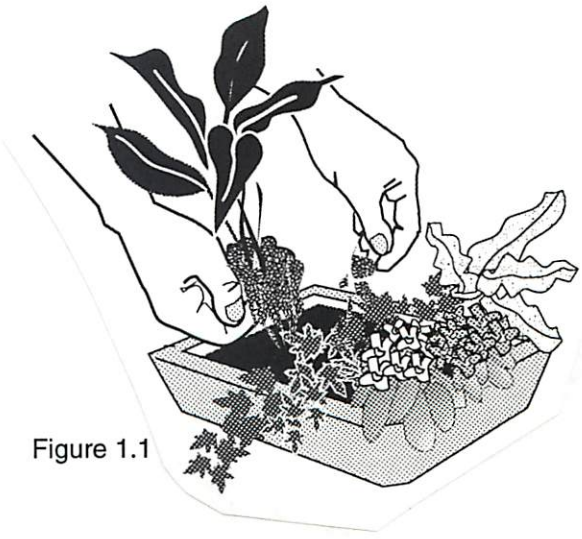

Figure 1.1

7. If necessary to cover all the plant roots, fill the container almost to the top with more medium.
8. Press the medium firmly around the plants.

9. Water the plants, being careful not to over water them.

10. Cover the medium with sheet moss.

11. Clean the plant leaves with a commercial cleaner (such as Plant Shine®) or a damp cloth.

12. Fresh flowers may be placed in water picks and added to the dish garden. Silk flowers may be stuck directly into the soil. A seasonal accessory, like a holiday pick or a bow, may also be added (Figure 1.2).

Figure 1.2

Evaluation Criteria:

Points:

_____ Low, shallow container is used

_____ Container is clean

_____ Bottom of the container is covered with gravel or pebbles

_____ Container contains an appropriate level of sterilized medium (half full or roots of plants covered)

_____ Taller plants are in back with the shorter ones in front

_____ Like plants are grouped together (e.g. all succulents)

_____ Soil is firmed around plants

_____ Plants are watered, but not drowning

_____ Sterile medium is covered with sheet moss

_____ Plant leaves are cleaned

_____ Suitable accessories are added if necessary

_____ Total Points

UNIT VII - SHOP OPERATIONS

Lesson 1: Sales Transactions

Objective: The student will be able to demonstrate sales transactions.

Study Questions

1. **What are the steps in a sales transaction?**
2. **What are florist wire services and how do they operate?**
3. **How are wire service orders sent and received?**
4. **How should customer complaints be handled?**
5. **What is proper telephone etiquette?**
6. **What information should be obtained and recorded on a sales ticket for telephone or direct orders?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
   a. AS 1.1: Completing a Sales Slip

UNIT VII - SHOP OPERATIONS

Lesson 1: Sales Transactions

TEACHING PROCEDURES

C. Introduction

Being a successful salesperson requires skill and a knowledge of sales and procedures. If a florist's employees are not able to handle customers successfully, they will not be successful on the job. In *Secrets of a Winning Personality*, the author writes that if a person is friendly, other people feel wanted and appreciated. To have a winning personality—and be a good salesperson—you must first really like people. A good salesperson LISTENS to the customers and is truly interested in them and what they want.

D. Motivation

Ask students to recall times when they have been irritated with sales clerks in a retail store. Also ask them to recall when they have been pleased with sales clerks.

E. Assignment

F. Supervised Study

G. Discussion

1. Ask students to list what the steps in a successful sales transaction are.

What are the steps in a sales transaction?

a) Greet customers
b) Ask questions
c) Determine needs
d) Make suggestions
e) Overcome objections
f) Close

2. Ask students to describe how they would send flowers to a friend or relative in a distant city.

What are florist wire services and how do they operate?

a) Originally, the first wire service, Florist Transworld Delivery, used wires or telegraphs to send orders to member florists.
b) Today, all orders are sent via telephone, computer, or fax machine.
c) Popular wire services
    1) Florist Transworld Delivery (FTD)
    2) American Floral Services (AFS)
    3) Redbook
    4) Telefloral
    5) Florifax International
    6) Carik Services, Inc.

3. Ask students how wire service orders are sent and received.

How are wire services orders sent and received?

If an order is received through a wire service, be sure to include the sending shop's wire service number in the order. When a wire service order is sent from the shop, include the name, address, telephone number, and wire service number of the receiving shop.

4. Handling customer complaints is sometimes a difficult task, but one which an employee must be able to tactfully and successfully do. Ask students how an employee should handle any complaints a customer might have.

How should customer complaints be handled?

a) Employees should follow shop policy for handling complaints.
b) They should listen to the customer's entire story without interrupting and then repeat the major points to show that they have been listening.
c) An employee receiving a complaint should remain calm, using relaxed body language and a calm tone of voice.
d) Employees should not make excuses or minimize the problem; they should try to assure the customer that they will find the cause of the problem and keep it from happening again.
e) Employees should never argue with customers.
f) The goal when dealing with customer complaints is to always resolve the problem as positively as possible.
g) If an employee finds that he or she is not able to handle the complaint, the employee should always ask the manager to step in and handle it.

5. Ask students what good telephone etiquette is.

What is proper telephone etiquette?

a) Keep an order form by the telephone.
b) Make sure a pen and pencil are also by the telephone.
c) Answer the phone promptly, stating the name of the shop and your name.
d) Speak clearly and distinctly.
e) Get the customer's name.
f) Use a friendly voice.
g) Do not keep the customer waiting on the line.
h) Do not eat, chew gum, or drink while talking on the telephone.

6. Ask students what information should be recorded when filling out a sales ticket for an order taken over the telephone or in person.

What information should be obtained and recorded on a sales ticket for telephone or direct orders?

a) Date
b) Name, address, and telephone number of the sender
c) Information for pickup and delivery
d) Name, address, and telephone number of the recipient
e) Delivery date
f) Clear instructions
g) Any special instructions

h) Purpose (ie. birthday, wedding, funeral, etc.)
i) Message to be on the card
j) List and number of items purchased
k) Description of how the order should be processed
l) Price of the single item with the extended price multiplied from it
m) Subtotal
n) Telephone charge (if it is a wire service order)
o) Delivery charge
p) Sales tax
q) Total
r) Form of payment
s) Name of salesperson
t) Name of designer filling the order

H. Other Activities

1. Practice making change (use Monopoly money).

2. Complete a credit slip.

3. Role-play handling a customer complaint.

4. Complete a mock sales transaction.

I. Conclusion

Taking orders either in person or over the telephone is an important skill for any flower shop employee. Many things need to be remembered when filling out a sales slip.

J. Competency

Demonstrate a sales transaction.

K. Answers to Activity Sheet

See the following page for the completed sales slip.

L. Answers to Evaluation

1. d
2. c
3. a
4. d
5. a
6. b
7. b

Invoice No.

Flower Shop

Sold to: **Todd Comstock**

Address **10 State Street**

City, State **Anytown, (your state)** Zip Code **10001**

Phone No. **555-2361**

Sold by	Date	Phoned	Wire	Other
Student Name	**August 5**	In ✓ Out	In Out	In Out

Sending Wire No.	Shop Wire No.	Customer No.	Delivery Date
			Wed., Aug. 6 **2:00** A. M./ P. M.

Cash	C.O.D.	Charge	Card No.	Exp. Date
		MasterCard	**1007336374805639**	**March, (year)**

Qty.	Description	Amount	
1	**dozen boxed roses**	49	00
	Delivery Charge	2	50
	Relay Charge		
	Phone		
	Subtotal	51	50
	State Tax	3	09
Thank You!	Total	54	59

Deliver to: **Sheila Comstock**

Address **101 North Street**

City, State **Anytown** Zip Code **10301**

Baby Boy/Girl	Birthday	Holiday	Congrat.	Anniver.	Recovery	Sympathy	Other
				✓			

Card

I'm still as happy as the day I married you. I love you. Todd.

UNIT VII - SHOP OPERATIONS

Name _____

Lesson 1: Sales Transactions

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Good telephone etiquette is important to a florist because:

   a. It determines the image of the shop.
   b. A large percentage of the florist's business is conducted over the telephone.
   c. One should always be courteous to customers.
   d. All of the above.

2. What two items should be kept by the telephone in a flower shop?

   a. Calculator and price list
   b. Flower list and price list
   c. Pen and order pad
   d. Order pad and calculator

3. What information should be stated when answering the flower shop telephone?

   a. Shop name and name of person answering the phone
   b. Appropriate seasonal greeting and shop name
   c. Name of person answering the phone and seasonal greeting
   d. All of the above

4. Why should the person taking the order always put his or her name on the order form?

   a. So the owner will know who should pay for the order if the customer does not accept it.
   b. If anything is wrong with the order, the manager will know who to blame.
   c. So that person can handle the customer's complaint if one should arise.
   d. So the designer will know who to ask if he or she has any questions about the order.

5. Besides the item's cost and the sales tax, what other expenses might be included in the cost of a wire service order?

   a. Service charge
   b. Fax fee
   c. Telephone tax
   d. Computer charge

6. What is the first step in a sales transaction?

   a. Ask questions
   b. Greet the customer
   c. Determine needs
   d. Overcome objections

7. Which of the following is NOT a florist wire service?

a. Telefloral
b. AIFD
c. FTD
d. AFS

Lesson 1: Sales Transactions

Completing a Sales Slip

Complete the sales slip on the back of this sheet using the information given below.

It is Tuesday, August 5. Todd Comstock is calling to order a dozen roses boxed and delivered to his wife Sheila for their anniversary. He gives his address as 10 State Street, Anytown, and his zip code as 10001. His phone number is 555-2361. Mr. Comstock wants the flowers delivered at 2:00 on the next day to his wife's business at 101 North Street; the zip code is 10301. He requests a card with the following message: "I'm still as happy as the day I married you. I love you. Todd." Payment is made with his MasterCard, which has an expiration date of next March and a card number of 1007336374805639. The cost of his order is $49.00, the delivery charge is $2.50, and the state sales tax is 6 percent. (Use your own state and the current year to complete the sales slip.)

Invoice No.

Flower Shop

Sold to:

Address

City, State Zip Code

Phone No.

Sold by	Date	Phoned In Out	Wire In Out	Other In Out
Sending Wire No.	Shop Wire No.	Customer No.		Delivery Date A. M./ P. M.
Cash / C.O.D.	Charge	Card No.		Exp. Date

Qty.	Description	Amount	
	Delivery Charge		
	Relay Charge		
	Phone		
	Subtotal		
	State Tax		
Thank You!	Total		

Deliver to:_____

Address_____

City, State_____ Zip Code_____

Baby Boy/Girl	Birthday	Holiday	Congrat.	Anniver.	Recovery	Sympathy	Other

Card

_____

_____

_____

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UNIT VII - SHOP OPERATIONS

Lesson 2: Floral Delivery

Objective: The student will be able to deliver a floral arrangement.

Study Questions

1. **Why is having a good delivery person critical?**
2. **What skills are needed in the delivery person?**
3. **How are orders routed?**
4. **What are the steps in making a delivery?**
5. **What are the three types of delivery services?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Job Sheets
   a) JS 2.1: Routing Floral Orders for Delivery
   b) JS 2.2: Making a Floral Delivery

UNIT VII - SHOP OPERATIONS

Lesson 2: Floral Delivery

TEACHING PROCEDURES

A. Review

The previous lesson presented information on taking orders, including sending and receiving orders from various wire services. This lesson will focus on delivering the floral order.

Delivering arrangements and flowering potted plants is a personalized service that is often offered to the florist's customers. It is especially appreciated when the order is for someone in the hospital or for a funeral. Wire service orders, of course, must be delivered.

B. Motivation

1. Ask a delivery person from a local flower shop to speak to the class about his or her job.

2. Order flowers to be delivered to the classroom. Have students observe the delivery person. Ask them to note various aspects of the delivery person and the delivery, such as whether or not he or she was courteous or whether a reminder to water the flowers was given.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why having a GOOD delivery person is so important.

Why is having a good delivery person critical?

a) The delivery person is an extremely important representative of the flower shop. Often, this person is the only one with whom the customer has contact.
b) The delivery person is the public relations connection between the recipient of the delivery and the flower shop. If a delivery is not handled well, the good sales work and the designs of the other employees will be in vain.

2. Ask the students if they can list what skills they think a delivery person should have.

What skills are needed in the delivery person?

a) Driving and vehicle maintenance skills
    1) Ability to drive safely
    2) Courteous attitude - not only in person, but in driving
    3) Will keep the delivery van CLEAN and in good running condition
    4) Knowledge of the delivery area
    5) Should have a good driving record
    6) May need a commercial driver's license
b) Communication skills
    1) Reading, writing, and spelling skills
    2) Able to communicate with people

3) Knows how to dress properly
4) Able to speak proper English

c) Floral skills
1) May need some arranging skills
2) Able to identify the flowers they are delivering and answer customer questions
3) Knows the temperature requirements of the flowers

3. Ask students if they know how to route orders.

How are orders routed?

a) Sort orders according to the date of delivery.
b) Sort orders according to the time they are to be delivered.
c) Sort orders according to where they are to be delivered.
d) Prepare a list of deliveries placing them in chronological order.
e) Route with minimum mileage.

4. Ask the students if they can recognize the steps in making a delivery.

What are the steps in making a delivery?

a) Sort orders according to time and area of delivery.
b) Plot a route.
c) After establishing a route, make out a list of stops in order.
d) Some flower shops call private residences to check if someone will be home to accept the delivery. For hospital arrangements, call to check that the recipients are still patients and are able to accept flowers.
e) If the weather is extremely warm or cold, start the delivery vehicle 10 to 15 minutes before loading it.
f) Pack the vehicle, making sure that items to be delivered last are loaded first. Keep taller arrangements to the sides. Place balloons in garbage bags.
g) Make sure the arrangements are not going to fall over during transport. They should be packed in cardboard delivery bases or put in boxes with wadded up newspaper, sandbags, or tissue paper wedged around them.
h) Make sure the address for each arrangement is easy to see and read.
i) When arriving at the delivery site, always go to the front door unless instructed otherwise.
j) Carry a one-sided arrangement with the front of the arrangement facing the recipient.
k) Knock on the door or ring the doorbell. When the door is answered, greet the recipients cordially, give your name, and inform them they have a delivery from your flower shop. Briefly give a tip that they should add water to the arrangement every day. Answer any questions they might have about the arrangement or plant. Ask for their signature.
l) If no one is home to receive the arrangement, follow shop policy. It is often acceptable to deliver the arrangement to a neighbor and leave a note or delivery tag on the recipient's door informing him or her where the arrangement is located. Later, call to make sure the arrangement was received. Be sure to note the time the item was left on the delivery sheet. Another alternative is to leave a note on the door with a notice of the attempt to deliver asking the recipient to call the shop or come in and pick up the arrangement. Return the arrangement to the shop.

5. Ask students what three types of delivery services florists can use.

What are the three types of delivery services?

a) The shop makes its own delivery.

b) The shop makes deliveries in cooperation with other shops.
c) The shop uses a commercial delivery service.

F. Other Activities

1. Give students a large map of the area and a number of mock orders. Have them route the orders.

2. Have students deliver flowers within the school to practice making deliveries.

G. Conclusion

Having a good delivery person is important in order for a flower shop to maintain good customer relations. The delivery person must have certain basic abilities, such as driving and vehicle maintenance ability, communication skills, and floral skills, and must be able to plot a route and make a delivery correctly and efficiently.

H. Competency

Deliver a floral arrangement.

I. Answers to Activity Sheet

The shortest routes for JS 2.1 are as follows:

Route for 05/01, a.m. deliveries - Broadway, Oak, Vandiver, Willow, University St.
Route for 05/01, p.m. deliveries - Broadway, Williams, Stadium, Willow
Route for 05/02, a.m. deliveries - Astra, Stadium, Ballenger, Ruben, University Ave.
Route for 05/02, p.m. deliveries - Astra, Stadium, Providence, Ashwood, Valley View, Alexander, Sunshine, Cosmo

J. Answers to Evaluation

1. d
2. c
3. c
4. a
5. b
6. d

 Name _____

Lesson 2: Floral Delivery Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. A delivery person needs to be able to:

   a. Drive safely and courteously.
   b. Dress well.
   c. Know the care of the flowers they are delivering.
   d. All of the above.

2. If a person is not home to receive a delivery, the delivery person should:

   a. Leave the arrangement on the front porch.
   b. Leave the arrangement in a protected place.
   c. Find a neighbor who will agree to give the arrangement to the person when he or she returns home.
   d. Wait at the house until the person comes home.

3. What can be done to keep delivery items upright?

   a. Empty water from the vases.
   b. Wrap each item in several layers of newspaper.
   c. Pack the items in cardboard delivery boxes and wedge crushed newspaper or sand bags around them.
   d. It does not matter if they are upright or not.

4. Why is having a good delivery person critical?

   a. The delivery person may be the only direct contact the customer has with the floral shop.
   b. The delivery person arranges the flowers as well as delivers them.
   c. The delivery person picks up deliveries for wire service orders.
   d. The delivery person has little contact with the public; therefore, attire is not important.

5. Why is it important for the delivery person to know the delivery area?

   a. To eliminate the need to turn around
   b. So time is not spent driving around looking for delivery locations
   c. So the driver knows where rest areas are located
   d. All of the above

6. What is the first step in routing orders?

   a. Sort orders according to where they are delivered
   b. Sort orders according to the time they are to be delivered
   c. Sort orders by the type of arrangement
   d. Sort orders by the date of delivery

Evaluation Criteria:

Points:

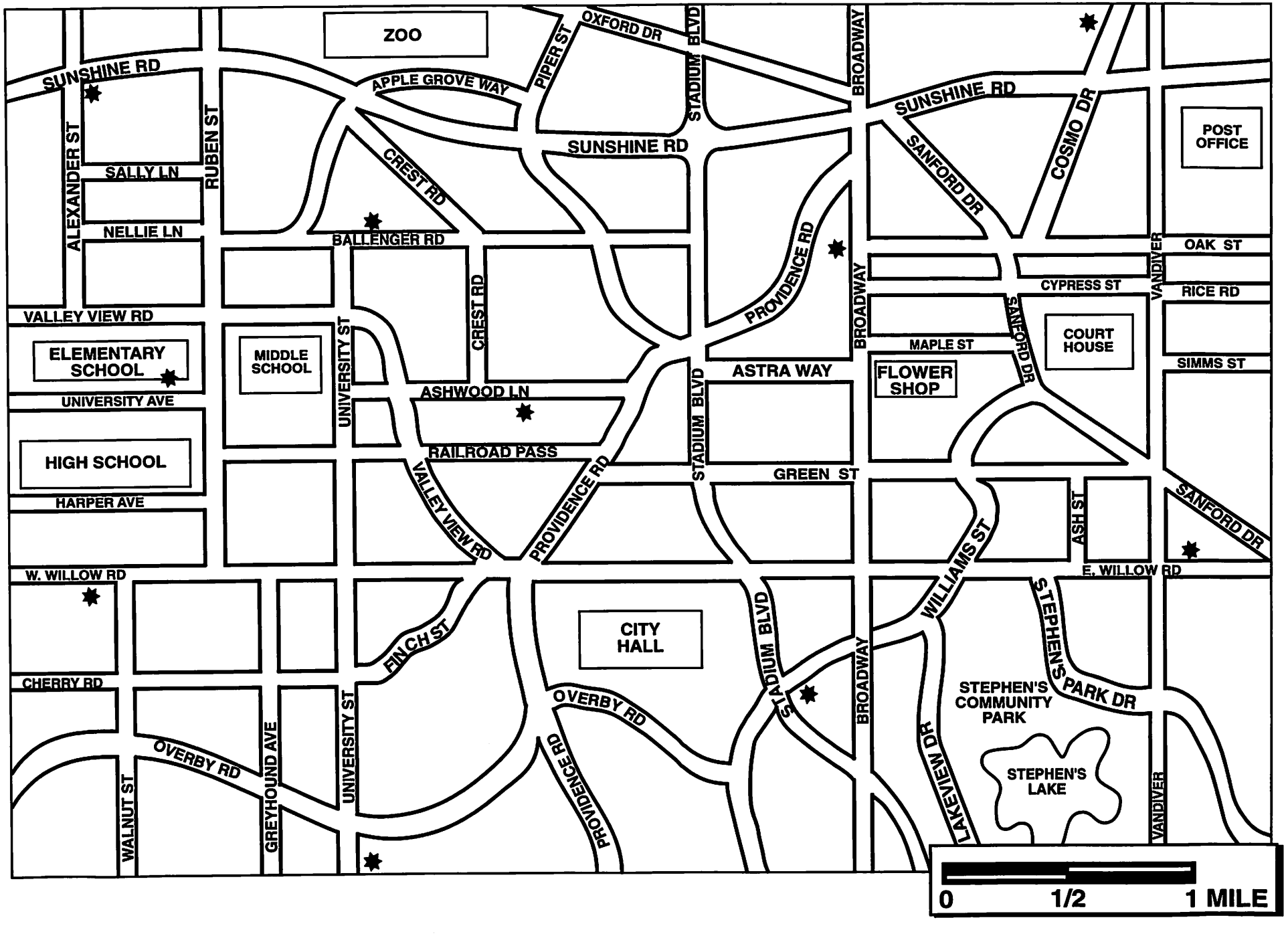
_____ Orders are separated by date of delivery

_____ Orders are sorted by time of delivery

_____ Orders are sorted by location of delivery

_____ Route is plotted with minimum mileage

_____ Total Points


ZOO
SUNSHINE RD
APPLE GROVE WAY
PIPER ST
OXFORD DR
STADIUM BLVD
BROADWAY
SUNSHINE RD
COSMO DR
POST OFFICE
ALEXANDER ST
RUBEN ST
SALLY LN
NELLIE LN
CREST RD
BALLENGER RD
SUNSHINE RD
SANFORD DR
PROVIDENCE RD
BROADWAY
VANDIVER
OAK ST
CYPRESS ST
RICE RD
VALLEY VIEW RD
ELEMENTARY SCHOOL
MIDDLE SCHOOL
UNIVERSITY ST
CREST RD
SANFORD DR
COURT HOUSE
MAPLE ST
ASTRA WAY
FLOWER SHOP
SIMMS ST
UNIVERSITY AVE
ASHWOOD LN
HIGH SCHOOL
RAILROAD PASS
STADIUM BLVD
GREEN ST
HARPER AVE
VALLEY VIEW RD
PROVIDENCE RD
ASH ST
SANFORD DR
W. WILLOW RD
WILLIAMS ST
E. WILLOW RD
FINCH ST
CITY HALL
STADIUM BLVD
STEPHENS PARK DR
CHERRY RD
OVERBY RD
STEPHEN'S COMMUNITY PARK
OVERBY RD
WALNUT ST
GREYHOUND AVE
UNIVERSITY ST
PROVIDENCE RD
BROADWAY
LAKEVIEW DR
STEPHEN'S LAKE
VANDIVER
0
1/2
1 MILE

Sold to: Derek Dawson
Address 21 Cypress St.
City, State Anywhere, Any State Zip Code 10000
Phone No. 555-6803

Date	Cash	Credit Card	Delivery Date
04/29/--		MC 3947328298479384	05/01/--, p.m.

Qty.	Description	Amount	
1	Dozen Boxed Red Roses	42	50
	Delivery	2	50
	Tax	2	76
	Total	47	76

Deliver to: Dawn Dawson
Address 1603 W. Willow Rd.
City, State Anywhere, Any State Zip Code 10002

Sold to: Faith Murray
Address 110 Cosmo Dr.
City, State Anywhere, Any State Zip Code 10000
Phone No. 555-4958

Date	Cash	Credit Card	Delivery Date
04/29/--	✓		05/02/--, p.m.

Qty.	Description	Amount	
1	"Spring Bouquet"	25	50
	Delivery	2	50
	Tax	1	72
	Total	29	72

Deliver to: Evelyn Robertson
Address 8 Alexander St.
City, State Anywhere, Any State Zip Code 10001

Sold to: Rick Wagner
Address 12 Nellie Ln
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-9643

Date	Cash	Credit Card	Delivery Date
04/29/--		Visa 8624956384592548	05/01/--, p.m.

Qty.	Description	Amount	
1	Rose Bud Vase	12	75
	Delivery	2	50
	Tax		93
	Total	16	18

Deliver to: Emily Parker
Address 35 Williams St.
City, State Anywhere, Any State Zip Code 10002

Sold to: Tony Martinez
Address 118 Lake View Dr.
City, State Anywhere, Any State Zip Code 10003
Phone No. 555-6127

Date	Cash	Credit Card	Delivery Date
04/29/--	✓		05/02/--, a.m.

Qty.	Description	Amount	
1	Birthday Carnations Bud Vase	10	50
3	Mylar Balloons	6	75
	Delivery	2	50
	Tax	1	21
	Total	20	96

Deliver to: Stacey Fuller
Address 324 Ballenger Rd.
City, State Anywhere, Any State Zip Code 10001

Sold to: Cathy Evans
Address 58 Apple Grove Way
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-7931

Date 04/29/--	Cash	Credit Card Dis. 5624896312387853	Delivery Date 05/02/--, p.m.

Qty.	Description	Amount	
1	Dried Flower Topiary	45	50
	Delivery	2	50
	Tax	2	94
	Total	50	94

Deliver to: Casey Bishop
Address 125 Ashwood Ln.
City, State Anywhere, Any State Zip Code 10001

Sold to: Julie Tsai
Address 203 Ashwood Ln.
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-9364

Date 04/29/--	Cash ✓	Credit Card	Delivery Date 05/01/--, a.m.

Qty.	Description	Amount	
1	Dish Garden	13	25
	Delivery	2	50
	Tax		97
	Total	16	72

Deliver to: Alan Williams
Address 1404 E. Willow Rd.
City, State Anywhere, Any State Zip Code 10000

Sold to: Paul Lewis
Address 125 N. University St.
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-6214

Date 04/29/--	Cash ✓	Credit Card	Delivery Date 05/02/--, a.m.

Qty.	Description	Amount	
1	Potted African Violets	16	50
	Delivery	2	50
	Tax	1	16
	Total	20	16

Deliver to: Kia Hughes
Address 10 University Ave. (Jefferson Elementary)
City, State Anywhere, Any State Zip Code 10001

Sold to: Pam Jeffries
Address 14 Walnut St.
City, State Another Town, Any State Zip Code 30001
Phone No. 555-9630

Date 04/29/--	Cash	Credit Card MC 3695128569428010	Delivery Date 05/01/--, a.m.

Qty.	Description	Amount	
5	Mylar Balloons	11	25
1	Stuffed Dragon Toy	8	50
	Delivery	2	50
	Tax	1	36
	Total	23	61

Deliver to: Ben Jeffries
Address 329 N. Broadway
City, State Anywhere, Any State Zip Code 10001

Sold to: Kelley Collins
Address 209 Cherry Rd.
City, State Anywhere, Any State Zip Code 10002
Phone No. 555-0051

Date	Cash	Credit Card	Delivery Date
04/29/--	✓		05/02/--, p.m.

Qty.	Description	Amount	
1	Dried Floral Eucalyptus Wreath	35	50
	Delivery	2	50
	Tax	2	33
	Total	40	33

Deliver to: Nancy Martin-Lowe
Address 207 Cosmo Dr.
City, State Anywhere, Any State Zip Code 10000

Sold to: Chad McKinney
Address 1121 Eddings Way
City, State Another Town, Any State Zip Code 20001
Phone No. 555-9500

Date	Cash	Credit Card	Delivery Date
04/29/--		Visa 7436920158426305	05/01/--, a.m.

Qty.	Description	Amount	
1	"New Arrival" Bouquet	22	50
1	"Baby Bear" Stuffed Toy	5	25
5	Assorted Helium Balloons	3	75
	Delivery	2	50
	Tax	2	10
	Total	36	10

Deliver to: James, Tammy, and "Baby Boy" Simpson
Address 304 S. University St.
City, State Anywhere, Any State Zip Code 10002

Route Sheet

Driver: _____ Date: _____

Departure Time: _____ Return Time: _____

Stop Number	Recipient	Address

JS 2.2: Making a Floral Delivery

Objective: Upon completion of this job sheet, the student will be able to make a floral delivery.

Materials and Equipment:

1. Plotted delivery route (from previous exercise)
2. Arrangements
3. Mock delivery vehicle
4. Mock delivery site

Procedure:

1. Make a list of stops in order of first delivery, second delivery, etc.

2. Pack the mock vehicle, making sure that items to be delivered last are loaded first. Keep taller arrangements to the sides. Place balloons in garbage bags.

3. Make sure the arrangements are not going to fall over during transport. They should be packed in cardboard delivery bases or put in boxes with wadded up newspaper, sandbags, or tissue paper wedged around them.

4. Make sure the address for each arrangement is easy to see and read.

5. Role-play the delivery.

    a. When arriving at the delivery site, always go to the front door unless instructed otherwise.

    b. Carry a one-sided arrangement with the front of the arrangement facing the recipient.

    c. Knock on the door or ring the doorbell. When the door is answered, greet the recipients cordially, give your name, and inform them they have a delivery from your flower shop. Briefly give a tip that they should add water to the arrangement every day. Answer any questions they might have about the arrangement or plant. Ask for their signature.

    d. If no one is home to receive the arrangement, follow shop policy. It is often acceptable to deliver the arrangement to a neighbor and leave a note or delivery tag on the recipient's door informing him or her where the arrangement is located. Be sure to note on the delivery sheet the time the item was left. Later, call to make sure the arrangement was received. Another alternative is to leave a note on the door with notice of attempt to deliver asking them to call the shop or come in and pick up the arrangement. Then return the arrangement to the shop.

Evaluation Criteria:

Points:

_____ List of stops in order of delivery is made

_____ Delivery vehicle is loaded with items to be delivered last loaded first

- _____ Taller arrangements are placed to the sides
- _____ Balloons are placed in garbage bags

_____ Arrangements are packed so they will not fall over

_____ Address for each delivery is easy to see and read

_____ Delivery person goes to correct "door" as instructed

_____ One-sided arrangement is carried with the front facing the recipient

_____ Proper procedure is followed for addressing the recipient

_____ Signature is obtained

_____ Proper procedure is followed if the recipient is not available

_____ Total Points

UNIT VII - SHOP OPERATIONS

Lesson 3: Calculating Prices

Objective: The student will be able to calculate the price of floral products.

Study Questions

1. **What factors are involved in determining the prices of floral arrangements?**
2. **What factors are involved in determining the prices of potted plants?**
3. **What are the methods for calculating the prices of floral products?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
   a) AS 3.1: Calculating Prices

UNIT VII - SHOP OPERATIONS

Lesson 3: Calculating Prices

TEACHING PROCEDURES

A. Review

The previous lesson presented information on delivering floral arrangements. This lesson will explain how prices are calculated. In order to make a profit, florists must know how to price their merchandise. Employees should also know how prices are determined.

B. Motivation

Show students a flower arrangement borrowed from a local flower shop. Ask them to estimate its price. Tell them the retail price. Then ask them to estimate how much it cost to make the arrangement. Tell them its cost to the florist.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what factors determine how much a florist charges for a flower arrangement.

What factors are involved in determining the prices of floral arrangements?

a) Wholesale cost of the materials
b) Freight or delivery charges
c) Overhead costs
    1) Designer labor
    2) Services rendered
    3) Business costs
    4) Cost of out-of-date merchandise
    5) Fluctuating wholesale prices
    6) Inventory insurance
    7) Shrinkage or damage to merchandise in stock
    8) Advertising costs
    9) Employee wages - in addition to the designer
    10) Taxes
d) Profit margin - what a business makes after all the expenses have been met
e) Other considerations
    1) Competition from other florists
    2) Market demand
    3) Location of the shop, both neighborhood and city

2. Ask students what factors should be considered when determining the price of potted plants?

What factors are involved in determining the prices of potted plants?

They are the same as for an arrangement except that labor costs will be less.

3. Ask students what the various methods of calculating the price of floral products are.

What are the methods for calculating the prices of floral products?

Two major ways of calculating prices are using ratios or percentages. Most florists use the ratio method because it is easier, but the percentage method takes profit margin into account.

a) Ratio method
   1) Most items are categorized into four major segments.
      (a) 5:1 ratio - items that require a lot of time, labor, and creative design talent. Examples: wedding flowers and party flowers
      (b) 4:1 ratio - designs that require some labor and design ability. Example: regular corsages
      (c) 3:1 ratio - designs that require very little labor. Examples: small arrangements, bud vases, and decorated plants
      (d) 2:1 ratio - designs that require little or no design labor. Examples: pre-made cut flower bouquets, gift items, and undecorated plants
   2) To calculate the selling price of a floral product using the ratio method, multiply the wholesale cost by the ratio amount.

> For example, the wholesale cost of one floral product is $4.50. It ranks as a 3:1 ratio product. The wholesale price of $4.50 is multiplied by the ratio amount of 3.
>
> $$\$4.50 \times 3 = \$13.50$$
>
> The selling price of this floral product is $13.50.

b) Percentage method - The florist determines how much a floral product will be marked up from its wholesale price. The markup is by a percentage.
   1) To calculate the selling price of a floral product using the percentage method, first convert the markup percentage to its decimal equivalent. The conversion of a percent value to its decimal equivalent is completed by dividing the percent value by 100.
   2) After converting these numbers, multiply the wholesale price by the decimal value. This number is the markup value.
   3) Now add the markup value to the wholesale price to find the item's selling price.

> For example, a florist wants to add a 100% markup to one floral product. The wholesale cost of this item was $2.50. The first step is to convert the 100% markup to its decimal equivalent.
>
> $$\underset{\text{(percent value)}}{100} \div 100 = \underset{\text{(decimal equivalent)}}{1.0}$$

To calculate the markup value, multiply the wholesale price by the decimal value.

$2.50	×	1.0	=	$2.50
(wholesale price)		(decimal value)		(markup value)

The markup value is $2.50. Add the markup value to the wholesale price to calculate the selling price.

$2.50	+	$2.50	=	$5.00
(markup value)		(wholesale price)		(selling price)

The selling price of the floral product in question is $5.00.

NOTE: A florist has three controllable areas of expense: operation expenses, labor costs, and goods costs. Florists break the percentages down in different ways, but a good breakdown is to apply 35 percent of the gross for operation expenses, 20 percent for labor costs, and 30 percent for goods cost. Net profit should be 15 percent of the gross.

F. Other Activities

G. Conclusion

Florists and their employees need to know how to determine prices for their merchandise. They may use either the ratio or percentage method, but should always keep their costs in mind when pricing the items in the shop.

H. Competency

Calculate the price of floral products.

I. Answers to Activity Sheet

1. 50 ÷ 100 = .5
   $5.20 × .5 = $2.60
   $5.20 + $2.60 = $7.80

2. 2:1 ratio
   $9.00 ÷ 12 roses = $0.75
   $0.75 × 2 = $1.50

3. 4:1 ratio
   3 roses × $0.85 = $2.55
   2 stems baby's breath × ($1.75 ÷ 20) = $0.18
   3 stems leatherleaf × ($2.00 ÷ 25) = $0.24
   $2.55 + $0.18 + $0.24 = $2.97
   $2.97 × 4 = $11.88

4. 200 ÷ 100 = 2
   $7.50 ÷ 5 lily stems = $1.50
   3 roses × ($6.00 ÷ 12) = $1.50
   3 stems English ivy × ($2.00 ÷ 20) = $0.30
   3 stems heather × ($3.00 ÷ 12) = $0.75
   $6.00 ÷ 12 stems double lisianthus = $0.50
   2 stems flax × ($4.50 ÷ 20) = $0.46
   $5.00 ÷ 10 pompon = $0.50
   ⅛ package plumosa fern × $2.00 = $0.25
   $1.50 + $1.50 + $0.30 + $0.75 + $0.50 + $0.46 + $0.50 + $0.25 + $2.00 floral foam + $7.00 container = $14.76
   $14.76 × 2 = $29.52

J. Answers to Evaluation

1. 5:1 ratio
   10 roses × $0.90 = $9.00
   10 stephanotis × $1.25 = $12.50
   3 ivy stems × $0.40 = $1.20
   ½ pkg of leatherleaf × $1.75 = $0.88
   $9.00 + $12.50 + $1.20 + $0.88 = $23.58
   $23.58 × 5 = $117.90

2. 2:1 ratio
   $7.00 × 2 = $14.00

3. 300 ÷ 100 = 3
   ½ mum bunch × $3.75 = $1.88
   5 carnations × $0.40 = $2.00
   ⅓ leatherleaf × $1.75 = $ 0.58
   ⅓ foam × $2.00 = $0.67
   $1.88 + $2.00 + $0.58 + $0.67 + $0.50 container = $5.63
   $5.63 × 3 = $16.89
   16.89 + 5.63 = $22.52

4. 75 ÷ 100 = .75
   $7.50 + $1.00 + $0.75 = $9.25
   $9.25 × .75 = $6.94
   6.94 + 9.25 = $16.19

5. a
6. b

Name _____

Lesson 3: Calculating Prices

Date _____

EVALUATION

Price the following items using the ratio method. State which ratio is used in each. Round to the nearest cent. Show your work.

1. A wedding bouquet consisting of 10 roses, 10 stephanotis, 3 stems of ivy, and half a package of leatherleaf. Wholesale cost: roses = $0.90/each; stephanotis = $1.25/each; ivy = $4.00/bunch of 10 stems; leatherleaf = $1.75/package.

2. A ceramic figurine ($7.00).

Price the following items using the percentage method. Round to the nearest cent. Show your work.

3. A party arrangement consisting of ½ bunch of pompon mums at $3.75/bunch; 5 carnations at $0.40 each; ⅓ bunch leatherleaf at $1.75/package; ⅓ block floral foam at $2.00/block; 1 container at $6.00/dozen. The markup is 300 percent.

4. A potted chrysanthemum ($7.50), bow ($1.00), and pot cover ($0.75). The markup is 75 percent.

Circle the letter that corresponds to the best answer.

5. A ratio of 5:1 is usually used when determining the price of what type of floral product?

   a. A wedding bouquet
   b. A corsage
   c. A potted plant
   d. An expensive container

6. What is the amount a business makes after all expenses are paid called?

a. Overhead
b. Profit margin
c. Merchandise control
d. Expense margin

Lesson 3: Calculating Prices Name _____

Pricing

Calculate the retail prices for the following items using the appropriate method. Round to the nearest cent. Show your work.

1. Calculate the price of an African violet with a wholesale cost of $5.20 and a 50 percent markup.

2. What is the price of a single rose if a dozen roses have a wholesale cost of $9.00? Use the ratio method.

3. Using the ratio method, calculate the price of a corsage consisting of 3 roses, 2 stems of baby's breath, and 3 stems of leatherleaf. Wholesale costs: roses = $0.85/each; baby's breath = $1.75/bunch of twenty stems; leatherleaf = $2.00/bunch of 25 stems.

4. Calculate the price of an arrangement consisting of 1 stem of stargazer lilies, 3 garden roses, 3 stems of English ivy, 3 stems of heather, 1 stem of double lisianthus, 2 stems of flax, 1 pompon, and ⅛ of a package of plumosa fern in a container with a block of floral foam. Wholesale costs: lilies = $7.50/bunch of five stems; roses = $6.00/dozen; English ivy = $2.00/bunch of 20 stems; heather = $3.00/bunch of 12 stems; double lisianthus = $6.00/dozen; flax = $4.50/bunch of 20 stems; pompon = $5.00/bunch of 10 stems; plumosa fern = $2.00/package; floral foam = $2.00/block; container = 7.00. The markup is 200 percent.

UNIT VII - SHOP OPERATIONS

Lesson 4: Taking Inventory

Objective: The student will be able to assist in completing an inventory.

Study Questions

1. **What information should be included in an inventory?**
2. **How often should an inventory be completed?**
3. **Why is an inventory important?**
4. **Why is the timely turnover of merchandise important?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.

UNIT VII - SHOP OPERATIONS

Lesson 4: Taking Inventory

TEACHING PROCEDURES

A. Review

The previous lesson presented information on calculating the price for florist's shop products. This lesson will present information on inventories and the importance of maintaining an inventory.

B. Motivation

Show students a sample inventory list from a florist shop. Ask if they would know how to begin doing an inventory.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what is included in an inventory.

What information should be included in an inventory?

a) All florist supplies
b) Related products
c) Accessories
d) Gift items
e) Containers
f) Plant materials

2. Ask students how often an inventory should be taken.

How often should an inventory be completed?

A hard goods inventory needs to be taken once a year. It may also be taken every 6-8 weeks or especially prior to a major holiday. Some items need to be inventoried on a daily basis.

3. Ask students why it is important to take inventory.

Why is an inventory important?

a) Helps to make a profit by allowing the flower shop to keep merchandise in stock
b) Tax purposes
c) Insurance
d) Serves as a guide to decide which items are moving slowly, overstocked, or understocked; can help in determining the most profitable items a shop carries and money needs at various times of the year

4. Ask students what turnover is. Ask why it is important.

Why is the timely turnover of merchandise important?

a) Turnover - cycle of purchasing, selling, and restocking items held in inventory
b) Plant materials - must be turned over quickly to avoid losses due to perishability; should be bought frequently and in small quantities
c) Hardgoods - turned over every two to four months, depending on the type of item; avoid overbuying because of the costs associated with holding inventory in stock

F. Other Activities

1. Have students do an inventory of the supplies in the classroom.

2. Visit a local flower shop and view its inventory records.

G. Conclusion

Florists need to take inventory regularly in order to ensure that they have all the supplies and merchandise necessary to run a profitable business, as well as for tax and insurance reasons. Monitoring the turnover rate will help the florist to determine which items to stock.

H. Competency

Assist in completing an inventory.

I. Answers to Evaluation

1. d
2. b
3. b

Name _____

Lesson 4: Taking Inventory

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. What should be included on a flower shop inventory?

   a. All supplies
   b. Accessories
   c. Gift items
   d. All of the above

2. Hardgoods should be turned over every:

   a. Month.
   b. Two to four months.
   c. Four to eight months.
   d. Year.

3. Inventory is necessary for:

   a. Helping to make a profit by having merchandise in the warehouse and tax purposes.
   b. Insurance purposes and helping to make a profit by having merchandise on hand.
   c. The end-of-the-year records and is not necessary at other times.
   d. All of the above.

UNIT VII - SHOP OPERATIONS

Lesson 5: Creating a Display

Objective: The student will be able to create displays.

Study Questions

1. **What procedures are used in creating a display?**
2. **How are display areas maintained?**
3. **Why are displays important for merchandising?**
4. **What are the elements of a good display?**
5. **What safety factors should be considered when setting up a display?**
6. **What factors should be considered when stocking shelves and displaying merchandise?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
   a) AS 5.1: Florist Shop Display

UNIT VII - SHOP OPERATIONS

Lesson 5: Creating a Display

TEACHING PROCEDURES

A. Review

Lesson 4 presented information on taking inventory and the importance of maintaining inventory. This lesson will discuss creating a display. An attractive display in the window or the store is one of the best means by which a florist can promote products. It can also help create the atmosphere of each shop.

B. Motivation

See if students have recently noticed any displays by retail merchants. Ask what they liked and disliked about them.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know how to go about setting up a display.

What procedures are used in creating a display?

a) Select a theme. It should be a single idea, usually a holiday or a season.
b) Choose the props and merchandise to be promoted.
c) Do a rough sketch detailing how the display should be set up.
    1) Include a focal point, but avoid placing it directly in the middle of the display.
    2) Keep the background simple.
    3) Place shorter items in front and taller items in back.
d) The next step is to actually set up or create the display.
    1) The merchandise and props should be clean and of good quality.
    2) Prepare the background and floor of the display.
    3) Gather other props and accessories to be used.
    4) Add other items that are related to the main theme.
    5) Price tags should be hidden unless the item priced is part of a special or sales promotion.

2. Ask students what needs to be done to keep a display area maintained.

How are display areas maintained?

a) Check all live plants daily for watering needs.
b) Remove any dead foliage or blooms.
c) Keep floors, display areas, and display coolers clean and free of dust.
d) Clean all windows, especially in the display cooler, daily.
e) Maintain a comfortable temperature in the sales area.
f) Replace all burned out light bulbs.
g) Keep painted surfaces fresh and free of chips.

3. Ask students why displays are so important.

Why are displays important for merchandising?

Effective and attractive displays can help generate more sales. While customers are browsing or waiting to pick up orders, a well designed display can encourage them to purchase additional items. A good display should attract attention, entice interest, instill a desire to possess the product, and encourage its purchase.

4. Ask students what constitutes a good display.

What are the elements of a good display?

a) The display is pleasing to the eye.
b) It has an easily noticeable main theme that catches the eye.
c) A good display should be well lit.
d) The display must be clean.
e) Complementary colors are used.
f) The rules of color are followed.
    1) Very bright and contrasting colors are used sparingly.
    2) If very intense colors are used, the display area is kept small and contrasting colors are less bright.
    3) The colors selected complement the items displayed.
g) The display adheres to tips for designing a display.
    1) It arouses interest.
    2) Do not use too many items that will compete for attention.
    3) All props should tie in with the featured product.
    4) Never mix different styles.
    5) If creating a window display with an open back, make it attractive both inside and outside the shop.
    6) Keep lights on in the display window after the shop is closed.

5. Ask students if they know of any safety factors that should be considered when setting up displays.

What safety factors should be considered when setting up a display?

a) Add proper support for everything displayed.
b) Make sure all electrical equipment and lights are safe and are not fire hazards.
c) Use materials that are not flammable.
d) Do not block shop entrances or exits.
e) Try to avoid using sharp edges or corners.

6. Ask students what factors should be considered when stocking shelves and displaying merchandise.

What factors should be considered when stocking shelves and displaying merchandise?

a) When opening a case of merchandise, be careful not to damage anything inside.
b) Calculate the retail price.
c) Vacuum or dust everything before displaying it.
d) Price all merchandise before displaying it.
e) Place newer items behind the older merchandise.
f) Do not place anything too close to the end of a shelf.

g) Group similar products together.
h) Use labels that can be easily read.
i) Clean up and throw away boxes and other garbage.
j) Put away tools.

F. Other Activities

1. Have students design a window display.

2. Practice setting up small merchandise displays.

3. Set up a monthly calendar for displays in a flower shop. Indicate themes, colors, merchandise, and props that could be used.

4. Take a field trip to a mall, preferably one with a flower shop. Observe the displays. Have students record what they did and did not like about the displays.

G. Conclusion

A good display is necessary for the best promotion of a florist's products. The elements of design as well as neatness and cleanliness are important in setting up a good display.

H. Competency

Create displays.

I. Answers to Activity Sheet

Answers will vary.

J. Answers to Evaluation

1. d
2. c
3. b
4. b
5. d

Name _____

Lesson 5: Creating a Display

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following would be an appropriate theme for a florist shop window display?

   a. Valentine's Day
   b. Christmas
   c. Football season
   d. All of the above

2. Where should the focal point or main theme of the display NOT be placed?

   a. Slightly left of the display's center
   b. Two feet above the display's center
   c. Directly in the middle of the display
   d. It does not matter where the focal point of the display is.

3. Why is making a sketch important when designing a display?

   a. It is good to have a record of the display.
   b. The sketch helps in deciding how the final display will look.
   c. The sketch can be saved for future displays.
   d. It is really not important to make a sketch.

4. Which of the following is a safety factor in setting up displays?

   a. Keep the lights on in the display window after the shop is closed.
   b. Use materials that are not flammable.
   c. Replace all burned out light bulbs.
   d. Clean and dust the display areas.

5. Which of the following is NOT an element of a good display?

   a. Neatness and cleanliness
   b. Colorful
   c. Attracts attention
   d. Dimly lit

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Lesson 5: Creating a Display

Florist Shop Display

Develop a plan for a florist shop display to include several arrangements for a particular season or holiday.

1. What is the theme of your display?

2. What props will be used?

3. What will be the color scheme of the display?

4. Where will the display be located?

5. Describe the finished display.

6. Plan the setting. What materials will be used for the background or floor coverings? What other items (stands, special lighting, drapery) are needed in creating the display?

7. On the back of this page, draw a sketch of the display. Use labels to indicate the size and shape of and distance between items.

UNIT VII - SHOP OPERATIONS

Lesson 6: Maintaining the Flower Shop

Objective: The student will be able to maintain the floral shop area.

Study Questions

1. **Why is it important to maintain the floral shop?**
2. **How is the display area maintained?**
3. **How is the design area maintained?**
4. **Why is it necessary to maintain a clean and efficient cooler?**
5. **How are plant waste materials disposed of?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.

UNIT VII - SHOP OPERATIONS

Lesson 6: Maintaining the Flower Shop

TEACHING PROCEDURES

A. Review

Information on creating displays was presented in Lesson 5. The importance of maintaining the display was also discussed. This lesson will focus on maintaining the flower shop. A customer's first impression when entering a flower shop is often the most lasting. The shop must therefore be neat and clean at all times.

B. Motivation

Ask students if they have ever entered a store where everything was messy and dirty. Did they feel like staying there and buying something?

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why it is important to maintain the floral shop.

Why is it important to maintain the floral shop?

a) A clean and neat flower shop gives customers a favorable impression when they first enter the shop.
b) If the shop is clean and well maintained, it is a safer environment for customers and employees alike.

2. Ask students how the display area is maintained.

How is the display area maintained?

a) Keep floors clean.
b) Dust all display areas and the merchandise on display.
c) Keep all aisles clear.
d) Check all lights to make sure none are burned out.
e) Keep window displays clean.

3. Ask students how the design area is maintained.

How is the design area maintained?

Designers often throw stems and waste on the floor as they create arrangements. If this is allowed to build up, it can create a safety hazard, so the stems and waste should be removed periodically.

Dust and dirt in the design area should be kept at a minimum. Surplus items are usually stored in the design room, and some are difficult or impossible to clean once they have been soiled.

4. Ask students if they understand why it is necessary to maintain a clean and efficient cooler.

Why is it necessary to maintain a clean and efficient cooler?

The cooler often serves as the display cooler, too. Dead and decaying flowers and foliage generate ethylene gas, which causes the flowers stored there to begin early senescence, or aging.

5. Ask students how to dispose of plant wastes.

How are plant waste materials disposed of?

Some shops have a bin or hole in which to sweep plant wastes. Depending on the area, some municipalities require separation of flower and foliage waste from wire, paper, etc. Keeping two different containers to sort the waste may be necessary.

F. Other Activities

G. Conclusion

All areas of the flower shop, including the display and design areas and the coolers, must be maintained to make a positive impression on customers, to create a good work environment for employees, and for safety reasons.

H. Competency

Maintain the floral shop area.

I. Answers to Evaluation

1. b
2. d
3. c
4. d

Name _____

Lesson 6: Maintaining the Flower Shop

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Why is it necessary to keep debris off the design room floor?

   a. It looks sterile.
   b. It is a safety precaution.
   c. It is a city ordinance.
   d. It is unnecessary to keep debris off the floor.

2. To maintain the display area:

   a. Keep all merchandise dusted.
   b. Keep aisles clear.
   c. Clean floors.
   d. All of the above.

3. What gas can build up in the cooler if it is not kept clean?

   a. Carbon dioxide
   b. Chloride
   c. Ethylene
   d. Propane

4. Why is it important to maintain the floral shop?

   a. So the shop will pass a safety inspection
   b. So the designer knows where supplies are kept
   c. So the employees have work to keep them busy
   d. So the shop gives a favorable impression to customers

UNIT VII - SHOP OPERATIONS

Lesson 7: Advertising

Objective: The student will be able to prepare an advertisement.

Study Questions

1. **What methods are used for advertising?**
2. **What are the ingredients of an effective print ad?**
3. **How can advertising benefit the floral shop?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
   a) AS 7.1: Preparing a Print Ad

UNIT VII - SHOP OPERATIONS

Lesson 7: Advertising

TEACHING PROCEDURES

A. Review

The importance of maintaining a safe and clean environment in the flower shop to make a favorable impression on customers was discussed in Lesson 6. This lesson will discuss how advertising affects customers. One of the most important decisions a florist must make is how to spend advertising money to obtain the best results.

B. Motivation

Have several forms of advertising on display. Ask students to discuss which ones they think are the most effective.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what methods of advertising can be used.

What methods are used for advertising?

a) A happy customer - the very best form
b) Newspaper
c) Radio
d) Television
e) Shop itself
f) Store signs
g) Window displays
h) Delivery van with a sign on the side
i) Direct mailing
j) Telephone book yellow pages
k) Billboards
l) Calendars, pencils, etc.
m) Business cards
n) Open house
o) Community services, public relations

2. Ask students what goes into creating an effective print advertisement.

What are the ingredients of an effective ad?

a) Attracts attention
b) Sparks interest
c) Inspires customers to buy
d) Reads simply and easily
e) Uses the shop's name and logo

f) Uses a good design
g) Uses pictures that draw interest to the ad
h) Varies in print size

3. Ask students how advertising can benefit the floral shop.

How can advertising benefit the floral shop?

Advertising keeps the business in the public eye.

F. Other Activities

1. Prepare a television or radio ad. Have students read their ads to the class as a television or radio announcer would.

2. With a local newspaper, radio station, or school paper, sponsor a contest for creating the best advertisement for a flower shop.

3. Make a poster advertising an appropriate floral decoration for some holiday. Decide where the best place to hang the poster would be.

G. Conclusion

Every flower shop needs an advertising budget. The major decisions are how much to set aside for advertising and what method or methods would best represent the shop.

H. Competency

Prepare an advertisement.

I. Answers to Activity Sheet

Answers will vary.

J. Answers to Evaluation

1. c
2. a

Name _____

Lesson 7: Advertising

Date _____

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following are considered a means of advertising?

   a. A sign on the side of the shop van
   b. An ad in the local paper
   c. The shop's signs
   d. All of the above

2. Which of the following are ingredients of an effective ad?

   a. It uses good design techniques and attracts attention.
   b. It uses good design techniques and a black and white color scheme.
   c. It inspires customers to buy and saves on overhead costs.
   d. It uses the shop's name and logo and promises that all customers will be satisfied.

Lesson 7: Advertising

Preparing a Print Ad

Develop a newspaper ad for a florist shop, including art and text, advertising its design(s) for a particular holiday.

1. What written information will be included in the ad? How will print size vary for the different information included (ie. What will the largest print be used for? How large will the shop's name be?)?

2. What art will be included in the ad?

3. What will the dimensions of the ad be?

4. In the space below or on the back of this sheet, sketch the layout of the ad.

PURCHASES - CUT FLOWERS

Supplier	Flower	Date Ordered	Grade	Color	Date Rec'd	Number Bought	Cost Price	Number Sold	Selling Price

PURCHASES - PLANTS

Supplier	Plant	Date Ordered	Pot Size	Color	Number Blooms	Date Rec'd	Number Bought	Cost Price	Number Sold	Selling Price

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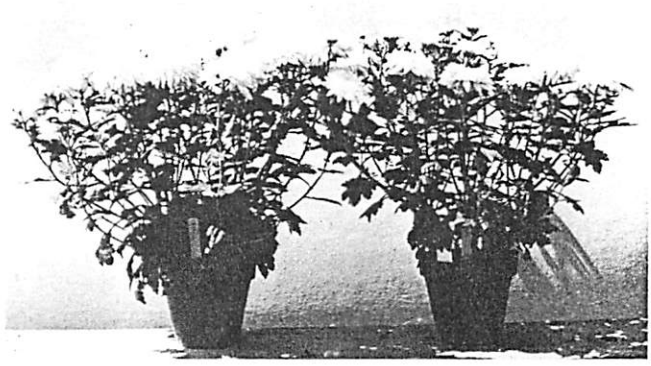
FINISHED DESIGNS

Kind of Design	Number Made	Number Sold	Price

Grounds for Gardening
A Horticultural Guide
Agricultural Guide
Published by the University of Missouri-Columbia Extension Division

Care of Flowering Potted Plants, Part I

R. R. Rothenberger
Department of Horticulture,
College of Agriculture



Chrysanthemums

Potted chrysanthemums are the most popular year-around flowering gift plant. They are available in a wide range of colors and forms. Although chrysanthemums normally flower in November, newly developed methods encourage flowering all seasons of the year. Potted mums last several weeks to a month when given proper care in the home.

Care of the new plant:

1. Place the plant in a window where it gets bright light but no direct sun.
2. Check each day to make sure that the soil is moist. Do not allow the plant to wilt, but do not keep the pot setting in water.
3. Keep the plant at temperatures between 60 and 65 degrees at night. Daytime temperatures may be 10 to 15 degrees higher.

Reblooming chrysanthemums

Chrysanthemum varieties used for flowering potted plants are not usually suitable for Missouri gardens. However, if there is a desire to keep the plant it may be rebloomed with proper attention.

Florists often pot several plants together. Separate these plants after flowering and repot them individually. Use a 5 to 6-inch pot. Keep these plants well watered and at temperatures close to 60 degrees. When new shoots appear, move them to full sun and give plenty of water.

In summer, sink the pots outside in a sunny area where they can be given good care. Apply a complete liquid fertilizer about every two weeks. Additional plants can be started by rooting cuttings from the new growth.

To develop large, bushy plants, pinch out the tip of each new shoot when it becomes about 5 inches long. Remove only the soft shoot tips. Do not pinch the plants after August 15.

Keep the plants outdoors as long as possible in fall. When light frost threatens, cover the plants or lift the pots and bring them indoors. They often can be returned outdoors during periods of mild fall weather. When cold, freezing temperatures persist, bring the plants indoors to stay. Place them in a sunny south window. Night temperatures around 60 degrees are ideal. Day temperatures of 70 to 75 degrees are best.

Chrysanthemums flower only in response to short day (long nights). Until the color shows in the buds, plants must be kept where they will not be exposed to any light at night from a light fixture. Even dim light for short periods can disrupt flowering. When the buds begin to open, light at night will no longer effect them.

Do not expect plants forced at home to be as perfect as those grown in a greenhouse. Greenhouse conditions are difficult to provide in the normal home.

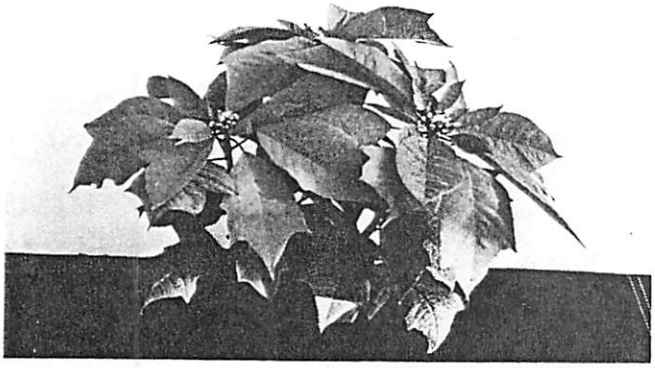
Hardy garden mums also grow in pots. These are suitable for outdoor planting. Set them out in a sunny, well drained location in spring when the ground is warm. To keep these plants low and bushy, pinch out shoots when they are about 4 to 5 inches long. Discontinue pinching about mid-July.

Poinsettia

The red flowering poinsettia is by far the most popular flowering potted plant for the Christmas season. White, pink, and variegated white and pink are also available. Many new, long lasting varieties of poinsettias are now available. If properly cared for they may last a month or more after Christmas.

Care of the new plant:

1. Poinsettias use a lot of water. Check daily. Make sure soil remains moist, but do not allow water to remain beneath the pot in the saucer or wrapping. Too much water will cause the roots to rot, and the plant will deteriorate.



2. Keep the plant out of drafts. Excessively hot, dry air from heating ducts will reduce the life of the plant. Also avoid cold drafts. Poinsettias are semi-tropical, and can not tolerate cold temperatures or rapid temperature changes.

3. Keep the plant where temperatures remain above 60 degrees. Temperatures between 65 and 70 degrees are ideal. It is not necessary to move poinsettias into a cool room at night.

4. Place the plant in good light, but not direct sun.

5. Do not allow the plant to wilt. Poinsettias are closely related to many desert plants. Their first response to dry conditions is to drop their leaves in order to cut down water loss.

Reblooming poinsettias:

Poinsettias are perhaps the most difficult flowering potted plants to rebloom in the home. Unless there is a special interest to try the technique, discard the plant after flowering.

After blooming, gradually withhold water. The leaves will then yellow and fall. Store the dried-off plant in a cool place with temperatures 50 to 60 degrees until spring. Water only enough to keep the roots from drying out.

In spring place the plant in a warm room, and prune the stems back to about 6 inches. If there is more than one plant in the pot, divide and repot them at this time.

For repotting use a well drained soil. House plant potting soils available at garden shops are satisfactory. Or use one part garden soil, one part peatmoss or leaf mold, and one part sand or perlite.

After repotting, place the plants in a bright sunny south window until frost danger is past. Sink the pot outdoors where it gets some wind protection, but where it gets sun most of the day. Light shade in the hottest part of the summer afternoon is desirable. Lift the pot occasionally to keep roots from growing into the surrounding soil.

As new shoots develop, cut them back to allow two nodes or pairs of leaves to remain. Do not pinch back shoots after mid-August.

Plants may be started from cuttings, but rooting is fairly difficult under home conditions.

Keep the plant in good growing condition by watering and feeding regularly during the summer. Add a complete liquid fertilizer about once every two weeks.

Watch carefully for insect or disease problems, and control immediately. Discard diseased plants.

Before the weather becomes cool in fall, bring the plant indoors and place it at a bright, sunny south window. Night temperatures for flower development should be between 60 and 62 degrees. At higher temperatures, flower development will be poor. Day temperatures may be 70 to 75 degrees.

The poinsettia is a short day (long night) plant. Make sure that it receives no additional light at night while flowers are forming. This critical period begins about October 1 and continues until colored bracts and flower buds are visible. Even short periods of dim light can prevent flowering. If the plant is kept in a lighted room, cover it *every* night at dusk with a light-tight bag or cover. Remove the cover at about 8 am each morning.

If these procedures are followed carefully, the plants should flower by midwinter.

Azaleas

The popularity of potted azaleas has increased rapidly since they have become available throughout the year. Several types are used for forcing, but the care of all of them in the home is similar.

Care of the new plant:

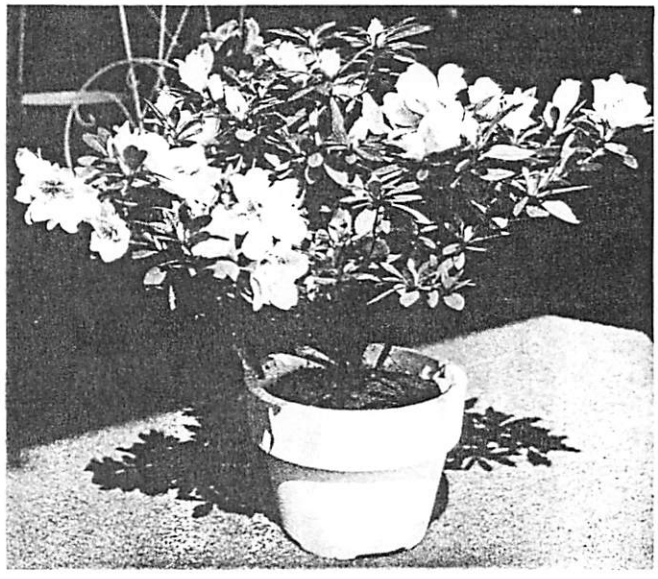
1. Although azaleas can tolerate normal room temperatures, they will last much longer in cool conditions. Place the plant in the coolest part of the house where temperatures remain from 60 to 65 degrees.

2. Keep the plant in a well lighted location, but avoid full sun while in bloom. Sun directly on the flowers will fade them and decrease their life. After flowering is finished the plant should be moved to a sunny window.

3. Never allow an azalea to dry out. Water the plant by submerging the pot in a bucket or pan of deep water. Remove it when bubbles stop rising. Allow excess water to drain out before returning the pot to the saucer. Never allow the plant to wilt.

4. Use a complete, soluble liquid fertilizer about once every two weeks if you plan to keep the plant after flowering is finished.

5. Keep faded flowers removed to prevent the development of disease problems and maintain a good appearance.



Reblooming azaleas:

Reblooming azaleas in the home is not a simple matter. After flowering has finished, remove withered flowers and keep the plant in a cool, sunny location. Shift the plant to a larger pot if it appears to be potbound. Azaleas need shifting only once every few years. It is unlikely that a newly purchased plant will need immediate repotting.

A good mixture for repotting can be made from three parts acid peatmoss, and one part soil. With careful fertilization and watering azaleas can be grown in peatmoss alone.

Submerge the potted plants outdoors in May in a semi-shaded, protected spot. Don't neglect it during the summer. It will need water and fertilization regularly. Watch for insect pests.

If foliage becomes yellow or chlorotic, iron uptake may be limited. This can mean root loss from too much or too little water. It can also result from a pH that is too high (soil too alkaline), or it may actually be a lack of iron in the soil. Apply a chelated iron or iron sulphate to correct the situation. Ammonium sulphate fertilizer also helps to lower the pH and maintain the acidity of the soil. Apply about one half teaspoon *each* of iron sulphate and ammonium sulphate to one quart of water. Apply this to the plants about every two to three weeks. About every third fertilization use a complete houseplant fertilizer instead of the above combination.

Before July 1, shape the plant by removing the tips of rapidly growing shoots. Keep the plant outdoors as long as possible in the fall. Protect it on the first cool or light frost nights, but bring it indoors when hard frost is likely. Place the plant in a sunny, cool room. It needs 40 to 50 degree temperatures from November 1 to January 1. Do not fertilize during this period, and water only enough to keep the plant from wilting.

Buds should develop and swell. In January, move to a sunny window in a room where temperatures are near 60 degrees at night. In a few weeks flowering should begin. If temperatures are excessively high during this period buds often develop poorly and new shoot growth begins.

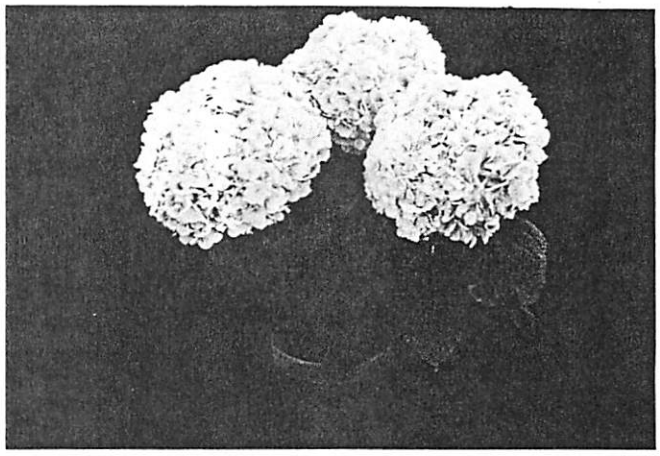
In warmer areas of the state some of the Kurume varieties may be planted outdoors. None of the Indica, or Belgian, hybrids are hardy here.

Hydrangea

The potted hydrangea is popular for Easter and Mother's Day. With good care it should last several weeks in the home.

Care of the new plant:

1. Water is the most important factor in caring for a potted hydrangea. The large foliage and flower clusters use large quantities of water. Never allow the plants to dry out. Check the soil several times a day. If you plan to be away for a day or two, cover the plant with a transparent plastic bag so that it will not lose water so fast. This should not be done frequently or it will weaken the plant and increase disease problems. Do not allow the pot to set in a pan of water for long periods of time. If the plant wilts severely, submerge the soil and pot in a pan of deep water, and allow it to remain until the soil ball is thoroughly wetted. Drain and replace.



2. Bright light will help to keep the plant in good condition. Place it near a sunny window, but not where it gets direct sun which will fade or burn the flowers.

3. Hydrangeas like cool temperatures. Move the plant to a cool room at night (50 to 60 degrees).

Reblooming the hydrangea:

Outdoors: In warmer areas of Missouri the potted hydrangea can be planted outdoors in a protected spot after flowering has finished and the weather has warmed up. After mild winters the plant may flower, but after severe winters it will often be killed back and will not bloom. Never prune hydrangea in late summer or fall. At that time flower buds are set, and pruning will remove buds that would produce flowers next year. Mulch the tops with straw or Styrofoam covers to protect from being killed during the winter.

Indoors: To rebloom the hydrangea indoors, cut the shoots back after the plant has finished flowering so that two nodes or pairs of leaves are left on each shoot. Repot in a mixture of equal parts of soil and peatmoss. If soil is very heavy, add coarse sand or perlite. Grow the plant in full sun or a south window.

In May move the plant outside and sink the pot where it gets full morning sun, but light shade during the afternoon. Water regularly, and fertilize with a complete liquid fertilizer about every two weeks. For extra large flower heads allow only about three stems to develop. When removing extra shoots, take out those that grow toward the center of the plant. Lift the pot occasionally to keep root growth from moving outside the pot.

To keep shoots from becoming too long pinch back shoots during the summer. The last pinch should not be made any later than July.

Keep the plant outdoors as long as possible in the fall, but bring it indoors before a hard freeze. Keep the leaves on until November 1, if possible. Then pick off all the leaves by hand or put the plant in total darkness until all leaves drop naturally. The leafless plant must then be kept at temperatures from 35 to 40 degrees for about six weeks. Keep the plant dry during this period.

After the cooling period bring the plant to a sunny, cool room, with night temperatures of 55 to 60 degrees. Water it

well and fertilize about every two weeks. It should flower in about four months.

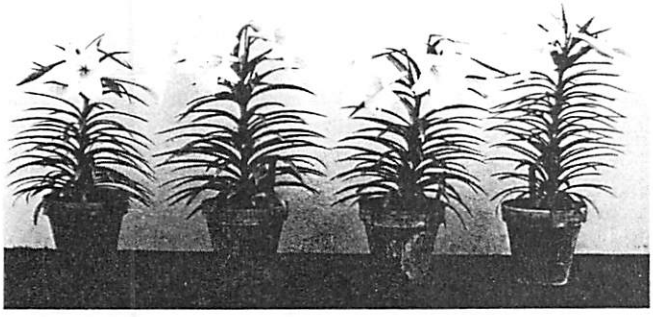
Color: The color of hydrangea can be controlled to some extent. Flowers are blue if grown in acid soil, and pink if the soil is near neutral. The color of white flowers can not be changed by this method.

For blue flowers, use a soil mix with liberal quantities of acid peat added. Water the plant three times at 10 day intervals in late summer with aluminum sulphate (seven teaspoons per quart of water). After the cool dormant treatment again add the aluminum sulphate solution about four more times at 10 day intervals. When fertilizing, do not use fertilizers that contain phosphorous.

To produce pink flowers, keep the soil more neutral (pH 6.5-7.0). If the soil is naturally acid, water with diluted lime water made with 2/3 teaspoon of hydrated lime in a quart of water. Use a complete fertilizer for regular fertilizations, and add one teaspoon of superphosphate to each pot. If leaves turn yellow (chlorotic) due to this treatment, use chelated iron or iron sulphate to correct the condition. Use 3/4 teaspoon of iron sulphate per quart of water.

Easter Lily

The Easter lily is a popular holiday plant that needs little special treatment. Well tended plants should bloom successively for several weeks in the home.



Care of the new plant:

1. Keep the plant moist, but be careful not to overwater. Check moisture daily, and be sure the pot *never* stands in water. Root rots can be easily brought on by overwatering.
2. Place the plant in a bright location, but avoid full sun.
3. Keep the plant in a cool place, and avoid drafts.
4. When a new flower opens, carefully remove the yellow anthers. This will prevent pollen from smudging the petals.
5. Cut off flowers as soon as they have collapsed.

Reblooming:

Outdoors: When all blossoms have faded, reduce watering so that the plant will gradually dry off. Cut off the stem a few inches above the soil after the top dries.

In May after danger of frost is past, plant the bulb in a protected place outdoors at a depth of 4 to 6 inches. Often the bulb will produce a few flowers again in late summer or early fall.

Easter lilies are not normally hardy in the Midwest, but may persist in the garden for several years if placed in a protected spot and covered with a mulch.

Indoors: The forcing procedures seriously weaken the lily bulb. It is not practical to repot them and bring them indoors to try forcing them the following winter.

Potted Bulbs

Spring flowering bulbs often forced into bloom in pots are tulip, hyacinth, narcissus (daffodil), grape hyacinth, and crocus. For maximum enjoyment these plants are best purchased in the bud or early stages of bloom.

Care of the new plant:

1. Place the plants in a cool spot where temperatures at night are about 60 degrees.
2. Do not place them in a sunny location. The warm temperatures in sunshine will speed flower development and shorten the life of the flowers.
3. Keep the plants moist, but not standing in water. Additional fertilization will not be necessary.

Reblooming:

Do not try to rebloom indoors bulbs that have been forced. They can, however, be moved into the garden and will often flower the next spring. Discard any bulbs that have been forced in water such as hyacinths or paperwhite narcissus.

When the bulbs have finished flowering indoors move the plant to a sunny location. Keep them wet enough so that leaves are able to mature and dry gradually. When the tops have died, remove the dry foliage and soil from around the bulbs. Store them in a dry place until fall, and then plant them outdoors in the garden.

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. John W. Oren, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.

Grounds for Gardening
A Horticultural Guide
Agricultural Guide
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Care of Flowering Potted Plants—Part II

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This guide describes some of the most durable flowering plants for indoor decoration and pleasure: African violets, amaryllis, begonias, citrus plants, gardenias, and holiday cacti. Although some are not easy to grow, with proper care, these perennial plants are capable of living and blooming for many years.

African Violet

Outstanding among small, flowering potted plants, African violets in a good location should flower without interruption for years. In addition to their free-blooming character, they are well adapted to home conditions, easy to propagate and available in a wide range of flower colors. Miniatures as well as more compact standard varieties are usable in limited space.

Care of the new plant:

1. Maintain night temperatures between 65 and 70 F; day temperatures 10 degrees warmer. Do not expose to temperatures below 60 or above 80 F.

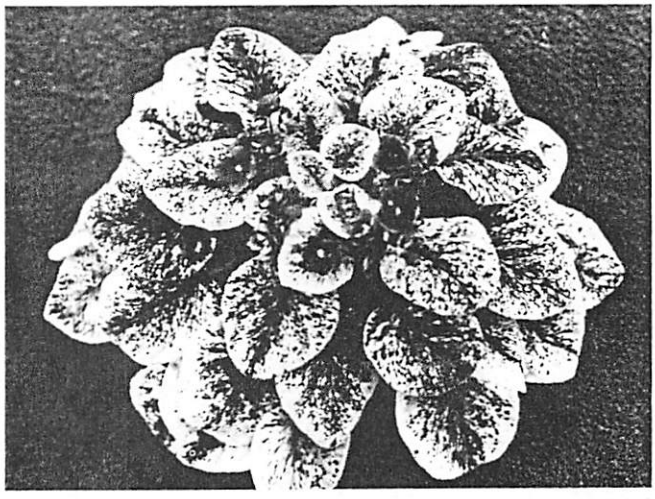
2. Place in windows with bright light but no direct sunlight. Some midwinter sunlight is not harmful, but avoid it at other times of the year. If no suitable window space is available, plants grow well in fluorescent light. Place about 8 to 12 inches beneath cool white fluorescent tubes lit about 14 hours daily.

3. Water frequently enough to keep soil moist, but allow slight drying between waterings. Easily killed by excess soil moisture. Wick watering is adaptable.

4. Humidity is important. In homes with low humidity, place on trays of gravel containing water. Home humidifiers can help.

Reblooming African violets:

African violets rebloom easily in the home. If located properly and watered regularly, little need be done besides occasional fertilization. Use either special African violet fertilizers or a houseplant fertilizer high in phosphorus. A very dilute fertilizer solution at each watering keeps growth constant and eliminates any chances of over fertilization.



The African violet variety, Top Dollar, combines white and green variegated foliage with double blue flowers.

Pale green leaf color may indicate too much sunlight or low fertility. Do not use water softened by a system using salt in the process.

African violets seldom need pots larger than 4 inches in diameter. The danger of overwatering and development of root and crown rots increases if pots are too big.

Old plants sometimes develop long woody stems. The tips of these plants may be cut off and rooted to form new, more compact plants. However, plants developed from leaf cuttings are generally more vigorous and bloom more abundantly.

The large blooms of Amaryllis rise high above its bulb and young foliage.

Amaryllis

Amaryllis produce large, showy flowers before most of the foliage develops. Large bulbs produce two stems of flowers; smaller bulbs usually have only one. Bulbs ready for bloom or plants with bloom stalks started are available in early winter. With proper care these bulbs bloom yearly.

Care of the new plant:

1. When in bloom but before foliage develops, display in any desirable location indoors. However, as foliage develops, move plants to a bright window. Direct sunlight can shorten the life of the flowers, but after flowering is completed, give plants a bright, southern exposure with plenty of winter and spring sunlight.

2. To keep bloom stalks from excessive stretching and to increase duration of bloom, keep plants in a cool room at night. When this is not possible, stakes may be necessary to keep the bloom stalk upright.

3. Soil must be kept constantly moist while blooming. Drying will reduce flower life and cause the flower stalk to bend.

Reblooming amaryllis:

Despite its short flowering period, spectacular flowers rebloom easily in future years. Care is most important during spring and summer. After bloom is completed, remove blooms and stalks promptly so no seeds form. Do not damage or cut off any leaves. Place plants in direct sunlight. If the pot is small and the bulb large, transplanting may be necessary. The pot should be at least 2 inches larger in diameter than the bulb. Standard potting mixtures are quite satisfactory. When repotting, avoid as much root damage as possible. Repot before flowering but not after fully developed leaves are actively growing. The completion of flowering is the last time to replant.

Provide good soil drainage; never grow plants in pots without bottom drainage. Keep bulbs at temperatures between 60 and 70 F. After danger of frost is past, potted bulbs may be moved outdoors. If garden space is available, sink pots to the rim. Position in sufficient sunlight where they can be easily watered. Move gradually into a sunny location to reduce or avoid leaf burn. Keep plants actively growing during the summer. As danger of frost approaches, lift out pots containing the bulbs and store in a cool room (about 45 to 50 F at night). Withhold water until the foliage dies. Light is not necessary. Bulbs require a two to three month rest period before growth and flowering begin again.

Flower buds should appear several weeks after moving plants to a warm temperature, and watering is resumed. Bulbs, which had four or more healthy leaves throughout the summer, should be large enough to flower; those with less foliage may not flower. However, with proper care nonflowering bulbs can be redeveloped for blooming in future years.

Begonia

Although most begonias are popular houseplants because of their attractive foliage, a few varieties are well known for their spectacular blooms. Most noted for their flowers are the Rieger begonia, Christmas begonia, wax (semperflorens) begonia, and tuberous begonia. Although their needs vary, these plants are similar enough to be discussed as a group.

Care of the new plant:

1. Most develop best at a 60 F night temperature. Night temperatures exceeding 70 F reduce or inhibit flowering.

2. Flowering begonias need brighter light than most foliage begonias. Provide some direct sunlight during most of the year except in summer when bright light rather than direct sun is best.

3. Provide a uniform water supply. Root rots often develop after excessive watering. Use a houseplant fertilizer regularly according to the manufacturer's directions to keep plants vigorous and flowering.

Reblooming begonias:

Wax (semperflorens) begonias make good garden plants. Plant into the flower border in a lightly shaded location after all danger of frost is past. In fall, these same plants may be repotted to bring indoors if they have not become too large. If they were left in sunken pots, the operation is easy and less root damage results.

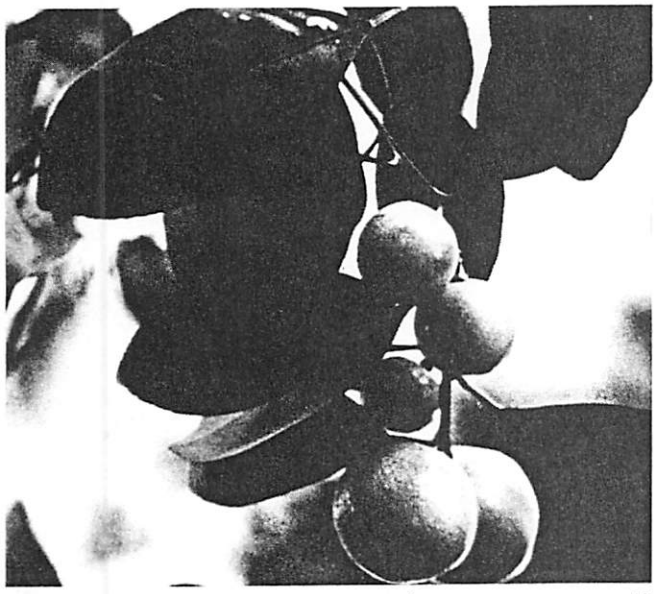
Since plants may be too large after a full summer of growth, root cuttings during the summer to develop smaller plants.

Rieger begonias do not rebloom easily, and unless kept in a very good environment, they are best discarded after flowering is completed. To try reblooming healthy plants, cut back the main, heavy shoots to about 3 inches from the plant base. Repot into a slightly larger pot, and set old soil ball ¼ to ½ inch above the new soil line. Keep soil slightly dry until wounds have healed and new growth begins. Then, resume normal watering and fertilization; the plant should begin to flower again in three to four months. Young plants may be started from leaf cuttings.

Move tuberous begonias outdoors into a moist, shaded location, preferably on the north side of a house or hedge, as soon as all danger of frost is past. Soil should be well drained and high in organic matter. Water frequently to keep plants actively growing during hot weather. In fall, dig up tubers, and keep in a warm, dry place until the tops die off. Remove the tops and store the tubers in dry peat moss at about 40 F. In March, or as young shoots begin to develop, plant indoors into pots of fresh, clean soil. Set the top of the tuber well above soil surface.

Citrus

Several citrus varieties grow well in containers indoors. The calamondin orange, a popular variety, produces small orange-like fruits. Plants may display both flowers and fruits at the same time. Flowers have the typical orange-blossom frangrance, but fruits are quite sour. Other dwarf citrus varieties suitable for indoor growing include the Ponderosa lemon, Meyer lemon, and Dwarf Tahiti orange. Although seeds from oranges, grapefruits and other citrus fruits purchased in the grocery store are fairly easy to sprout, they soon grow too large and seldom produce fruit in the home.



The calamondin orange produces many small, sour fruit.

The fragrant, waxy flower of the gardenia blooms amidst glossy, deep green leaves.

Care of the new plant:

1. Maintain night temperatures between 55 and 60 F; day temperatures 70 F or higher. Avoid temperatures below 55 F.
2. Allow soil surface to become dry to the touch before rewatering. Never allow standing water in the container or saucer. Always use containers with drainage and a soil that is loose and well drained.
3. Place in a sunny, south window.
4. Use fertilizers with an acid reaction such as those sold for use on azaleas, rhododendrons or gardenias to maintain the soil slightly acid. If foliage develops a very pale color between the veins, soil may not be acid enough, or root damage has occurred. Application of iron sulfate may correct this problem (see gardenia).

Reblooming citrus plants:

If well-placed and tended, plants should flower and fruit throughout the year. In summer, plants may be placed outdoors in light shade with some direct sunlight. However, make adjustments to outdoor conditions gradually to avoid leaf burn. If plants need repotting, shift during the early summer when growth is active.

Because even some dwarf varieties may become too large for home use, prune back severely during the spring. New shoots develop from older wood.

Loss of flowers or failure to produce fruit is usually caused by either poor light, high temperatures, incorrect watering or attacks by spider mites, scale, or other common houseplant pests.

Gardenia

The glossy, deep green foliage and fragrant waxy-white flowers of gardenia make it a beautiful plant but

not an easy plant for home culture. Although sometimes available at other times, they are primarily potted plants used for the spring holidays.

Care of the new plant:

1. Plants prefer temperatures close to 60 F at night and 70 to 75 F during the day. Maintain fairly uniform temperatures within these ranges.

2. Maintain uniform soil moisture with good drainage. Fertilize with acid reaction fertilizers to keep soil slightly acid. If possible, use rain water, especially if tapwater is "hard" or alkaline. Never use softened water because of its high sodium content.

3. Place in sunny south or west windows.

Reblooming gardenias:

Unless located in a suitable environment, gardenias decline rapidly and should be discarded after flowering. Loss of flower buds is sometimes a problem with new plants. To help reduce bud drop, provide the best conditions possible. Misting over the plant while it becomes adjusted to a new location may help reduce bud drop.

When repotting is necessary, use a slightly acid soil mix high in peat moss. Repot in late spring after flowering is completed. If moved outside for the summer, they prefer a slightly shaded location. Most benefit from the addition of iron sulphate at three to four week intervals. Use ½ teaspoon to each quart of water. Soil acidity should be near pH 6.0 or slightly less. In early summer or at the time they are placed outdoors, prune back plants that have become too large.

Plants are subject to attack by common houseplant pests, including spider mites, scale and mealy bugs.

Holiday Cacti

Thanksgiving cactus, Christmas cactus and Easter cactus are three tropical cacti which naturally flower near each of these holidays. Recent development of vigorous new hybrids, which flower between Thanksgiving and Christmas and in different colors and shades, have increased their recent popularity. In general, holiday cacti bear the stem characteristics of the Thanksgiving cactus. The Thanksgiving cactus has stem segments with saw-toothed margins; the Christmas cactus has rounded margins. Easter cactus is more intermediate in shape but develops more small spines at the junctions of the stem joints.

Care of the new plant:

1. Cacti prefer a relatively cool night temperature between 55 and 60 F. Night temperatures above 70 F inhibit flowering and cause drop of existing buds.

2. Place in some direct sunshine. Poor light promotes bud drop and poor growth after flowering. In summer, place plants in bright light, but not direct sunlight.

The Christmas cactus produces pendant flowers at the tips of graceful stems.

3. Water thoroughly, but allow to become moderately dry between waterings. Excess moisture results in root rot, especially during flower bud development in the fall during slow vegetative growth.

Reblooming holiday cacti:

For flowering in future years, keep plants in a sunny window and fertilize regularly but lightly. Plants are epiphytic, that is, they grow in decaying organic matter rather than soil. When repotting, use sphagnum moss or a very loose mixture of organic materials. They do not need extremely large pots.

Keep in a bright window indoors during the summer, hang from branches of trees or set in other lightly shaded locations outdoors.

About mid-September, flower buds should begin to develop. Night temperatures of 55 F result in the development of flower buds. When cool night temperatures are not possible, induce flowering by giving plants short, preferably nine-hour days, from about mid-September to mid-October. Cover with a light-tight box every evening for 15 hours of complete darkness. Flowering occurs about two and a half months later.

Reduce watering and withhold fertilization during flower bud development and flowering stage.

Plants are relatively disease and pest free. However, overwatering or poor drainage of the potting medium may cause root root and result in collapse of roots. Plants root easily from stem segments. To start new plants, break off the healthy older branches and root the tops in fresh, clean sphagnum moss. Water sparingly until rooting occurs and new growth begins. Wilted segments, if not too badly damaged, will recover and become firm as new roots develop.

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Care of Flowering Potted Plants—Part III

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College of Agriculture

This guide discusses the care of calceolaria, Christmas pepper, cineraria, cyclamen, gloxinia, Jerusalem cherry and kalanchoe. These plants are either difficult to rebloom or have short life spans. Most of them should not be kept for reblooming. Unless you provide an ideal location, results are often inferior, or the plants become leggy with poor form.

Calceolaria

The oval, balloon-like flowers of calceolaria make its common name, "pocket-book plant" quite appropriate. It is usually available as a spring-flowering plant from about Valentine's Day through Easter.

Care of the new plant:

1. These plants thrive in cool temperatures. For the longest display, locate plant in a cool room or window where temperatures are near 50 to 55 F at night.
2. Locate in bright light, but avoid direct sunlight, which may fade flowers and reduce their life span.
3. Keep plants well watered at all times with slight drying between waterings. Overwatering easily damages their fine root system.

Care after flowering:

Calceolarias are annual plants grown from seeds. After flowering is completed, plants gradually decline and cannot be rebloomed successfully. Excessive heat or drying at any time makes them collapse quickly.

Christmas Pepper

Christmas peppers are suitable for indoor use at holiday time because of their bright red fruits. Although they are edible, most ornamental peppers taste very hot. Round or pointed fruits in different sizes and colors provide indoor variety.

Pouch-like calceolaria flowers make a spectacular show above the leaves.

Care of the new plant:

1. Plants last well under normal home temperatures. Keep them cool at night.
2. Keep moist at all times, never allowing them to wilt. Wilting results in leaf yellowing and dropping.
3. Plants need abundant light. Place them in a sunny, south-facing window.

Care after flowering:

If plants are in good condition, take them outdoors after danger of frost. Outdoors, old leaves may drop, but new ones should develop quickly. Reshape plants if necessary by cutting back leggy stems. New blooms and fruit should develop by mid-summer.

If you are planning to bring the plant back indoors in the fall, repot into a slightly larger pot and sink it in the garden soil. Always locate potted plants where you can easily water them because they dry faster than those planted directly into the soil.

In the fall, several weeks before frost, lift pots. Digging and potting may cause some root damage, resulting in leaf drop until the plant reestablishes itself. With careful digging and potting, leaf drop should be minimal.

Ornamental peppers are easily grown from seeds. Seeds planted outdoors in late spring produce plants suitable for potting and bringing indoors in the fall.

Cineraria

Cineraria is a spectacular flowering plant for use on Easter and Mother's Day. Masses of daisy-like flowers in either red, pink, blue, violet or white rise above a nose-gay of large leaves. Cinerarias are seed propagated and grown at cool temperatures.

Cineraria produces a mass of closely packed, daisylike blooms.

Care of the new plant:

1. Plants last longest if kept at night temperatures between 45 and 50 F with daytime temperatures between 55 and 65 F.

2. Constant soil moisture is critical for maintaining long life. They wilt quickly and can be seriously damaged if soil becomes dry. Water thoroughly to keep soil moisture constant but not too wet.

3. Plants need good light but not direct sunlight, where higher temperatures may reduce flower durability. The heat, resulting in rapid soil drying, may also cause foliage wilting.

Care after flowering:

With good care, cinerarias should be attractive for several weeks. These plants are grown from seed and are best handled as an annual. Once flowering is completed, they naturally decline and should be discarded.

Cyclamen

Cyclamen is available from Christmas through the spring holidays. Leaves are heart-shaped, often with attractive grey-green mottlings. Flower petals reflex back from the centers and are held on long stems above the foliage. Colors are pink, salmon, red and white.

Care of the new plant:

1. Plants may flower for several months if kept at cool temperatures. Night temperatures close to 50 F are best; however, a range from 50 to 60 F is satisfactory. Day temperatures are less critical but should not run over 70 F if possible. High temperatures may cause young flower buds to abort.

2. During the winter, place plants where they get bright sunlight. At other times, place in bright light with little or no direct sunlight.

3. Never allow plants to wilt. Water from the side of the pot, so water does not get into the center of the "bulb." Keep soil moist with frequent watering, but do not allow water to stand in saucers beneath the pots.

Care after flowering:

Cyclamen is a perennial plant and may rebloom a second season. After flowering, gradually withhold water until the foliage dies off. This begins the rest period. Do not water for six to eight weeks.

By midsummer, begin watering gradually. Repot if the bulb-like corm is fairly large in the pot. When repotting, keep about half of the "bulb" above the soil line. At this time, a lightly shaded, cool spot outdoors, or a cool, shaded window indoors provides the best location. As new leaves develop, resume normal watering and fertilization and move plants to a sunny location. Keep soil moist at all times, and feed with a houseplant fertilizer according to manufacturer directions. Move plants indoors before danger of frost. Plants treated in this way should rebloom by midwinter.

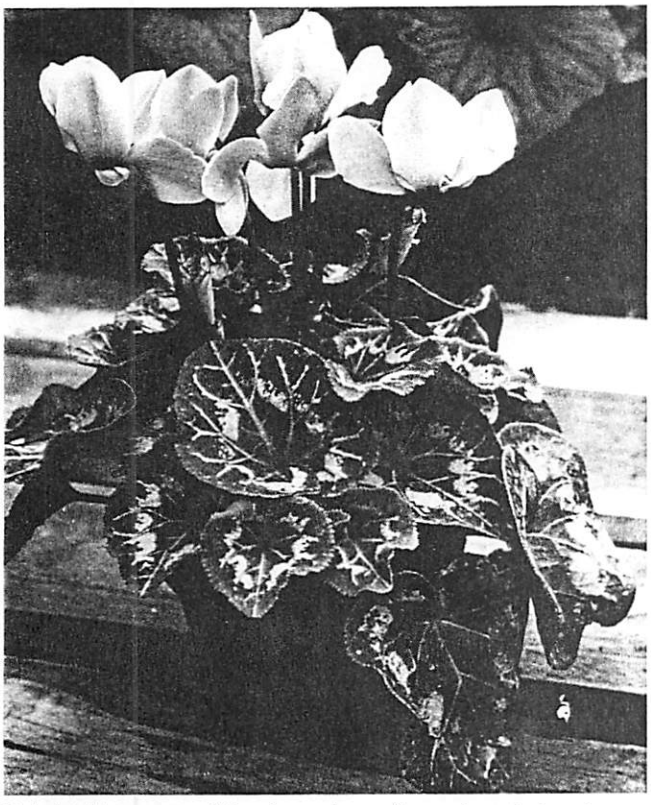
If young leaves become stunted or curled, a pest known as cyclamen mite may be present. While insecticides may combat this problem, infected plants are best discarded before the pest can spread to other plants.

Gloxinia

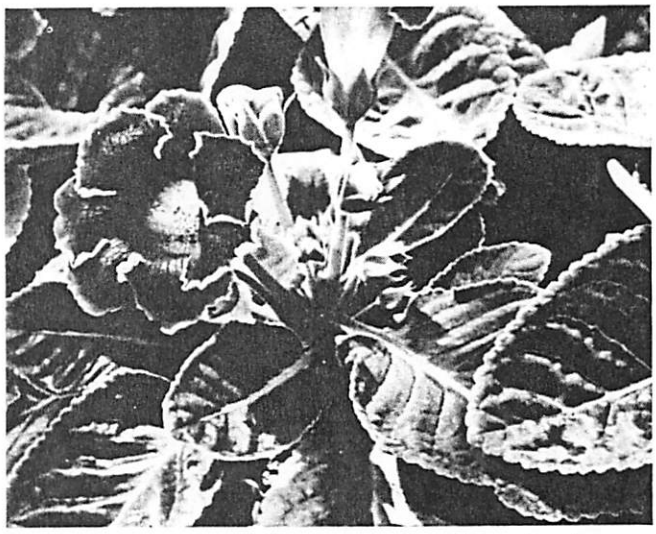
Care of the gloxinia is similar to that of the African violet, a close relative. Its large trumpet-shaped flowers rise above large, velvety leaves. Vivid colors include pink, red, white, blue and purple in solid colors as well as spotted or bordered with white. Gloxinias are most popular during the late winter and spring holidays.

Care of the new plant:

1. Plants need warm temperatures (65 to 70 F) at night along with fairly high humidity and good ventilation. Placing plants on a tray of moist gravel, or misting over new plants helps adjust them to home conditions.
2. Gloxinias need more light than African violets, so place them in a bright window just beyond the reach of direct sunlight. In late spring, direct sunlight may cause burning of foliage and reduce the life of the flowers. If stems begin to stretch, light is inadequate.
3. Keep soil uniformly moist. Plants can be damaged seriously if allowed to wilt. Small flower buds sometimes abort after plants are brought into the home. Either poor light, low humidity or excessive soil drying may lead to collapse of the young flower buds.



Bright flowers with sharply reflexed petals above heart-shaped leaves make cyclamen a unique potted plant.



Large, bell-shaped flowers and soft, hairy leaves are distinctive characteristics of gloxinia.

Care after flowering:

Plants produce a fleshy tuber, which with proper care, may be rebloomed. After the plant has stopped flowering, gradually taper off watering until the leaves yellow and die. Place pot and tuber in a cool, dark location, and stop watering. Give the tuber a rest period of eight to 10 weeks. As new growth appears, move the pot to a bright location and begin watering gradually. Tubers may be repotted at this time if necessary.

For spring bloom, do not water the tubers until after Christmas. Then, remove the tuber from the old soil, and plant shallowly into a new potting mixture. Place the top of the tuber above the soil line. Use only one tuber per pot. For starting plants, pots 4 or 5 inches in diameter are adequate. As shoots enlarge and leaves fully expand, begin normal watering and light fertilization. Plants should begin flowering in about four months.

Young plants may also be started from leaf or shoot cuttings. Techniques for starting plants from leaves are the same as for African violets.

Jerusalem Cherry

A close relative of the tomato, Jerusalem cherry produces abundant small, round, orange-red fruits. Although popular as a gift plant for the Christmas season, it is losing some popularity to Christmas peppers which give a similar ornamental effect.

Care of the new plant:

1. For longest durability, place plant in a cool location (50 F nights are ideal). Higher temperatures shorten the life of the plant, and leaves often drop.
2. Plants need a sunny location.
3. Keep the soil moist by watering as soon as the surface has dried slightly. Too much water promotes premature leaf drop.

Care after flowering:

Jerusalem cherry may survive until spring in a good location. Although they may be refruited for another season, they are seldom worth the effort. After danger of frost in the spring, sink the pot into a flower bed for summer display. Trim back to reshape the plant.

Plants grow easily from the seeds in the berries. Develop plants for next season by planting the seeds in the early spring and growing them outdoors in the summer. Allow plants to set and develop fruit while still in the garden. After fruits are well set in the fall, lift the plants and place in pots for bringing indoors later. Grow plants in full sun in the summer, but after potting, move to a bright, shady spot before bringing indoors.

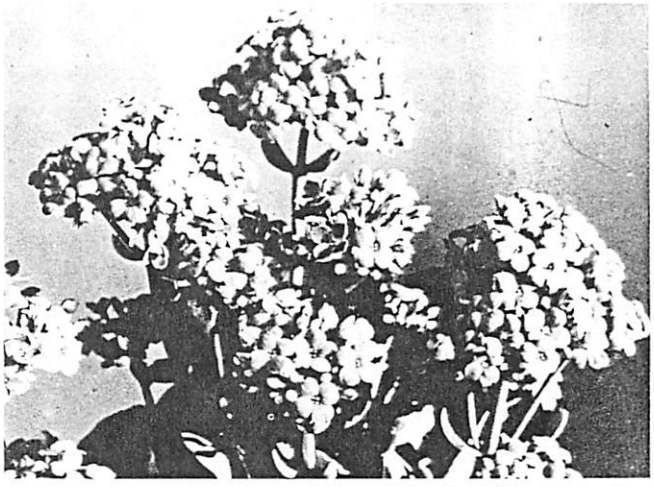
Kalanchoe

Recently, compact varieties of kalanchoes in a greater range of flower colors have been developed. As a Christmas plant, the red-flowered types have been popular, but pink, orange and yellow varieties are available for other times of the year. The kalanchoe has thick, waxy leaves. Flowers are small, four-petaled, in abundant clusters held well above the leaves.

Care of the new plant:

1. Plants prefer a night temperature from 60 to 65 F. As with most houseplants, day temperature should be about 10 degrees higher.
2. Locate the plant in a sunny south or west exposure during the winter. In the summer any bright location with a few hours of direct sunlight will be satisfactory.
3. These plants can be damaged by overwatering. Allow soil to dry slightly between waterings. Fertilize with a common houseplant fertilizer at about monthly intervals.

The round, orange-red fruits and deep green foliage of the Jerusalem cherry are appropriate for the Christmas holidays.



Long-lasting clusters of four-petaled flowers rise above the waxy leaves of kalanchoe.

Care after flowering:

With good care, kalanchoes may be rebloomed for another season. After flowering, shift the plant to a slightly larger pot. Use a well-drained general purpose potting soil. Cut back tall growth and old flower stems. Keep well watered in a sunny, warm window. Indoors keep the plants in a sunny location, but after danger of frost, move them outdoors for the summer. Gradually adjust them to outdoor conditions, so tender leaves will not burn. Keep in a bright, lightly shaded spot. New plants may also be started from cuttings taken in the spring or early summer.

Kalanchoes, like poinsettias, require short day lengths for flower bud development. Natural day lengths between October 1 and March 1 allow flower buds to form. During this time, keep the plant in a room where lights are not turned on during the natural dark hours. About six weeks of natural winter day lengths are required for flower buds to appear. After the flower buds are large enough to be seen above the foliage, day length is no longer critical. At this time, place plants in any location regardless of night lighting. Plants exposed to natural short day lengths in early October should begin flowering by January.

Other Guides Related to Houseplant Care:

6510 "Caring for Houseplants"
6511 "Care of Flowering Potted Plants, Part I" (includes azalea, chrysanthemum, Easter lily, hydrangea, poinsettia and potted bulbs)
6512 "Care of Flowering Potted Plants, Part II" (includes African violet, amaryllis, begonia, citrus, gardenia and holiday cacti)
6515 "Lighting Indoor Houseplants"
6520 "Terrariums"
6550 "Spring Bulbs for Indoor Planting"
6560 "Home Propagation of Houseplants"
6570 "Starting Plants form Seeds"

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. John W. Oren, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.

Grounds for Gardening

A Horticultural Guide

Agricultural Guide

Published by the University of Missouri-Columbia Extension Division

Caring for House Plants

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To many people, a home is not complete without attractive potted plants. Proper care of house plants helps increase satisfaction and enjoyment from them and extends the blooming period of many flowering plants.

Most potted plants purchased from the florist have been grown in greenhouses under ideal conditions. When they are placed in home environments designed for people, not plants, they need good care to adjust to the new environment.

Watering

House plants are probably killed or injured more by improper watering than by any other single factor. No general time schedule can be used for watering all house plants. Size of plant, pot, light, temperature, humidity and other conditions influence the speed with which the soil mass dries out.

When to Water. Generally, flowering plants need more water than foliage plants of the same size. Never water any plant unless it needs it. Soil kept either too wet or too dry causes plant roots to die, which leads to poor growth or death of the plant. *Never* allow plants to wilt, and *never* allow them to stand in water for long periods of time.

Learn to gauge the moisture content of the soil by its color and feel. As the soil surface dries it becomes lighter. Under continued drying the soil begins to crack and pull away from the sides of the pot. When severe drying occurs some damage already will have been done to the roots.

Soil kept too moist becomes sticky and slimy, thus inviting root rots and other disease problems.

Kinds of Water. Ordinary tap or well water is usually satisfactory for plants. Chlorine and fluorine often added to city water do not harm plants. Rain water or melted snow are excellent. Water run through most water softeners, however, should not be used continuously for watering potted plants.

How to Water. Plants may be watered from either the top or the bottom of the pot. If you prefer watering from the top, use a watering can with a small spout and keep as much water off the foliage as possible. Each time, wet the entire soil mass, not just the top inch. Add water until it comes through the drainage hole in the bottom of the pot. Discard water that remains beneath the pot one hour after watering.

Figure 1. Dieffenbachia is one of many foliage plants adapted to conditions in the home.

Watering from the bottom insures thorough wetting of the soil mass. Place the pot in a pan or saucer filled with water, or dunk the pot in a bucket of deep water (just below the rim of the pot). When the top of the soil becomes moist, the entire soil ball should be wet. Remove the pot, allow it to drain and return it to the saucer.

Salts may form a white accumulation on the soil surface if plants are watered regularly from the bottom. Occasional watering from the top helps wash out the salts. Don't allow the soil to reabsorb any water that has been run through the soil to leach out salts. Surface salt accumulation may become too heavy to remove in this way. When this happens, scrape off the surface soil and replace it with fresh soil. Try not to injure plant roots.

Drainage. Potted plants should always have good drainage. Occasionally the drainage hole may become clogged by roots. Check it by pushing a finger, stick or pencil into it.

Even though drainage from the pot may be good, pot coverings may hold water. Pots wrapped in waterproof foil or placed in deep planters should be checked occasionally for standing water.

Plants with "wet feet" soon look sick—leaves yellow or drop; flowers collapse; and normally healthy white roots turn brown. Any or all of these can result from stagnation of the water, too little soil oxygen and development of diseases which rot the roots.

Lighting

Improper light intensity ranks close to improper watering as a frequent cause for failure with house plants. A plant in proper light is better able to withstand the high temperature and low humidity of many homes. The amount of light necessary for good growth varies with different types of plants.

Flowering Plants. All flowering plants need moderately bright light. Plants kept continuously in poor light will have spindly shoots, few flowers, yellow foliage, poor flower color and often little or no growth.

South, east or west windows are excellent for most flowering potted plants, with the possible exception of African Violets and related plants which prefer a north window. Plants in bloom should be kept out of direct sunlight since the flowers will heat excessively and collapse more quickly.

Light in the average room, away from windows, is not bright enough for most flowering plants, even when ceiling fixtures are kept on.

Fluorescent lights located fairly close to house plants will improve growth when plants cannot be placed close to windows. When artificial lights are used, place them about 1 foot above the top of the plant, and keep them on for about 16 hours each day. Extra fertilizer, water or repotting are not cures for insufficient light.

Foliage Plants. Foliage plants are generally divided into those suitable for low light areas, moderate light areas and high light areas. Only a few plants can tolerate dimly lit room interiors. Light at a north window, daylight with no direct sun or sunlight diffused through a lightweight curtain are suitable for most foliage plants. Plants that require full sunlight should be put in a south window.

Abrupt change from a location in low light to one in bright light may be damaging. Plants can become acclimated to one location. Leaves gradually face toward light for maximum light absorption, especially in low light areas. Moving the plant disrupts this orientation, and light is not used as efficiently for a period of time. This is especially true of large plants.

Moving abruptly to more intense light also results in bleaching or burning of foliage, especially in direct sun. Any changes should be made gradually. Many plants can be kept from getting one-sided by turning them once a week.

Temperature

Proper temperatures for plants are often hard to find in the house. A hot, dry atmosphere shortens the life of flowers. Flowering potted plants should receive temperatures from 65 to 75 degrees in the day, and 55 to 60 degrees at night. To get the most out of flowering potted plants in the home, move them to a cool spot at night.

Foliage plants are more tolerant of high temperatures, but they thrive at temperatures between 65 and 70 degrees.

In winter, plants placed close to a window may have cooler temperatures than those elsewhere in the house. If the drapes are drawn behind these plants at night, the window temperature may be too cool. On cold nights, check temperatures close to windows. Some tropical foliage plants can be injured at temperatures below 40 degrees.

Do not put plants at windows that have hot air registers or radiators directly below them. Hot air blowing on the plants often causes leaves to brown on the edges and occasionally to drop or die.

Humidity

Air in most modern homes is extremely dry during the winter. A furnace or room humidifier can help plant growth. If one cannot be used, watertight trays placed beneath the plants and filled with constantly moist sand or gravel help increase humidity around the plants. Pots must be placed on, not in, the wet sand or gravel.

Misting over the leaves daily can help a plant overcome the stress of low humidity. Plants needing constant high humidity such as orchids or gardenias are best kept in kitchens or bathrooms where humidity often runs higher. A relative humidity between 40 and 60 percent is best for most plants, but is difficult to attain in the house.

Fertilizing

Newly purchased plants have been well fertilized in the greenhouse. They seldom need additional fertilizer for a few weeks. If plants are to be discarded after flowering, there will be no benefit from fertilizing. Plants to be kept on in the home should be put on a regular fertilization program.

When to Fertilize. Fertilizing once a month is usually adequate for most house plants that are producing new growth or flowers. During mid-winter (December, January) when no new growth is apparent, fertilizer should be withheld.

Do not use fertilizer to stimulate new growth on a plant located in poor growing conditions. Lack of growth is more often due to improper light or watering than to nutritional deficiencies. In such cases adding fertilizer may actually cause additional injury.

Drop of lower leaves, overall yellow-green color or weak growth may indicate a need for fertilization. Since these same symptoms may result from poor light or over-watering, evaluate all conditions before fertilizing more than normal.

Kind of Fertilizers. Water soluble, complete fertilizers have been formulated for house plants and are available from many garden shops, florists and nurseries. They are easy to use. Since formulations vary, be sure to follow directions carefully. Do not apply more than directed. The roots of potted plants are quite restricted and easily burned by the application of too much fertilizer at one time.

Never apply liquid fertilizers to wilted plants. Water the plants first, and apply fertilizer after the plants have recovered and the soil has dried slightly.

If soluble fertilizers such as 20-20-20 are available, these may also be used for fertilizing house plants. Make a solution by mixing 1½ teaspoons of this material in one gallon of water.

Some prefer to use organic fertilizers for house plants, but either organic, inorganic or a combination of both will be satisfactory sources of nutrients.

Fertilizers that release nutrients slowly or over a long time period require less frequent application than liquid forms. They are available in beads, pills, spikes and other forms. Never exceed amounts suggested by the manufacturer's directions.

Repotting

Plants just brought home from the greenhouse seldom need immediate repotting. Many will not require potting for some time. A newly acquired plant must make adjustments to its new environment, and repotting immediately puts added strain on the plant.

When a plant is pot bound (roots are too extensive for the

pot) it may require too frequent watering and makes poor growth. This is a time for repotting.

A good potting mixture for many plants is made up of equal quantities of good garden soil, peatmoss or leaf mold, and sand or perlite. In very heavy soils more peat and sand should be used.

Acid-loving plants such as azaleas and gardenias should have at least 50 percent peatmoss or other organic material in the soil mix. With good care these plants can be grown successfully in peatmoss with no soil added.

Sterilize soil mixes before using them to avoid contamination by insects, diseases and weed seeds. In one method, moist soil is heated in a 200 degree oven for about 30 minutes or until it is heated through. Cover the container or wrap soil in aluminum foil to keep it from drying out while being heated. Chemicals can also be purchased for soil sterilization.

When repotting, avoid excessive damage to the root system. Firm the soil gently around the root ball, but do not press so hard that the soil becomes compacted (Fig. 2).

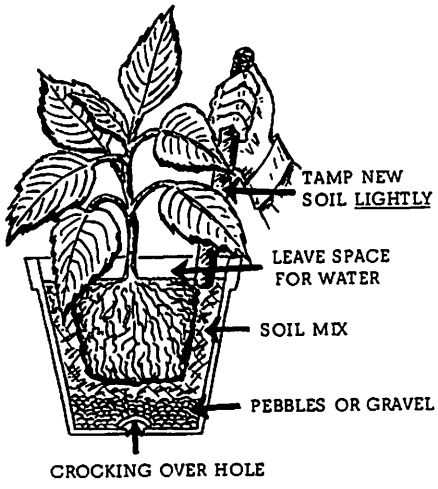

Figure 2. Repotting a house plant.
Sketch by Barbara Long

Allow enough space at the top of the pot so water can be added easily. Water newly potted plants thoroughly, drain and do not water again until necessary.

Insects and Diseases

Watch new plants carefully for development of insect or disease problems. If detected early, these problems often can be corrected easily before serious damage is done. If ignored or unseen, they may become difficult to control.

Summer Care

During the summer many house plants can be revitalized if placed outdoors. Do not rush the plants outside too early in the spring. Late May is usually soon enough. Cool nights may injure some of them.

Move the plants to a sheltered spot on a porch, beneath a tree or behind shrubs close to the house on a mild day, preferably when the weather is cloudy. After about one week of this adjustment, they may be moved to a more exposed but sheltered spot for the rest of the summer.

Plants with large leaves should be placed where they get good wind protection, since their leaves are easily torn.

Potted plants dry rapidly outdoors. Frequency of watering can be reduced by submerging the pots in soil. This also keeps pots from falling over. Lift the pots occasionally to keep roots from growing out of the drainage hole in the pot and to prevent the plant from becoming established outdoors. Fertilize monthly, and check occasionally for insects or diseases that may attack them outdoors. Move them indoors by mid-September before cool weather returns.

Durable house plants

Although all house plants grow best with good care, there are a few that stand abuse more than others. Some of the most durable house plants are snake plant (Sansevieria), heart-leaf philodendron (Philodendron cordatum), devil's ivy (Pothos), corn plant (Dracaena massangeana), Peperomia (Peperomia obtusifolia), cast iron plant (Aspidistra), dwarf palm (Collinea), Chinese evergreen (Aglaonema) and spider plant (Chlorophytum).

Diagnosing Cultural Problems

Problems resulting from poor growing conditions in the home are difficult to diagnose. Often poor growth may result from a combination of several unfavorable factors. Below are some possible symptoms that might appear. Following the symptoms are some causes that may have led to the problem.

1. Lower leaves turn yellow and drop when touched
   (a) Usually caused by overwatering
   (b) May occur when a new plant is moved from greenhouse to a low light, low humidity environment
2. Yellowing and dropping of leaves at various levels on a plant
   (a) Overwatering
   (b) Poor drainage
   (c) Tight soil
   (d) Chilling
   (e) Gas fumes
3. Tips or margins of leaves appear burned, brown or both
   (a) Too much fertilizer
   (b) Plant to dry for a short period of time
   (c) Plant exposed to too low temperature for short period
   (d) Use of softened water
4. New leaves of plant are small
   (a) Soil too dry for long periods
   (b) Poorly drained soil
   (c) Tight soil mixture
5. New leaves with long internodes
   (a) Not enough light
   (b) Temperature too high
6. Leaves yellow or light green, weak growth
   (a) Too much light
   (b) Poor root system—possibly from poor drainage, overwatering or tight soil

Description of Terms

Night Temperature—May fluctuate several degrees above or below listing. Day temperature should be 10 to 15 degrees higher.

No direct sun—Low light intensity suitable. Direct sun may bleach or burn foliage.

Cultural Preferences of Plants Often Grown in the Home

Common Name	Night Temp.	Light	Moisture	Soil
African violet, Saintpaulia	65	Filtered	Evenly moist	Humus
Amaryllis	55	Bright	Evenly moist	Loam
Arrowhead, Nephthytis, Syngonium	65	Filtered	Evenly moist	Loam
Asparagus fern, Plumosus	50	Filtered	Evenly moist	Loam
Australian Tree Fern	65	Filtered	Thoroughly wet	Humus
Azalea	50	Bright	Evenly moist	Humus
Begonia (many types)	65	Filtered	Evenly moist	Humus
Bird of Paradise, Streletzia	50	Bright	Drench, then dry	Loam
Bougainvillea	65	Bright	Drench, then dry	Loam
Bulbs (Forced - tulip, hyacinth, etc.)	50	Bright	Drench, then dry	Loam
Burn plant, Aloe	55	Bright	Drench, then dry	Loam
Cactus (desert types)	65	Bright	Drench, then dry	Sandy Loam
Calceolaria, Pocket-book-plant	50	Filtered	Drench, then dry	Humus
Cast Iron Plant, Aspidistra	50	No direct sun	Evenly moist	Loam
Chinese Evergreen, Aglaonema	65	No direct sun	Evenly moist	Loam
Christmas Cactus	65	Filtered	Evenly moist	Humus
Christmas Pepper	65	Bright	Evenly moist	Loam
Chrysanthemum	55	Bright	Evenly moist	Loam
Coleus	65	Bright	Evenly moist	Loam
Croton	65	Bright	Evenly moist	Loam
Cyclamen	50	Filtered	Evenly moist	Humus
Dieffenbachia, Dumb cane	65	Filtered	Drench, then dry	Loam
Dracaena, Corn plant, Ti plant (related types)	65	Filtered	Thoroughly wet	Loam
Dwarf Orange, other Citrus	55	Bright	Drench, then dry	Loam
Easter Lily	50	Filtered	Drench, then dry	Loam
English Ivy, Hedera	50	Bright	Evenly moist	Loam
Episcia, Flame flower	65	Filtered	Evenly moist	Humus
Ferns (many types)	55	Filtered	Evenly moist	Loam
Freesia	50	Bright	Drench, then dry	Loam
Fuschia, Lady's eardrops	55	No direct sun	Evenly moist	Loam
Gardenia	65	Bright	Evenly moist	Humus
Geranium	50	Bright	Drench, then dry	Loam
German Ivy	60	Filtered to bright	Drench, then dry	Loam
Gloxinia	65	Filtered	Evenly moist	Humus
Hibiscus	65	Bright	Evenly moist	Loam
Hydrangea	55	Bright	Thoroughly wet	Loam
Impatiens, Sultana	55	Bright	Evenly moist	Humus
Jade plant, Crassula	65	Bright	Drench, then dry	Loam
Kalanchoe	55	Bright	Drench, then dry	Loam
Lantana	55	Bright	Drench, then dry	Loam
Maindenhair Fern, Adiantum	65	No direct sun	Thoroughly wet	Humus
Moses-in-the-Cradle, Rhoeo	55	Filtered	Evenly moist	Loam
Norfolk Island Pine	55	Filtered	Evenly moist	Humus
Orchid (Cattleya types)	55	Filtered	Drench, then dry	Orchid mix
Palms	65	No direct sun	Evenly moist	Loam
Peperomia, Pepper face	65	Filtered	Drench, then dry	Loam
Philodendron (many types)	65	Filtered	Evenly moist	Humus
Poinsettia	65	Bright	Drench, then dry	Loam
Pothos, Devil's Ivy	65	Filtered	Drench, then dry	Humus
Rose, potted	60	Bright	Drench, then dry	Loam
Rubber plant, Ficus	65	Filtered	Evenly moist	Loam
Sago palm, Cycad	55	Filtered	Drench, then dry	Loam
Schefflera, Umbrella tree	65	Bright	Drench, then dry	Loam
Sedums	55	Bright	Drench, then dry	Loam
Shrimp plant	55	Bright	Drench, then dry	Loam
Silver dollar tree, Eucalyptus	50	Bright	Evenly moist	Loam
Snake plant, Sansevieria	65	Filtered to bright	Drench, then dry	Loam
Spider plant, Chlorophytum	50	Filtered	Evenly moist	Loam
Thanksgiving cactus	65	Filtered	Evenly moist	Humus
Velvet plant, Gynura	65	Bright	Evenly moist	Loam
Venus Fly Trap	50	Bright	Thoroughly wet	Sphagnum moss
Walking Iris, Neomarica	55	Filtered	Thoroughly wet	Loam
Wax plant, Hoya	65	Filtered	Drench, then dry	Loam
Wandering Jew, Tradescantia	55	Filtered	Evenly moist	Loam
Zebra Plant, Aphelandra	65	Filtered	Evenly moist	Humus

Filtered light—Needs good light, but protection from long periods of bright sunlight.

Bright light—Suitable for south window exposure close to or in direct sunlight.

Thoroughly wet—Daily watering generally required. May stand in water for brief periods.

Evenly moist—Frequent watering required, but must never stand in water. Soil surface should always feel moist.

Drench, then dry—Soak root ball thoroughly, then allow the soil to become fairly dry before watering again. Do not allow the plant to wilt, however.

Loam—a good garden soil, approximately ⅓ soil, ⅓ organic matter and ⅓ sand.

Humus—Soil high in organic matter. Garden soil should have at least 50 percent peat moss or other organic material added.

Osmunda or orchid mix—best obtained from an orchid specialist.

Sphagnum moss—an undecomposed moss of bog areas used mainly for growing bog type plants.

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Lighting Indoor Houseplants

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Houseplants are extremely popular indoor decorations. Attractive and constantly changing, they add a softness of line and provide a bit of nature indoors. However, the ideal location of a plant for decoration may not be the ideal spot for plant growth. Lack of adequate light is the most common factor limiting the growth of plants in many areas of the home. Supplementary electric lighting is usually the easiest and least expensive way to provide enough light for plants that do not receive adequate natural light.

Why Do Plants Need Light?

Light produces the energy plants need to make the food required for them to grow and flower. Plants are the only organisms able to use light to produce sugars, starches, and other substances needed by them as well as by other living organisms.

Is Light Color Important to Plants?

Yes, certain colors in light rays are important for proper plant growth. Leaves reflect and derive little energy from many of the yellow and green rays of the visible spectrum. Yet the red and blue parts of the light spectrum are the most important energy sources for plants, and plants require more rays from the red range than from the blue.

What Are the Best Sources of These Colors?

Plants growing outdoors, in greenhouses, or close to windows are exposed to a natural balance of the blue and red light rays that plants need. Where plants receive little or no natural light, you must provide additional light from man-made sources.

What Types of Lights Are Best?

Most people are familiar with the incandescent light produced by ordinary light bulbs in our homes. As a single light source for plants, these bulbs are not particularly good. They are a good source of red rays but a poor source of blue. They produce too much heat for most plants and, if used, must be kept away from the plants, thus reducing the intensity of the light the plants receive. They are also about three times less efficient than fluorescent tubes in converting electrical energy to light. Furthermore, a standard incandescent bulb's life is often only about 1,000 hours, whereas a fluorescent tube's life is normally 10,000 hours or more.

Fluorescent tubes provide the best man-made light sources available for plants in the home. Other light sources such as sodium lamps may be used but are not normally available or adaptable for home use.

Fluorescent tubes are made in many sizes and shapes: circular, U-shaped, square, or straight. Straight tubes in two-, four-, or eight-foot lengths are used most frequently.

What Is the Best Balance of Artificial Light?

Many indoor gardeners use cool white fluorescent tubes. Warm white fluorescent tubes also seem fairly effective, but fluorescent tubes listed as white or daylight are less desirable for indoor plant growth. Cool white tubes produce a small amount of red rays in addition to orange, yellow-green, and blue rays. However, the red light produced usually is not enough for many plants unless windows or other artificial lights produce additional red rays.

A few incandescent bulbs in the growing area can furnish needed red rays. A general ratio of incandescent to fluorescent light is about 3 to 10, so for every 100 watts of fluorescent light, you should provide about 30 watts of incandescent light for a better red to blue light balance.

Special fluorescent tubes also have been developed for growing plants. These have a higher output in the red range to balance the blue output. Many home gardeners have found that these tubes can be used in combination with cool white tubes. Use one special plant-growing tube to each one or two cool white tubes. This method is more economical than using all special tubes since cool white tubes cost less than the special plant-growing tubes. Also, fluorescent plant-growing tubes use less electricity and produce less heat than incandescent bulbs, and you will not have to provide fixtures for both incandescent bulbs and fluorescent tubes.

May I Use Spotlights and Other Special Bulbs?

Yes, although they are less effective than fluorescent lights and the combinations described previously. However, fluorescent fixtures may not be suitable for some locations. Reserve these special light sources for situations where supplementary light is essential.

How Much Light Should Plants Receive?

The amount of light necessary varies with each plant. Generally, the light fixtures available for home plant lighting make it practically impossible to produce too much light for most plants.

Plants usually are divided into three general categories: those suitable for *low*, *medium*, and *high* light intensities. (These three groups are referred to in discussions of different plants in the last section of this guide.) The categories generally indicate the minimum light required but should be used only as a guide. Growth is often best in the higher rate of these suggested light ranges.

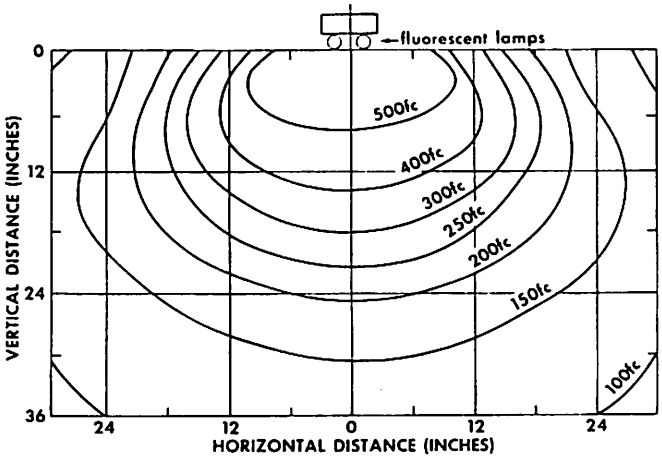

Figure 1. This graph shows the light output in footcandles from two standard 40-watt fluorescent lamps measured at distances from 6 to 36 inches. (From USDA bulletin DNG 187, Indoor Gardens with Controlled Lighting.)

Low Light Plants. Plants referred to as low light intensity plants generally should receive between 50 and 250 footcandles. (A footcandle is the measurement of the light received by a flat surface one foot from the point of emission of one international candle.) Under artificial light, a few plants in this group can be maintained at as little as 10 footcandles.

One way you can estimate the amount of light available is to calculate the number of watts available per square foot of plant area. Low light plants should receive between 10 and 15 watts of artificial light per square foot of growing space. A single fluorescent tube, such as a two-foot 20-watt tube or a four-foot 40-watt tube, without any other light provides only enough light for plants in this category.

Medium Light Plants. These plants prefer 250 to 3,000 footcandles. Best growth occurs above 1,000 footcandles unless plants also receive extended periods of direct sunlight. Give them artificial light in the 500 to 1,000 footcandle range or 15 or more watts per square foot of growing area.

While plants in this group can be held in the 250 to 500 footcandle range, growth is best with more light. A fixture containing two fluorescent tubes is sufficient for plants in the low to medium light range. Adjustments in the number of tubes used may be made if you regulate the distance between the tubes and plants.

High Light Plants. These plants generally are not satisfactory for growing under artificial lights in the home. However, if you want to try, use special high intensity lamps. These plants need at least 2,000 footcandles or 20 watts per square foot of growing area but should have higher intensities for best growth and flowering. Fixtures containing three to four fluorescent tubes are necessary for plants requiring high light.

How Far From the Light Should I Place Plants?

Most plants should be located with the tips of the plants 6 to 12 inches from the light source. The intensity of light drops rapidly as the distance from the light bulbs or tubes increases. Figure 1 shows this reduction of light intensity with distance below and to the side of tubes. Fluorescent tubes also do not produce as much light at the ends as they do in the center. Therefore, the brightest spot under a fluorescent fixture is directly beneath the center of the tubes.

The light fixture's position should be adjustable so you can keep the distance between the light and the plant fairly constant. Fluorescent shop or workroom fixtures often are

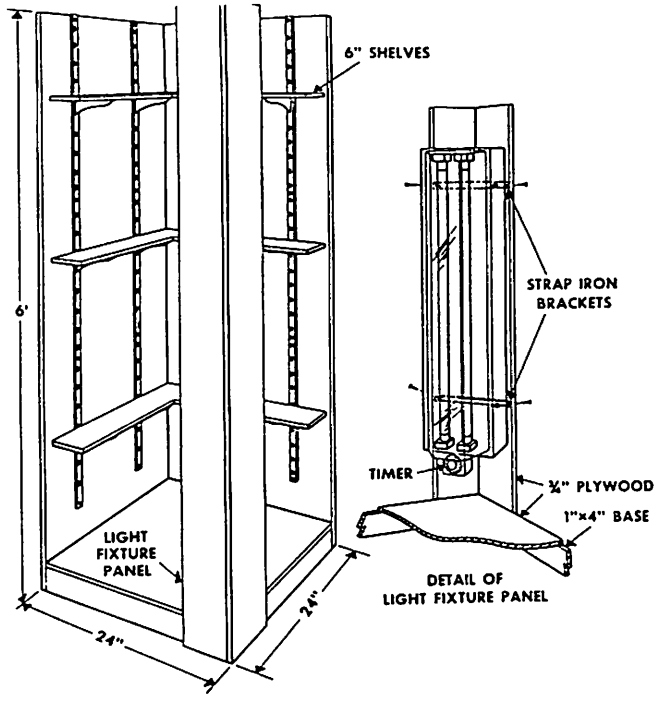

Figure 2. Tall garden starts and grows small pot plants.

hung on chains with s-hooks for easy adjustment. These fixtures are easily raised or lowered from link to link. If the fixture is not movable, you may make some adjustment by raising plants on stands, shelves, or boxes.

How Long Should I Use Lights?

In most cases, plants receiving no outdoor light should be lighted from 16 to 18 hours each day. If some additional light is received, 12 to 14 hours each day may be adequate. Lights should be used at the same time that plants receive window light. Using lights at the beginning or end of the day will not usually be as effective as using lights during daylight unless natural daylight is quite bright.

How Can I Get the Most From Artificial Light?

Reflectors and reflective surfaces can maximize the available light. Bulbs with self-contained reflectors are helpful.

Porcelain-coated reflectors are excellent and require little maintenance. Keep reflectors clean and free of rust or any coating that reduces their effectiveness. White paint or aluminum foil beneath or around the growing area helps reflect light and makes it more efficient.

Space plants far enough apart to allow light between them. Arrange plants so they do not shade each other. Keep tubes clean and replace old tubes promptly.

How Should I Light the Bottom of a Tall Plant?

You may want to supplement light placed above the plant with spotlights around the base of the plant and directed on the lower leaves. Also, you can use fluorescent tubes in a vertical position to provide side lighting from the top to bottom of the plant. See Figure 2. This vertical position also can be used for smaller plants arranged on shelves.

Do I Really Need to Measure Light?

The eye is a poor judge of light intensity since it automatically adjusts to different light intensities. Light measurements

are helpful in setting up a plant growing area but should be used only as a guide rather than as a rigid rate.

Light meters that measure footcandles may be used if available. Photographic light meters normally do not read in footcandles, but some manufacturers supply a conversion table. When available, these may also be used.

The use of wattage per square foot of growing area is a useful and easy way to estimate light required. With this approach, light measurements are unnecessary unless problems develop.

How Can I Tell Whether There Is Enough Light?

The growth pattern of the plant can be a good indication. No growth may indicate poor light but could be a sign of other problems as well. A healthy plant under poor light may develop long internodes (length of stem between leaves). Leaves may develop smaller than normal on some plants. Color of many plants in poor light may be pale green, and lower leaves may yellow and drop.

What Window Produces the Best Natural Light?

Consider size, direction, overhang, and shade from trees or buildings. Large windows provide the best growing conditions and allow plants to be placed fairly far back into a room. But even low light plants usually do not receive enough light at distances greater than 10 feet from an average window. The best windows for plants are those not shaded by a large overhang, trees, or structures outside them.

Windows facing south provide the brightest light conditions for the longest duration. In winter any houseplant benefits from the light of a south window. However, plants that do not need bright light may be sunburned by the bright light at south windows in late spring, summer, or early fall. Place plants requiring less light, such as African violets, at a north window or to the side or interior of a large south window during these times. South windows are most appropriate for plants requiring bright light and some direct sunlight.

East and west windows are well suited to many plants in the medium light range, while north windows are satisfactory only for plants requiring the lower light levels. These plants should not receive direct sunlight.

Can Lights Keep Plants From Blooming?

Some plants, generally known as short day plants, can be kept from flowering under the light durations normally used for artificial lighting. Best known in this category are the poinsettia and chrysanthemum. To induce flowering indoors, give these plants only about 10 hours of light each day until flowers become visible and color shows.

Will Artificial Lights Start Seeds?

Vegetable, annual flower, and some perennial flower seeds may be started successfully indoors under lights for later planting into the garden. For stocky growth, keep seedlings within a few inches of the tubes as soon as germination begins.

Proper growing techniques are essential. Details for starting seeds indoors are available in the UMC Grounds for Gardening Guide 6570, *Starting Plants from Seeds*.

Is a Light Timer Necessary?

A timer is a valuable asset since lights should be turned on and off regularly and consistently. Twenty-four hour timers available from electrical supply houses are adequate. The electrical cord from the timer should be the three-prong type, or you should use a grounded adapter. The use of water around plants makes grounding electrical fixtures important.

Plants for Indoor Lighting

African Violet, *Saintpaulia* species. This is one of the most satisfactory flowering plants for growing under lights; it grows and flowers well between 500 and 1,000 footcandles. Light 16 to 18 hours each day.

Aluminum Plant, *Pilea cadierei*. This small plant with colorful leaves tolerates a low light level but needs high humidity. Other suitable related plants include artillery fern and moon-valley pilea.

Arrowhead Vine, *Syngonium podophyllum*. These small plants are bushy and later, creeping or climbing. They may be kept at a low light level, but they are denser at a medium level.

Asparagus Ferns, *Asparagus densiflorus 'Sprengeri'* and *Asparagus setaceus* (formerly *plumosus*). These durable potted plants with fleshy roots produce fern-like leaves. Although tolerant of low light, the plants grow more abundantly and densely in a medium light range.

Aucuba-Leaf Croton, *Codiaeum 'Aucubaefolium.'* Crotons are not appropriate for the light garden as they require high light for good color development and growth. However, this smaller type with yellow spots can be grown at medium light intensities.

Begonias: Angelwing, *B. coccinea;* Beefsteak, *B. xerythrophylla;* Iron cross, *B. masoniana;* Flowering, *B. semperflorens;* and Painted *B. rex* varieties. Most plants of this family are suitable for growing in the medium light range. Begonias like high humidity and constantly moist soil. Give them a long light duration from 14 to 18 hours each day.

Cacti and Succulents. Many plants may be grouped in this general category. These plants need high light intensities; most are not satisfactory for growing under artificial lights. However, you can use lights to maintain them for limited periods when they cannot be exposed to bright light or direct sunlight. When artificial lights are used, provide high intensities and keep plants close to the source.

Cast Iron Plant, *Aspidistra elatior*. This plant tolerates cool locations and poor light; it is one of the best plants where only low light conditions exist. A variegated form is also available.

Chinese Evergreen, *Aglaonema modestum*. Aglaonemas are relatively small tropical plants but can tolerate light as low as 10 footcandles. Other species with different leaf form and variegation are also available.

***Cissus* Species:** Grape ivy, *Cissus rhombifolia* and Kangaroo vine, *Cissus antarctica*. Cissus are climbing plants that prefer medium light conditions for best growth, although kangaroo vine tolerates lower light. Although better for greenhouse culture, another beautiful relative is the rex begonia vine, *Cissus discolor*.

Coleus, *Coleus blumei*. These extremely colorful plants are popular for garden use. Under lights, they tend to have less color than outdoors unless they get very bright light.

Dieffenbachia, Dumbcane. Many satisfactory species and varieties are available. These plants have large, showy leaves with spotting and variegation. Medium light range is best and will prevent loss of lower leaves. Plants may become too tall but can be cut back.

Dracaena: Corn plant, *Dracaena fragrans massangeana;* Dragon tree, *Dracaena marginata;* and Ti plant, *Cordyline terminalis 'Ti.'* Most dracaenas become large plants. They are well adapted to house conditions and tolerate low light although they also do well in medium light. They need to be

kept warm and constantly moist for best growth. Ti plant develops best leaf color in bright light and therefore is less suitable for locations where it receives only artificial light.

Flame Violet, *Episcia cupreata* varieties. These close relatives of the African violet have beautiful foliage in many color patterns. Flowers are red, pink, purple, and yellow. Light needs are the same as for African violets. The plants need high humidity and temperatures that do not drop below 65 degrees.

Ferns: Birdsnest fern, *Asplenium nidus;* Boston fern, *Nephrolepis exaltata bostoniensis;* Holly fern, *Cyrtomium falcatum;* and Maidenhair fern, *Adiantum* species. The word fern brings to mind the Boston, or sword, fern with its many varieties. These ferns are durable houseplants that tolerate low light but prefer a medium light level. Keep them cool and moist. Holly fern likes cooler home temperatures; however, birdsnest fern prefers warmer temperatures. Ferns may develop brown leaves or leaflets at low humidity. Maidenhair ferns should never be allowed to become dry.

Ficus Species: Rubber plant, *Ficus elastica* varieties and Weeping fig, *Ficus benjamina*. These large plants are well suited to most home conditions and are best grown in a medium light range. Low light may result in a drop of foliage. Keep soil evenly moist. They tolerate low humidity.

Gloxinia, *Sinningia speciosa fifyana* varieties. This colorful African violet relative needs a medium light range to prevent elongation of the stems as well as to promote abundant flowering. Buds sometimes appear but fail to develop. This may indicate insufficient light, too low humidity, or mite damage.

Hoya: Hindu rope plant, *Hoya carnosa* 'Hummels compacta' and Wax plant, *Hoya carnosa*. Hoyas are vining plants with thick waxy leaves. They tolerate low light but need medium light to grow and high light to flower. Plants should not be moved; allow them to remain undisturbed. Keep slightly cooler and drier in winter.

Impatiens, Sultana; *Impatiens walleriana holstii*. This popular garden plant can also be grown indoors. It needs medium to high light indoors for compact growth and good flowering. It is very susceptible to spider mite damage.

Ivy, *Hedera helix* varieties. These vining plants with leathery leaves grow best in medium to bright light areas. They need constant moisture to prevent leaf drop, and they tend to grow better when kept slightly cool indoors.

Jade Plant, *Crassula argentea*. This succulent plant is well adapted to indoor conditions. Although most crassulas prefer sun, jade plant will tolerate lighting as low as 25 footcandles; however, growth will be thin and leaves small. Avoid overwatering and tight soils.

Herbs. Some people are interested in growing culinary herbs under lights. For best growth, most of these require fairly bright light. If you attempt them under artificial light, use as much light as possible with a long duration.

Norfolk Island Pine, *Araucaria heterophylla* (formerly *excelsa*). This is a durable plant for home conditions. Although tolerant of poor light, it develops better growth at medium light conditions. With poor care and low light, it may lose symmetry.

Orange: Dwarf or Calamondin; *Citrus mitis*. Potted citrus plants prefer bright light for best growth and fruiting. You may keep them at medium light intensities during midwinter. The calamondin orange is the most popular potted citrus, although Meyer lemon and Ponderosa lemon are also satisfactory for home use.

Orchids. Few orchid species are well suited to the average home's artificial light conditions. Seedling plants do well under artificial lights; however, mature flowering size plants need bright light for best growth and flowering. Some genera better adapted to the light garden include *Epidendrum, Paphiopedilum, Brassavola,* and *Phalaenopsis*. All orchids need excellent drainage and air movement.

Peperomias: Baby rubber plant, *Peperomia obtusifolia;* Emerald Ripple, *Peperomia caperata;* and many other suitable species. Most peperomias have fleshy leaves and stems. They are small plants well adapted to home conditions. Provide a medium light level, although peperomias can tolerate poor light for limited periods. Avoid overwatering which may promote stem rots.

Philodendrons: Heartleaf philodendron, *Philodendron oxycardium;* Splitleaf philodendron, *Philodendron pertusum;* and other suitable species. The heartleaf philodendron tolerates low light; most prefer a medium light range for best growth indoors. Most are well adapted to home growing. They should be maintained at fairly uniform moisture.

Pleomeles: Lance dracaena, *Pleomele reflexa* and Malaysian dracaena, *Pleomele thaliodes*. These plants are gaining popularity because of their durability as potted plants and tolerance to low light conditions. They grow best in a medium light range with uniform soil moisture.

Palms: Areca palm, *Crysalidocarpus lutescens;* Dwarf date palm, *Phoenix roebelenii;* Neanthe bella palm, *Chamaedorea elegans 'bella';* and Kentia palm, *Howeia forsteriana*. Neanthe bella and kentia palms are most tolerant to low light conditions. Other palms are best suited to medium light areas. Bright light may cause fading in some species. Palms prefer fairly uniform moisture, but occasional slight drying can be beneficial. Palms grow relatively slowly indoors. Keep close watch for spider mite damage.

Pothos, Devil's Ivy; *Scindapsus aureus*. This popular variegated climbing vine is similar to heartleaf philodendron and satisfactory for low and medium light conditions. It requires less uniform moisture than philodendron.

Sansevieria, Snake Plant, Mother-in-law-tongue; *Sansevieria trifasciata*. This very popular and durable plant grows well indoors. It tolerates poor light but makes best growth in medium to bright light conditions. Dwarf and variegated forms are available. Avoid overwatering.

Schefflera, Umbrella Tree; *Brassaia actinophylla*. This plant prefers bright light but tolerates medium light or even low light for limited periods. It will drop foliage in extended periods of poor light or if kept too wet or too cool. Spider mites are a common problem.

Spathiphyllum, 'Clevelandii' or 'Mauna Loa.' These plants adapt to low light conditions but need medium light to flower. Their white, anthurium-like flowers are long lasting. Do not allow plants to dry out.

Spider Plant, Airplane Plant; *Chlorophytum comosum* 'Vittatum.' Long drooping leaves and runners producing small plants make this a popular hanging plant. Solid green and variegated types are available. They tolerate low light but grow best in the medium range. Keep well watered.

Swedish Ivy, *Plectranthus australis*. This creeping plant is used for hanging containers. Provide a rich soil for it. Although it tolerates low light, more dense growth and branching occurs at medium light intensities.

Wandering Jew, *Tradescantia fluminensis* and *Zebrina pendula*. These popular hanging plants tolerate home conditions and may be grown in low light. However, growth is more compact, and color development is better in medium light. They prefer uniform moisture.

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Drying Flowers and Foliage For Arrangements

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Figure 1. Arrangement of dried flowers includes zinnias, roses, acroclinium, baby's breath and eucalyptus foliage.

Why Dry Flowers?

1. Dried plant materials provide distinctive indoor decoration.
2. Arrangements made from dried materials are long lasting and require little care.
3. Drying flowers and foliage expands gardening activities without elaborate equipment or previous experience.
4. Drying flowers is inexpensive.

Collecting Flowers For Drying

Flowers and other plant materials for drying should be picked close to their prime. Flowers to be air dried continue to open as they dry, and therefore such flowers should not be fully open at picking. Never place wilted flowers into drying mixtures.

Flowers or leaves for drying may be collected at any time during the growing season from early spring until late fall. Always collect more material than is needed, to allow for damage. Use only the most perfect forms. Poor shapes dry as poor shapes. Use only plants and flowers free of insect and disease damage. Damage becomes only more obvious after drying. Pick flowers when they are free of dew or rain. Place stems promptly in a container of water to prevent wilting while gathering.

It is sometimes difficult to develop graceful lines when making dried flower arrangements. Therefore, while collecting, look for branches and stems with sweeping curves or lines that will add distinctiveness to the arrangement. If none can be found, curves or other lines can be made by shaping the branches or stems into the desired positions while they dry.

In addition to flowers, stems, and leaves that may be dried indoors, there are many materials that can be collected in the fall and used almost directly in arrangements after gathering. These include many seed pods, cones, grain, grasses and berries found in the garden as well as in fields and roadsides.

Methods For Drying Flowers

Air Drying. There are a number of garden flowers, as well as wild plants, that can be dried simply by hanging them upside down in a warm, dry place for several weeks. Flowers best suited to this are the "everlastings" and a few others that do not wilt readily. Some, such as globe amaranth can be dried in bunches on their natural stems. Others, such as strawflower, should have a wire substituted for stems before drying.

Steps for Air Drying

1. Cut flowers of good quality at prime conditions or slightly immature.
2. Remove foliage from stems. If stems are weak or become brittle after drying, remove them and wire the flowers.
3. Group the stems into small bunches and tie with a rubber band. It will pull tighter as the stems shrink during drying.
4. Hang upside down in a warm, dry, dark area such as an attic, closet, or furnace room. Avoid damp rooms or direct sun on the flowers. Good air circulation is important.
5. Allow to remain until thoroughly dried. This normally takes two to three weeks.

Natural stems dried in this process will generally be fairly straight. These may be bent for arranging by submerging the stems in warm water until they have softened. Then, bend them to the desired position and weight them in that position until they have dried. Some may be laid on curved cardboard to conform to the curvature as they dry.

Flowers Suitable For Air Drying

Acroclinium, Swan River Everlasting	Edelweiss	Statice
Baby's Breath	Globe Amaranth	Strawflower
Bachelor's Button	Larkspur	Xeranthemum, Immortelle
Bells of Ireland	Scarlet Sage and Blue Sage	Yarrow (Yellow varieties best)
Cockscomb	Sea Lavender	

In addition to the garden flowers and everlastings that may be air dried, many seed heads of grasses and other plants can be hung to dry. Even a few large flowers, such as peony and hydrangea, are sometimes dried in this way. However, since they are quite large, they should be hung individually rather than in bunches.

Grasses suitable for drying include Bristly foxtail, Hare's-tail grass, Fountain grass, Pampas grass, Eulalia grass, Quaking grass, Spike grass and Squirrel-tail grass.

Seed heads include Cat-tail, Dock, Honesty (Money Plant), Iris, Lily, Milkweed, Mullein, Poppy, Queen-Anne's Lace, Teasel and many others.

Pressing. Pressed flowers are especially suitable for flower pictures, as well as decoration on note paper, place cards and many other items.

Collecting For Pressing. Use flowers for pressing that are in prime condition. Also, use flowers with different stages of development up to full maturity for more variety in design. Avoid plants with fleshy stems and leaves as well as flowers with very thin petals. Don't try to press wilted materials. Flowers that are flat, such as pansies, press best.

Methods for Pressing. The faster flowers dry, the better they retain color. On the other hand, flowers can't be exposed to excessively high temperatures. Although they may dry quickly, they will turn brown.

Pressing requires sandwiching flowers and foliage between layers of an absorbent material. This should be clean and hold the flowers firmly and flat during the drying process. Porous materials that allow some air movement are also beneficial.

Flowers are generally placed between a non-glossy type of paper. Newspapers, old telephone directories, or catalogs are suitable. Absorbent facial tissues placed on the pages aid rapid moisture absorption. Tissues should be removed and flowers or foliage replaced between fresh, dry tissues and papers at the end of the first week. After the flowers and tissues have been placed in the folded newspapers or books, stack them several layers deep. Place boards beneath, and on top of the stack. Put the stack in a warm, dry place with a heavy weight on top.

Another very satisfactory system suitable for drying flowers uses a combination of cardboard, newspaper and desk-sized blotter pads. Corrugated cardboard is cut into sheets slightly larger than the sheets of folded newspaper. Flowers are positioned on one side of the opened newspaper. Then the newspaper is closed, and a sheet of blotter paper placed on either side.

After all flowers have been placed between the newspapers, blotter paper, and cardboard, the layers are stacked and tied, or taped together. They should then be placed in a warm, well ventilated place and weighted. If large numbers of flowers are pressed, write a date on the stacks to keep track of drying time. Special presses can be purchased or constructed for drying large quantities of materials.

Flowers for Pressing. The following flowers produce good results when pressed. However, there are many others that may be used, and experimentation with those available is suggested.

Ageratum	Crocus	Nemesia
Alyssum	Daffodil	Pansy
Anemone	Daisy	Phlox
Azalea	Delphinium	Primula
Bleeding Heart	Dutchman's Breeches	Queen Anne's Lace
Buttercup	Geranium	Rose
Butterfly Weed	Golden Rod	Salvia
Candytuft	Heath	Statice
Celosia, Cockscomb	Heather	Sweet Pea
Chrysanthemum	Hydrangea	Verbena
Columbine	Johnny-Jump-Up	Zinnia
Cornflower, Bachelor's Button	Larkspur	
Cosmos	Lily-of-the-valley	
	Marigold	

Drying Mixtures for Burying Flowers

Flowers may be dried in their natural form by totally burying the flowers in one of several materials.

Borax Combined With Either Sand or Cornmeal. One of the least expensive mixes for drying flowers is made from sand and borax. The sand must be fine, clean, and dry. Sand is relatively heavy to work with, and tends to flatten flowers unless used very carefully.

A more popular mixture for drying is made of equal parts of borax and white cornmeal. The cornmeal is light weight and has less tendency to flatten flowers. It also makes boxes easier to handle and move after filling. The main function of these materials is to hold the petals in place while they dry naturally. Good aeration is important for rapid drying. Some feel that the addition of about three tablespoons of uniodized salt per quart of mix helps petals retain color during drying. The ratio of borax to sand or cornmeal varies widely, but the quality of drying does not seem to differ greatly between them. Ratios varying from 1:1 to 1:6 have been used (First number refers to borax).

Silica Gel. Generally, the most satisfactory material for drying flowers at home is silica gel (Fig. 2). Initial cost is

Figure 2. Gloriosa daisies recently dried in silica gel. Flower on lower right has not been dried.

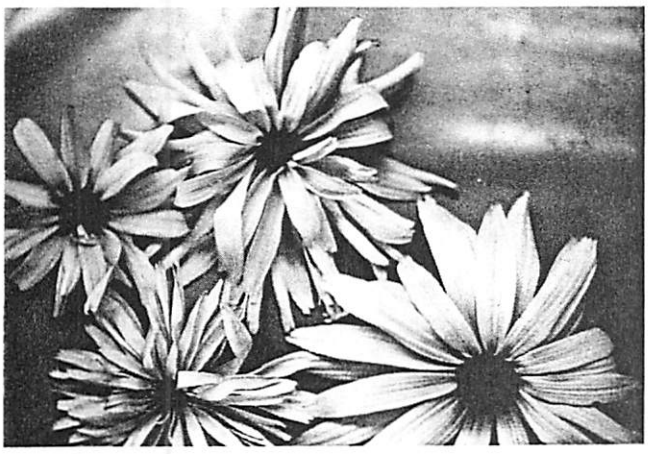
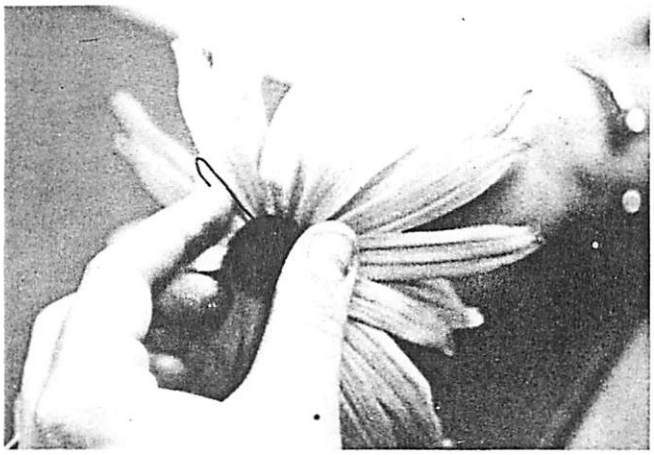


Figure 3. Hooked wire is pulled into center of the flower.



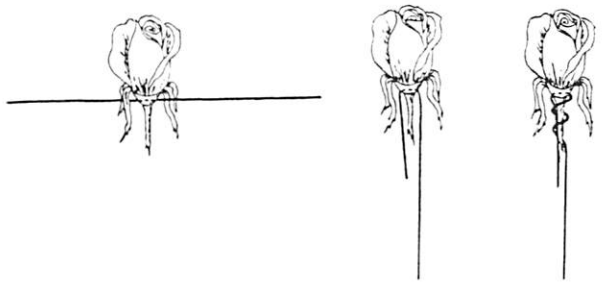


Figure 4. Cross-wiring a rose before drying.

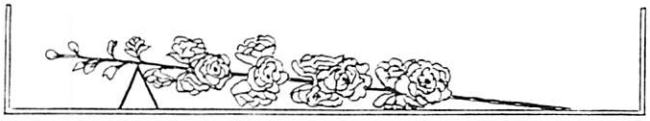


Figure 5. Provide support to dry spike flowers in a horizontal position.

greater than that of borax-sand or borax-cornmeal combinations, but it can be used over and over for many years. Since it dries flowers quickly, more flowers can be moved in and out of the mixture during a single season than in the same quantity of a borax mixture.

Silica gel is available under a number of trade names. It is white but some types contain blue crystals that act as an indicator of the amount of moisture which has been absorbed. When these crystals are a clear blue the material is dry. As moisture is absorbed from the flowers, the crystals gradually turn pink. At that point it is time to redry before using again.

To dry the material, spread the silica gel on open pans or cookie sheets in a layer ½ to ¾ inch thick. Bake in an oven at about 250 degrees until the crystals are blue again. This may take about an hour. Stir the crystals several times while they are drying. Keep unused silica gel in air-tight containers.

Burying Flowers for Drying

The method for burying flowers in any of these materials is essentially the same. However, there are some differences in the types of containers to use, as well as drying with either natural stems or wire stems.

Containers. Flowers dried in borax mixtures should be left uncovered during the drying process. Therefore, low cardboard boxes with tight, strong bottoms are ideal. This allows good air movement throughout the mixture, and if desired, stems may be left attached and sticking out of the mix to air dry.

Flowers dried in silica gel must be placed in air-tight containers. If the containers are not sealed tightly, the silica gel absorbs moisture from the air, and flowers dry too slowly or not at all. Candy tins, plastic containers, coffee cans, large-mouth jars, or any other container with a tight fitting lid may be used. If nothing with a tight lid is available, seal loose tops with tape.

Use shallow containers to make maximum use of the drying material. The natural stem should be removed before drying most flowers in silica gel. Therefore, flowers wired before drying are more easily arranged later.

Wiring. Two techniques of wiring may be used—*hook wiring* and *cross wiring*. Hook wiring may be used for daisies, marigolds, zinnias, or other flowers with soft centers. Flowers with a harder base or center, such as roses, should be cross wired.

To hook wire a flower, use about a 20 to 24 gauge wire and push it upward through the center of the stem, if hollow, or through about the center of the flower. Push it out the top of the flower, bend a small hook in the end of the wire and pull it back into the flower, hooking the center (Fig. 3). Make sure that the small hook is well hidden in the flower's center. If it is not, as the flower dries, it will become visible.

To cross-wire a flower, push the wire through the base of the flower, at right angles to the stem. The wire is centered in the flower base, and both ends are then bent down to form a short stem (Fig. 4).

In shallow containers, the wires may be bent several times, or simply bent out of the way for drying. Later, they can be straightened after the flowers have dried, and other wires added to prepare them for arranging.

Flowers Suitable for Burying. Types of flowers that may be dried in silica gel and the other materials are almost limitless. However, some are more satisfactory than others, and are best for the beginner. Any flowers that readily shed their petals, such as poppies, are unsuitable. The following list names some flowers worth trying.

Anemone	Daisy	Pansy
Aster	Delphinium	Peony
Baby's Breath	Gloriosa Daisy	Rose
Bachelor's Button	Hyacinth	Salvia
Black-eyed Susan	Larkspur	Scarlet Sage
Blue Sage	Lilac	Snapdragon
Chrysanthemum	Lily-of-the-Valley	Stock
Daffodil	Marigold	Verbena
Dahlia	Nierembergia	Zinnia

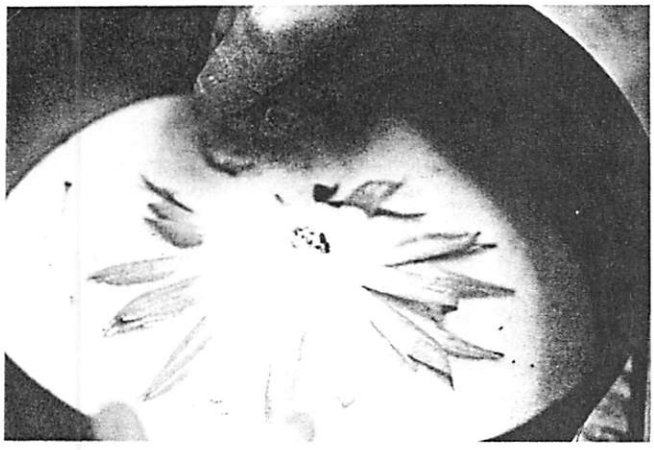
As most of these flowers dry, colors will darken. Therefore, extremely dark flowers, especially in the red, purple and blue ranges may become almost black after drying. Whites generally develop a cream or tan color.

Burying the Flowers. Flowers with wired stems are dried facing upward, and the stems are bent or curled to lie parallel to the bottom and out of the way. Flowers on natural stems may be dried on their sides, (as in the case of spike flowers such as larkspur or snapdragon) or upside down with stems protruding upward. Working the drying agent between the petals is difficult when flowers are placed facing downward. When placing flowers on the side a brace is necessary to hold the stems so flowers on one side are not flattened (Fig. 5).

To dry flowers facing upward:

1. Place a layer of drying material in the bottom of the container about 1 to 2 inches deep.
2. Bend the wire stems to the side, or curl up.
3. Place the flower on the layer of material in the bottom of the container. Push wire stem down into material.
4. Gently work the base of the flower into the material so it is well situated, petals supported, and in a normal position.
5. Gently sift the material over the petals, making sure that all petals remain in place as the material is added (Fig. 6).

Figure 6. Silica gel is gently sifted over the petals until they are totally covered.



6. If any petals are bent, use a toothpick or similar item to reposition them.
7. Continue to add material until each flower is entirely covered.
8. After all flowers have been added and covered, lift the container and tap it gently on the base to help settle the material.
9. After tapping, make sure all petals are still covered. If any have been exposed, add more drying material.
10. Prepare for storage.
    a. Borax combinations can be placed directly in a warm dry place without covering. Drying will normally take two to three weeks.
    b. Silica gel should be tightly covered, or sealed if the lid is not air tight. Flowers should dry in three to eight days. The exact time varies with the thickness of the flower. If removed too soon, petals will droop, if removed too late petals become brittle and break easily.

Removing Flowers From the Mixtures. Since petals become fairly brittle after drying, care is important when removing flowers from the mixture. Pour off, or gently brush to one side some of the mixture on the surface of the container. As petals become visible, gently lift the flowers upward by placing the fingers beneath them. Turn each flower upside down after removal, and tap out any remaining residue. If a white dust remains, remove it by carefully brushing with a soft, dry artist's brush or gentle stream of air.

Some flowers, such as chrysanthemum, drop petals easily. These can be reinforced by dropping glue on the bottom at the base of the petals. Use a glue that becomes clear after drying.

ADDING STEMS FOR ARRANGING. Flowers often need wire in the stem for arranging. A heavier wire, such as 18 gauge, may be used. Simply twist the short wire that was placed in the flower around the stem-wire and wrap them together with floral tape.

Styrofoam blocks, or dry floral foam may be used to hold the wire stems in place in the selected container. The bottom of a deep box may be covered with Styrofoam to hold the wired flowers upright in storage.

Storing Dried Material

Preserved flowers, especially those dried in silica gel, may absorb moisture from the air during humid periods. As a result, petals may droop. For this reason they should be stored loosely in air-tight containers during the summer months and arranged in the autumn. During winter, home humidity is generally low enough so moisture absorption by the petals is not a problem. Plant materials that have been air dried should be kept in a dry place in covered boxes.

Dried materials in storage may occasionally be attacked by one or more household insects such as museum beetles, silverfish, roaches or others closely related to them. As they chew on the soft tissue of the plant centers, flowers may shatter and fall apart. They are not necessarily on the flowers as they come from the garden, but move into the boxes in the home during storage.

Occasionally, check boxes and if insects are present destroy the infected materials. Tightly sealed containers prevent invasion. If the pests are present, thoroughly clean the container before using it again. Naphthalene flakes may repel insects or some general insecticides may help control them, but once an area is infested, complete eradication is difficult. Cleanliness and persistence are the best means of remedying the situation.

Don't consider dried flowers as everlasting. Preferably, they should be replaced yearly, but with good care they often last longer. Even the best dried flowers gradually fade and should be discarded when they no longer produce the desired effect. Flowers that tend to fade may be lightly tinted with aerosol paints or dyes for more durable color. With care the natural look is preserved.

Preserving Foliage With Glycerin

The dried flower arrangement without foliage may seem stiff and unnatural. Leaves add much to an arrangement and can easily be preserved by a process known as "glycerinizing." This technique makes the leaves and stems soft, pliable, and long lasting so they may be used over and over.

1. Select branches with the desired curves, and with foliage that is not damaged by insects or disease. Generally, a branch about 18 inches or less in length is best for glycerinizing.
2. Remove lower leaves, and crush or split the stem end of woody materials to increase absorption.
3. Make a mixture of one part glycerin and two parts warm water. Stir well, and pour into containers so the liquid is about 4 to 5 inches deep.
4. Mark the level of the mixture on the container (glass containers are best), and place the stem end of branches into it.
5. As the branches absorb the mixture, add a reserve mixture which contains one part glycerin to four parts water to the original marked level.

Don't place too many branches in a single container. Good air circulation around the leaves is important for best absorption. Keep them at room temperature.

Foliage color will gradually change as the glycerin is absorbed. It will take from one to three weeks for most branches to glycerinize.

Some leaves, especially thick and waxy ones, may not glycerinize well by this method. Individual leaves of plants such as ivy or southern magnolia may be glycerinized by totally submerging the leaves into the mixture. They should be placed in a single layer and weighted to keep them beneath the liquid. After they become soft and pliable (2 to 6 days) they should be removed. After removal, drain and wipe the leaves clean with a soft cloth.

In addition to glycerinizing, leaves may also be dried with the same techniques used for drying flowers. However, they become brittle and must be handled very carefully.

Leaves Suitable for Glycerinizing. This list covers some plants most easily glycerinized. Houseplants, trees, shrubs, florist's foliage and garden flowers are included.

Anthurium	Magnolia	Quince, flowering
Aspidistra	Mountain Ash	Russian Olive
Beech	Maples	Salal
Cotoneaster	Oaks	Spirea
Crabapple	Orange holly-grape	Sweet Gum
Dracaena	Peony	Ti Plant
English Ivy	Periwinkle	Weigela
Galax	Purple-leaf Plum	
Lemon	Poplar, white or silver	

Pictures by Barbara Rothenberger.
Sketches by Barbara Long.

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