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HORTICULTURE - INDOOR GARDENING
LEADER'S GUIDE
J. Lee Taylor

PROJECT INFORMATION

Who can take the project?

Indoor gardening projects are suitable for club members of all ages. The many activities can be carried out in any home situation. Older members would be expected to have larger or more complex projects.

Why teach the project?

There is an indoor gardening activity within the range of ability and interest of almost every 4-H club member. The project provides opportunities to make items for someone else. These activities provide a contact with nature, give practice in manual skills, and emphasize "learning by doing".

What is included in the project?

Indoor gardening covers the following activities?

Caring for house plants
Dish gardens and terrariums
Winter bloom from bulbs
Creating plaques from dried materials

Project requirements.

1. In each project year members should complete one or two different activities such as forcing bulbs and caring for house plants.

   Caring for house plants. Care for 12 house plants. Repot, water, fertilize, and divide the plants. Time: anytime during the year.

   Dish gardens and terrariums. Make two woods, meadow or desert dish gardens, and two woods or tropical terrariums. Time: fall or spring or both.

   Winter bloom from bulbs. Pot and bring into bloom at least three pots of hardy spring flowering bulbs such as daffodils, tulips, hyacinths, and minor bulbs. Time: fall and winter.

   Creating plaques from dried materials. Assemble three of more plaques on backing materials at least five by seven inches in size. Use two of the suggested designs. Time: anytime during the year.

2. Take pictures of completed activities to submit with report.

This bulletin is based on several extension publications of the New York State College of Agriculture, a unit of the State University, at Cornell University, Ithaca, New York, prepared by E. F. Schaufler, Department of Floriculture.
3. Fill out Indoor Garden Report 253-B.

Complete meeting outlines are given in the different activity outlines.

TEACHING THE PROJECT

Time required.

The demonstration, lecture, and training work for each activity can be completed in one meeting if the leader and members are prepared for it. In most instances, only one specific activity should be done, such as potting paper white narcissus for forcing.

Where can the activities be taught?

The summer activities can be carried on outdoors in good weather. During disagreeable weather, activities involving the use of soil, water, and plant materials may be conducted in basements or heated garages. Greenhouse operators often have workrooms that may be used by small groups. Work on house plants, potting bulbs and assembling dish gardens and terrariums should be done in a place that can be swept and cleaned easily.

Teaching aids.

4-H Club Bulletins 353-B and 153-B are used by leaders and members as guides in learning some of the activity skills. See the suggested meeting outlines. Your library has many excellent references for all phases of indoor gardening.

Slide sets are available for your use in leading most of these projects. The following sets are available from:

Dr. J. Lee Taylor
Department of Horticulture
Michigan State University
East Lansing, Michigan 48823

| The Selection and Care of House Plants | 24 |
| Dish Gardens and Terrariums | 30 |
| Plaques from Dried Materials | 10 |

These slide sets can also be purchased from the New York State College of Agriculture, Department of Extension Teaching and Information, Cornell University, Ithaca, New York, for fifty cents (50¢) per slide.

Indoor Garden Report 253-B is used to record all project activities.

In addition to the members' and leaders' bulletins, the following aids are suggested for each activity:

Caring for House Plants - Slide set, The Selection and Care of House Plants,
Caring for House Plants (cont'd)

- U.S.D.A. Home and Garden Bulletin No. 82, Selecting and Growing House Plants.

Dish Gardens and Terrariums - Slide set, Dish Gardens and Terrariums.

Winter Bloom from Bulbs - U.S.D.A. Leaflet No. 439, Spring Flowering Bulbs.

Creating Plaques from Dried Materials - Slide set, Plaques from Dried Materials.

Suggested club activities.

Tours to a florist shop will show many of the activities for this project.

Tours to a greenhouse growing foliage and/or flowering house plants are helpful. Plan to have one of the greenhouse men show shifting or repotting, taking and sticking cuttings, plant propagation setups, or some other related operation.

Many times members of local garden clubs will help you demonstrate some indoor gardening activity.

Equipment and supplies needed.

Refer to that portion of the 4-H member and leader's Bulletins 153-B and 353-B that you and your members are interested in. A list of materials for each activity is given.

Demonstrations.

Indoor gardening lends itself to a limitless number of demonstrations.

Suggestions for beginners - Caring for a snake plant
- How to root a cutting in water
- Repotting a house plant
- A simple plaque of dry materials
- A simple dish garden

Suggestions for advanced members - African violets flower all year
- Three ways to get many from one
- Dividing an African violet
- Potting up hardy bulbs for forcing
- Assembling a terrarium

Exhibits.

State Show - Check the State Show Book for classes.
Local Fair - Check the local fair book for classes.
MONTHLY SUGGESTIONS FOR LOCAL LEADERS, MEETINGS, ACTIVITIES, PROJECT WORK

January
Bring in potted hardy bulbs for forcing

February
Visit a florist's shop
Begin demonstration work
Practice your demonstration

March
Read about house plants you are interested in
Work on demonstrations

April
Start new house plants from cuttings
Begin heavier fertilizer program
Divide and repot crowded house plants

May
Visit a house plant greenhouse
Divide and repot crowded house plants

June and July
Move house plants outdoors
Construct a terrarium

August and September
Watch for and collect drying seedheads
Collect weedheads and annual flowers for drying
Ask for old vegetable seeds - squash, melon, pumpkin
Collect annual flowers for drying

October
Collect dried materials
Make dried plaques
Pot up hardy bulbs for forcing
Assemble dish gardens
Assemble terrariums
Start paper white narcissus

November and December
Make dried plaques
Start paper white narcissus
Have a Christmas party

Experiments.

Members may want to conduct experiments along with their project. A few ideas for experiments are given below:

Comparing soil potting mixtures
Compare watering methods
Compare clay and glazed or plastic pots
Comparing plant growth at different temperatures
Comparing different drainage materials for use in terrariums
Forcing bulbs at different temperatures
Study the water loss from the soil of a potted house plant by weighing the plant twice a day on a small set of scales

Members should also be encouraged to enroll in a Horticulture-Plant Science project.
CARING FOR HOUSE PLANTS

Time.
Teach this activity anytime during the year. Be sure to inform interested members sufficiently in advance of each meeting so they can collect and bring the needed equipment.

Purpose.
To have members learn how to care for house plants.

Equipment.

Potting Mixtures:
For most plants: one part sand, one part loam, one part organic matter.
For cacti: two parts sand, one part loam, one part organic matter.
For plants doing well with high organic mixture: one part sand, one part loam, two parts organic matter.

Leader:
Newspaper to cover working surfaces.
Potting space in a place with concrete floor, or other easily swept surface.
About three feet of working space per member is needed.
Fertilizer, a one-pound bag of 5-10-5.

Members:
Overgrown or crowded plants or house plants too large for present pot.
Pots one to two sizes larger than the ones in which plants are presently growing.
Drainage material--broken pottery, or stones a little larger than drainage holes.
Basket or large heavy paper bag to carry house plants, pots, and drainage.
Old teaspoon, or old ½-teaspoon measure.
Indoor Garden Report 253-B

The Actual Care of House Plants

Environment.
Why do some plants do well as house plants while others do not? The plant's surroundings or environment has a lot to do with it. Such factors as the type of soil mixture, light, temperature, humidity, the amount of moisture in the soil, air movement, and type of container must be considered in growing plants indoors.

Soil Mixture.
Most garden and field soils are too heavy to use for potted plants. These soils usually contain too much clay which results in poor drainage. By adding
sand and humus or peat moss, most garden soils can be made into a satisfactory potting mixture. The sand helps to make the mixture porous or open so that water and air can move through it more rapidly. Humus or peat moss help keep the mixture from packing and cracking. A good soil mixture for most house plants is:

1 part garden soil, 1 part peat moss, 1 part sand

For cacti, a good mixture is 1 part garden soil, 1 part peat moss, 2 parts sand.

Most weed seeds, insects, and diseases present in the soil mixture can be killed by baking the soil mixture in the oven at 160°F. The soil should be moist. You can place a medium-sized potato in the center of the mixture and then bake the mixture until the potato is done.

Light.

Most house plants need plenty of light. If they do not receive sufficient light, the leaves will be pale green or yellow and the stems long and spindly. Many plants will do well under artificial lights.

Turn the pots on window sills often so that the plants do not get lopsided.

Humidity.

The humidity in most homes during the winter is very low, too low for many plants to grow properly. There are usually locations in most homes where the humidity is higher than other locations--the kitchen and bathroom for example.

Watering.

Water plants enough at one time to thoroughly saturate all the soil in the pot. A good way to do this is to stand the pot in water until the soil surface becomes wet. Then remove the pot from the water and let it drain. If you prefer to water the plant from the top, keep adding water until water runs out the bottom of the pot. Be sure that the water is not just running down the inside of the pot between the surface of the pot and the soil. Don't let the plants wilt between waterings. Don't water plants by adding a few teaspoons of water to the plant daily.

Repotting House Plants

Procedure.

Go through Leaflet 153-B on caring for house plants. Point out to members the reasons for repotting: because of crowded roots, limited soil area, limited food supply, and quick drying of the soil ball. Remind youngsters that watering is especially important right after repotting.

Have youngsters hold up and name their plants. If you had more than one type of mixture, these should be numbered. Members might also tell which mixture they will be using. Have youngsters select three feet of work space. Then have them line up, taking two empty pots to get the soil mixture.
different mixtures, make sure members get the right one for their plants. Have members add one-fourth teaspoon of fertilizer for each four-inch pot of mixture they have. Make sure fertilizer is thoroughly mixed into soil. Then demonstrate repotting:

1. Show how to remove the plant from the old pot, placing hands with fingers spread either side of the plant crown or stem.

2. With pot and plant upside down, tap the pot sharply on edge of work table.

3. Lift pot off, showing white roots curling around outside the soil ball. This shows the need for repotting.

4. Pick drainage material from bottom of soil ball.

5. Drop one or two pieces of drainage material into large pot.

6. Put a small amount of potting mixture on top of drainage material.

7. Set undisturbed soil ball in pot making sure soil ball is at about same level as in previous pot. In case of a long stemmed African Violet, it may be set lower in new pot to make it look good again.

8. Set pot against pile of soil mixture, holding plant in the center. Fill area between soil ball and pot side to overflowing.

9. Use thumbs to firm soil around inside edge of pot.

10. Add a little more soil mixture to even the surface.

11. Tap repotted plant and pot squarely and sharply on table.

12. Add or remove mixture until soil is about one-half inch below pot rim.

Now go through steps in repotting again, having youngsters follow step by step. Some will drop and break pots, some will drop plants. For some the soil ball will break.

After repotting, have members check for the following:

1. Plant is of the right proportion (size) for the pot it is in.

2. Soil is firmed and the soil surface even.

3. Plant ball is at the same level as before; no leaf stems are buried.

4. Soil is about one-half inch below pot rim.

To avoid further cleanup, suggest that youngsters take plants home before watering.

Repotted plants can then be set into bags and baskets. Unused soil mixture should be returned to original piles.

The number of plants repotted and the date should be entered on the record sheet.
Assembling dish gardens and terrariums has been most popular in the fall. September and October are usually good times to collect materials for native dish gardens and terrariums. If tropical materials are being used, plan the activity to avoid freezing weather.

Purpose.

To have members learn materials and procedures for assembling interesting dish gardens and/or terrariums. This section describes how to plant a dish garden of tropical plants, and a terrarium of woods or native materials.

Tropical Dish Garden

Equipment.

This section describes materials and procedure for making a dish garden of tropical plant material in a round container, to be viewed from all sides.

Leader:

Work space - basement or heated garage, or other space that is easily swept.

Table space - one 3-foot by 5-foot table for demonstrating, and table work space for members attending, if possible.

Newspaper to cover tables.

Soil - in urban and suburban areas, it is probably best to obtain a sterilized house plant mix in the quantity needed from a greenhouse or florist shop operator.

Plant materials - purchase plants in quantity for interested members. One plant for each dish garden should be about 8 inches tall above its pot if the dish is 8 inches or more across. Four to six plants, in heights of 3 to 6 inches are needed for planting in the circle around the edge of the container. Snake plants and dracaenas are good tall materials. Flat moss may or may not be used as soil cover.

Indoor Garden Report 253-B.
Slide Set "Assembling Dish Gardens and Terrariums"

Members:

Container - a round dish at least 3 inches deep and 8 inches across. Subdued shades of green, brown or grey are best.

Basket to carry materials to and from meeting.

Money to cover cost of materials furnished by leader.
Procedure.

Read through 4-H Bulletin 153-B, Indoor Gardening. If possible, attend a 4-H or home department local leader training session on this subject.

It is best to set up the training session so members can be close to watch your demonstration. Have members leave materials on tables, and then get together around your demonstration table.

Before beginning the demonstration on how to make a dish garden viewed from all sides, be sure the following points are clear.

1. Because several plants are growing in a small area, a dish garden container must be fairly deep to provide enough soil for all.
2. Plants that get along together are grouped in dish gardens--cacti, woods, tropical.
3. Plants must not be too crowded in finished garden, because they need room to grow.
4. Dish gardens are replanted when plants become very crowded, or start to decline.

Pass out reference materials and record sheets.

Do a demonstration on assembling the dish garden, using the following steps as an outline. It is good to explain why as you do each step.

1. Show container and tell why selected--depth, color.
2. Show plants, tell why selected--appropriate heights, foliage interest, form or color in plants used as center of interest.
3. Place 1/2- to 3/4-inch of drainage material in bottom of container.
4. Pour soil mixture into container, mounding soil slightly higher in center. Soil should be 1/2-inch below container edge when dish garden is completed.
5. Plant tallest plant in center of container.
6. Arrange other plants around center plant, spacing the two chosen for center of interest about equally apart.
7. Rearrange plants for best appearance.
9. Add or remove soil so it is 1/2-inch below container edge.
10. Add moss soil cover, if it is being used.
12. Explain where a dish garden should be placed to be viewed from all sides.
If you are using the slide set on dish gardens and terrariums, show the slides on dish gardens.

Now ask members to return to their materials. You will need an assistant or two to handle distribution of materials. Members can line up and bring containers to collect drainage material. A trowel is helpful for transferring gravel from basket to container. One of your assistants may dish out gravel. Then each member gets approximate amount of soil mixture. Then the tall plant is chosen, followed by six or so shorter plants. These can be gathered at one trip to the source of supply.

Containers of extra soil and extra short plants should be available to youngsters, either at the front of the room, or on tables at the work area.

Now disassemble the dish garden you demonstrated, and reassemble it step by step. Wait until youngsters have completed each step before you proceed to next step. If you have junior leaders, they can help those members who have difficulty with any particular step.

After members have assembled their dish gardens, ask them to check for the following:

1. Is center plant in the center?
2. Are plants firmly planted, so they do not lean over?
3. Are the center of interest plants correctly placed?
4. Is the soil below the edge of the container?
5. Are the plants uncrowded?
6. Does everyone know where he will place the dish garden when he gets it home?

To avoid more clean-up, suggest that members wait until they get home to water completed dish gardens.

Remind youngsters they must make another dish garden and two terrariums for activity completion.

Remind youngsters to record each dish garden they make on their record sheet.

**Woods Terrarium**

**Equipment.**

Leader:

Work space - a basement or heated garage that can be swept easily is ideal.

Table space for demonstration by leader, and for attending members, if possible.

Newspaper to cover table space.

Slide Set 'Assembling Dish Gardens and Terrariums'
Copy of 4-H Bulletin 153-B for each member. Distribute these well ahead of meeting so members know what plant materials to look for.

Indoor Garden Report 253-6 for each member.

A clear glass container.

Selection of small woods plants.

Various objects as possible center of interest.

Members:

Woods materials collected before training meetings--small ferns, mosses, evergreen seedlings, partridge berry plants, wintergreen. Be sure to collect some sheet moss. This is found growing on decaying tree trunks and moist rocks.

Use a trowel to collect woods plants; get all or most of their roots.

Containers--clear glass gallon jars, fish bowls.

Soil--extra woods soil gathered when collecting plants.

Accessories--pieces of gnarled wood, small figurines, interesting stones.

Procedure.

Read through the terrarium section of 4-H Bulletin 153-B. If possible attend a 4-H or home department training school on this subject.

It is best to set up the training session so that members can watch your demonstration closely, and then return to their work area.

Before giving your demonstration on assembling a terrarium, explain the following principles:

1. Plants normally growing in dry conditions, such as cacti, cannot grow in a terrarium.

2. Most plants grow rapidly in the high humidity of a terrarium, therefore we try to choose those that grow slowly.

3. Slips or unrooted cuttings can be used, because they root readily in a terrarium. Some woodland materials, such as seedling trees, may not root if badly damaged when collected.

4. A terrarium should be made in a clear container, and have a tight cover.

Have members place their terrarium materials at their work area, then stand near the table to watch your demonstration.

The following may be helpful as an outline for your demonstration. As you go through each step, tell why each step is done.
1. Show clear glass container and tell why it was selected.
2. Show plants and tell why they were selected.
3. Place sheet moss, green side out, against glass, so soil will not show through sides of container. Place moss higher in back part of container to form hillside terrarium.
4. Add 1/2 to 1 inch of drainage material.
5. Add handful or two of woods soil, sloping it high in back part of container.
6. Build rock ledge, if it will provide setting for center of interest.
7. Plant tallest materials. If materials are used on either side of the rear, they should be of different heights or kinds.
8. Choose and place center of interest.
9. Plant lower materials across bottom front of slope, or halfway down the slope.
10. Place flat pieces of moss and lichens around planted materials to cover soil. It is best to use pieces of 2 or 3 different materials.
11. Add several tablespoons of water. There should be no excess water showing through the container bottom.
12. Put on cover. If you do not have a glass cover, use a piece of freezer bag scotch-taped over opening.
13. Explain that terrariums must never be set in direct sun. Terrariums need little water, and may go 6 months without needing additional water.

Now show the slides on assembling terrariums.

Have youngsters go to their work space, and get materials in order.

Take the terrarium you have assembled apart, and put it together again, step by step, as youngsters follow. Junior leaders are most helpful with youngsters who have difficulties.

After members have finished terrariums, ask them to answer the following questions about their own terrariums:

1. Are plant materials pleasingly placed?
2. Is the center of interest correctly placed?
3. Are all plant materials and figurines in scale?
4. Should some plant materials be replaced?
5. Does any soil show?
6. Are the plant materials too crowded?

If any rearranging of plant material should be done, it would be well to suggest it to youngsters as you look over the terrarium. Find something good to say about each one. Also, make suggestions for improvements on those that need it. Youngsters will listen to constructive criticism if something good is said first about their work.
Now it is time to clean up. Everyone who participated should have a feeling of accomplishment because he has created something with the help of nature.

Suggest that members add a little water to terrariums when they get home. Remind the youngsters that there should never be any free water standing in the bottom of the container.

Ask members to record the terrarium on the record sheet. Two dish gardens and another terrarium are needed to complete this activity.

**WINTER BLOOM FROM BULBS**

**Time**.
Teach this activity between October and March. Most bulbs will have to be potted up in October in order for them to bloom in February or March.

**Purpose**.
To have members learn how easy it is to force bulbs in the winter in their home.

**Equipment**
Potting Mixture: Two parts good garden soil, 1 part sand, and 1 part organic matter.

Leader:
Newspaper to cover working surfaces.
Potting space in a place with concrete floor or other easily swept surface. About three feet of working space per member is needed.

Members:
18 or more hardy spring flowering bulbs.
Clay pots, 4-8 inches in size.
Drainage material - broken pottery or stones a little larger than drainage holes.
Soil mixture for potting media
Basket or large heavy paper bag for carrying pots, drainage material and bulbs.
Cold storage space at 40 to 50°F for two months.
Forcing space (sunlit window sills).
Indoor Garden Report 253-B

**Procedure**.
Go through the section on Winter Bloom from Bulbs in 4-H Bulletin 153-B.
Have the members place their materials at their work area and then stand near the table to watch your demonstration.

Then demonstrate how to pot some bulbs following the outline given in the member's leaflet.
Have members go to their work space and get their material organized.

Then pot up another pot of bulbs and have the members follow you step by step. Junior leaders are most helpful with youngsters who have trouble.

After members have finished potting one pot, ask them to answer the following questions:

1. Are the bulbs at the right depth?
2. Are the bulbs evenly spaced?
3. Do they have the right number of bulbs in the pot?
4. Do they have the right amount of soil in the pot?

You may prefer to have the members water the pots after they take them home.

Have the members clean up their work areas.

Explain the cold storage treatment.

At a later meeting, discuss how the members will force their bulbs that have been in cold storage.

Ask members to record the number of bulbs that they potted up in their report form.

Members should bring into bloom at least three pots of hardy spring flowering bulbs.

Since it will not be possible to show the bulbs in flower at most fairs or State Show, it is recommended that members make an educational exhibit of their project or give a demonstration on potting or forcing bulbs.

Leaders are encouraged to take their members to a greenhouse to see how florists force bulbs.

CREATING PLAQUES FROM DRIED MATERIALS

Time.

This is an excellent winter activity. It can be carried out anytime during the year if members know it is listed in your club program. Members can be gathering materials all year.

Purpose.

To have members learn the use of simple designs and skills in a creative way. This activity outlines a simple plaque of maple seeds, pine cone scales, bits of bark, and an acorn on a 5-inch by 7-inch piece of plywood. (See illustration on next page.) A junior leader is needed to assist you if more than 6 members are carrying out this activity at a meeting.
This simple design is made of maple seeds, pine cone scales, bits of bark, and an acorn.

Equipment.

Leader:

5-inch by 7-inch piece of plywood for backing.
1 acorn with husk.
5 small bits of flat bark.
5 pine or spruce cone scales the size of maple seeds.
14 or more single maple seeds.
Quick drying glue.

Work area.
Bulletin 153-B, Indoor Gardening for members.
Indoor Garden Report 253-B

Members:

Dry materials as listed above; or backing, glue, and a variety of dry materials.

Procedure.

Have members set materials aside so they can watch you demonstrate. Explain how this design was chosen from the suggested designs. Discuss how designs are helpful in planning plaques. The scale, or size of materials, is very important. Large materials such as locust pods are not usable on small backings. The placing of all materials before gluing is essential. Make light pencil outlines around materials to be sure they are glued exactly where they are wanted.
1. Lay down the backing piece.

2. Place the outermost maple seeds in their approximate positions. These can come close to the edges.

3. Locate the center of interest (acorn) so the maple seeds point to its middle.

4. Lay pine cone scales around acorn. Space these evenly. One scale should line up with one of the outside maple seeds and with the center of the acorn.

5. Space bits of bark between outside maple seeds and the center of interest.

6. Fill in with more maple seeds. Move seeds to allow a pleasing amount of space to show between seeds. More space appears among seeds at outer edges. The entire design is laid out before any gluing is done.

7. Glue mid-part of center of interest in place. Glue outermost materials. Be sure outer ones are lined up so they point to middle of center of interest. Glue pine scales in place, then bits of bark. Finish up by gluing the other spaced maple seeds in place.

8. Answer members questions.

Now have members return to their materials and lay them out in the work area. Have members go through the foregoing steps, helping them complete each phase. Some will need lots of help; others will amaze you with their work. Do not expect all to do an outstanding job on their first attempt.

After the plaques are finished, they may be sprayed with a clear plastic material. Have members answer the following questions about their plaques.

1. Is the design pleasing to the youngster who made it?

2. Are materials well placed?

3. Are materials securely glued?

If the plaques pass your inspection, start cleaning up. Remind youngsters that they need two more plaques to complete the activity.

Record the plaque in the Indoor Garden Report 253-B.

Plaques can be exhibited at most county fairs and State Show.