

# GARDENING AS THERAPY



A Resource Manual for Development  
of Horticultural Therapy Programs  
for the Spring Season



U.B.C. Botanical Garden Technical Bulletin No.5

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The University of British Columbia

ISSN 0703-1432

Printed in Canada

*Correct citation:*

Coxon, Margaret E., Co-ordinator. 1978. Gardening as Therapy. Technical Bulletin, Botanical Garden, The University of British Columbia, No. 5 pp. iv + 32

*All orders should be addressed to:*

Office of The Botanical Garden  
6501 N.W. Marine Drive  
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Vancouver, British Columbia, Canada V6T 1W5

*Price \$4.25 + postage*

# GARDENING AS THERAPY

by

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TECHNICAL BULLETIN NO. 5

March 1978

Published by The Botanical Garden  
The University of British Columbia  
Vancouver, British Columbia, Canada

#### ACKNOWLEDGEMENTS

The development of any program must have it's 'starters' and 'doers' and the hortitherapy program at the University of British Columbia Botanical Garden has had just such people. This special resource manual was prepared as a co-operative project by the 'Friends of the Garden' Hortitherapy Project Group.

The Chairman of the group was Kay Cooke who worked closely with Margaret Coxon of the Botanical Garden staff to start the resource manual development. Margaret has provided much of the professional horticulture stimulus and writing to ensure integrity of the program presented in the book. Ginny Fearing, a professional occupational therapist and member of the Friends of the Garden group, provided expert knowledge from a professional therapy point-of-view. Annette Lantzius served as copy editor, Jacqueline James as plant resource investigator and Barbara Dean as biographer. All members met frequently to develop the manual and collectively have authored the work. Lea Price-Bickford provided the added sparkle through her artistic wizardry.

The book would not have become a reality without the enthusiasm and patience of the 'Greeneries', a new club established at the Pearson Extended Care Hospital in Vancouver by the Friends of the Garden in 1976. Their role in this manual is greatly acknowledged.

Other members of the Friends of the Garden have participated as volunteers in the 'Greeneries' project and their help and enthusiasm have played no small part in making our project a reality.

Finally, the help and support of all U.B.C. Botanical Garden staff, in particular, Lorna Anderson and Pam West, secretaries in the Department, have been most important in making an idea become reality through the production of our publication "Gardening as Therapy".

The Authors

TABLE OF CONTENTS

Acknowledgements.....	ii
Preface.....	iv
Introduction.....	1
How To Use This Manual.....	3
Spring Topic 1 - Preparation for Propagation, or Making a Mini-Greenhouse.....	4
Spring Topic 2 - Making Your Own Plants from the Tips of Stems.....	6
Spring Topic 3 - Making Your Own Plant from a Single Leaf.....	8
Spring Topic 4 - Seed Farming.....	10
Spring Topic 5 - Sprout a Snack from a Seed Garden.....	12
Spring Topic 6 - Hearty Soils for Hearty Plants.....	14
Spring Topic 7 - Transplanting and Repotting.....	16
Spring Topic 8 - Climate Control: Watering and Humidity.....	18
Spring Topic 9 - Climate Control: Light and Temperature.....	20
Spring Topic 10 - Small Gardens for a Small Space.....	22
Plant List.....	24
List of Suppliers.....	27
References: Films & Books.....	28
Bibliography.....	30
Notes.....	32

## PREFACE

The Botanical Garden at the University of British Columbia has as a basic theme "Plants and Man". In the course of talking to the community which we serve, I have often said that one of our principal roles is to provide a window through which the community can derive benefit and develop an enthusiasm for the plant world.

I can think of no better example of this philosophy in action than the developing program of horticulture as therapy, exemplified by the development of the resource manual "Gardening as Therapy".

The Botanical Garden cannot provide work program experiences for all the deserving groups in British Columbia, but we can provide a resource training program for the many people, particularly professionals in the health sciences, who wish to help the many elderly, handicapped and less fortunate citizens who can derive benefit from a horticultural therapy program. Through resource training, our ideas can be put to use in many areas, thus a multiplier effect can be achieved to bring horticulture therapy to a large number of individuals. Nothing succeeds like a self-help, self-starter program. We can provide some of the fuel, certainly a fuse, and the community can enjoy the fireworks that result from ensuing enthusiasm developed from working on plant orientated projects.

This resource manual provides but a small glimpse into the wonderful world of plants. We hope that use of the manual will result in new ideas that can be incorporated in subsequent publications. Don't be afraid to let us know your ideas, we are always open to constructive criticism and new challenges. I hope you will find the resource manual useful and informative, and most of all, that it will stimulate a new awareness of the fun and enjoyment you can have with the green world.

Roy L. Taylor  
Director  
Botanical Garden  
The University of British Columbia

## I N T R O D U C T I O N

Gardening As Therapy is a teaching guide designed so that you can prepare and present a plant class to special groups without actually being a plant expert.

Volume 1 is the Spring edition. Each of the ten chapters contains a complete project, although the basic information contained in each chapter may be used in the succeeding ones. The format is flexible and should be adapted to fit the needs and progress rate of any given group.

### Why Gardening As Therapy

Somewhere in the food chain all living things are dependent on plants. Until fairly recently we tended a garden to survive. Although most of us don't have to grow our own food any more, we are still dependent on plants for our survival.

We also need plants for their beauty, fragrance and texture. Even the most familiar plant can startle us with new growth or fresh blossoms.

Besides needing plants for survival and for our senses, we enjoy caring for them. It's fun to work with soil. The possibilities for learning about the care and culture of plants are endless.

Gardening is a creative, personal venture in which even an eccentric approach will be respected or examined for its merit.

As anyone knows who eagerly watches for the first daffodils, gardening is a link with seasonal changes, something often missing from urban or institutional living.

Gardening can be graded to fit a wide range of abilities, from the person who laboriously plants a pumpkin seed to the one who hybridizes plants. This is important for it means that gardening, in one form or another, can be a source of pleasure no matter where people are nor what their circumstances.

### What Are Your Therapeutic Goals?

Every group needs a direction although not necessarily the same direction. Study your group and decide on reasonable goals. Whenever possible, include the group in this process. For example, a therapist might assume that blind people would want a garden with textured and fragrant plants when, in fact, this is not always true.

A few suggested therapeutic goals are:

- 1) To have fun
- 2) To stimulate senses
- 3) To provide intellectual stimulation
- 4) To learn to follow directions
- 5) To encourage problem solving
- 6) To encourage group interaction
- 7) To encourage community involvement
- 8) To provide an activity that can be continued at home
- 9) To increase attention span
- 10) To increase hand co-ordination
- 11) To increase self-esteem
- 12) To encourage the use of library materials

### How to Start a Gardening Group

#### 1) Meeting Place

Choose a room large enough to comfortably accommodate your group. It will help if there is water nearby and if the floor is not carpeted.

#### 2) Meeting Times

Set aside a regular time each week so that people can look forward to it and take responsibility for arriving on time.

#### 3) Group Size

This depends upon the people in your group and how much help they need. Remember that conversation is encouraged and that a feeling of closeness often develops in a small group.

#### 4) Help!

Call on volunteers. If you don't have volunteers, recruit some. Be sure you explain your goals to them.

#### 5) Equipment

Everything you will need for each project is listed with the project. You will not need anything elaborate.



## HOW TO USE THIS MANUAL

Here are ten Spring topics for you to present to your gardening group. Although each chapter is complete and can be used separately from the others, together the chapters make a whole unit, a basic and integrated approach to the care and culture of plants.

The lefthand side of the guide tells what YOU NEED before you present that topic. You will find a list of sources at the back of the guide, along with the bibliography and a reference list of books and films. ADDED INFORMATION gives you a few extra suggestions, like what to use if you can't find coarse sand. Record your own observations and suggestions under HORT TIPS.

The righthand side of the manual has a logical step-by-step procedure to follow while doing that project.

This guide is meant to be a base upon which to build. If the topic is water and humidity, try putting a daisy into coloured water. Record what you think will happen and what actually does happen. For the light and temperature topic, try placing a plant in a closed box and observe the effects. Many plants have interesting histories. Find out how they got their names and in what country they were originally found. Compare plants noticing likes and differences so that, as you gain experience, you will be able to group them.

It is possible that you might complete two topics per session. On the other hand, you might spend several sessions completing one topic, for example, identifying sand, feeling it, talking about it, then comparing it with peat moss, and so on. This is a guide and not a blueprint. Have fun!

you need

1. POTS - 4-5" diameter, 2 for each person.
2. SAUCERS or TRAYS to hold pots.
3. PEAT MOSS - enough for 1 full pot each.
4. COARSE SAND - enough for 1 full pot each.
5. PEBBLES - 1/2" size, enough to cover base of pots and saucers.
6. CHOPSTICKS - one per pot.
7. PLASTIC BAGS - clear, one per pot.
8. WATERING CAN - or small jugs with spouts, like teapots.
9. MISTING BOTTLE.

added information

1. Plastic food containers, such as those used for sour cream, yogurt and sprouts, can substitute for pots.
2. Peat moss can be difficult to keep moist. Store in a plastic bag, dampen well with hot water and seal tightly until ready to use.
3. Pumice or vermiculite can substitute for coarse sand. Perlite is very dusty and aggravates the throat, so, if used, should be kept very moist.
4. Mica Peat is ready to use and requires no mixing.
5. Bark chips or broken pots can substitute for pebbles in covering drainage holes or saucers.



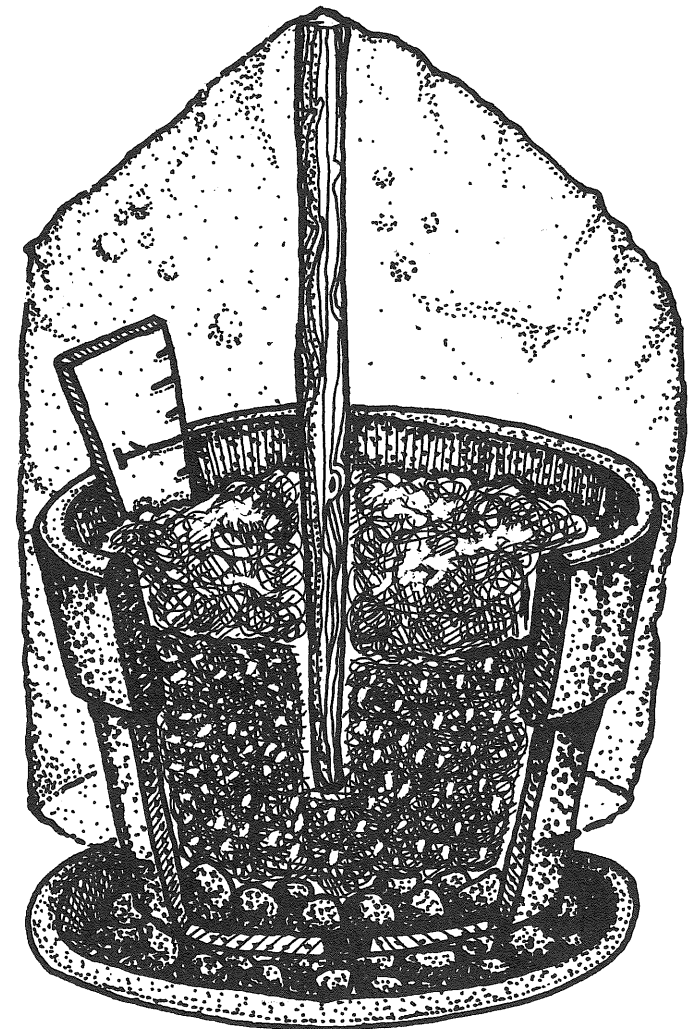
hort tips

## PREPARATION FOR PROPAGATION, OR MAKING A MINI-GREENHOUSE

1. For most indoor tropical plants a kind climate is warm, moist, humid and has bright, diffused light.
2. Prepare 2 clean pots for each gardener.
3. Fill one pot with moist peat (peat will hold moisture in the mix).
4. Fill other pot with moist sand (sand will allow air to pass through the mix so roots can breathe).
5. Tip contents of both pots onto the table.
6. Mix peat and sand together thoroughly, taking care to massage all lumps out of the peat.
7. Feel the mix - it should feel slightly crunchy and slightly moist.
8. Cover the drainage hole, or holes, in the bottom of the pots with some pebbles to prevent mix from leaking out.
9. Fill both pots with the mix.
10. Press the mix down and smooth the tops leaving a half to one inch of space at the top.
11. Spread a layer of pebbles in the saucers or trays.
12. Place pots evenly on top of pebbles.
13. Water each pot carefully and evenly from the top until water trickles out drainage holes.
14. Place a chopstick in the centre of each pot.
15. Drape a plastic bag upside down over the chopstick and pot.
16. Choose a good spot for the mini-greenhouse. Look for somewhere warm with bright, diffused light.

## MID-WEEK:

1. Check the mix in 4 or 5 days and make sure it's still moist to the touch.
2. Watch the plastic bags gather moisture on the inside, indicating humidity.
3. Add a little water to the saucers or trays if they dry out.



you need

1. MINI-GREENHOUSES - 1 each, from last week's Topic.
2. WATERING CAN - or small jugs with spouts.
3. MISTING BOTTLE.
4. SCISSORS or SHARP KNIVES to take and trim cuttings.
5. PLANTS - healthy parent plants with lots of branches and growing tips.

Easy plants to root are: SWEDISH IVY, COLEUS, WANDERING JEW and ALUMINUM PLANT.



hort tips

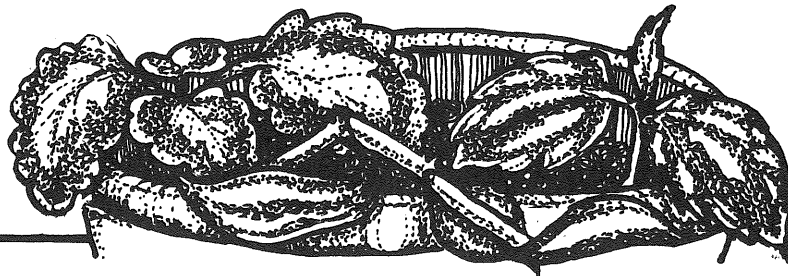
added information

Growing plants from cuttings is easy and an amazing experience. Imagine growing a whole new person from a finger or toe, yet this is an ordinary talent possessed by most plants. Many of our houseplants are started by a number of different cutting techniques. The STEM TIP CUTTING is the most common method of propagation and is used on small plants and large plants such as the Rubber Tree and Split Leaf Philodendron. The technique does not differ, just the size of the cutting.

Root hormones are helpful but not necessary and MUST BE HANDLED VERY CAREFULLY.

## MAKING YOUR OWN PLANTS FROM THE TIPS OF STEMS

1. Remove the plastic bag and chopstick from one mini-greenhouse.
2. Check the mix for moisture.
3. Take a good look at the parent plants and find stems, leaves and growing tips.
4. Cut off a stem 3-4" down from the growing tip.
5. Carefully remove all leaves and branches from the bottom half of the cutting.
6. Remove blossoms or fruits.
7. Trim the base of the stem  $\frac{1}{4}$ " below a leaf joint or node.
8. Using your finger or a pencil, poke a hole into the mix.
9. Place the cutting into the hole and press the mix tightly against the stem.
10. Cuttings like company, so do more than one.
11. Cuttings from different plants are fine together as long as they are similar in size and care requirements.
12. Water and mist the cuttings.
13. Replace chopstick and bag.
14. Place the mini-greenhouse back on its pebble tray and in a warm spot with bright, diffused light.



## ON-GOING CARE:

1. Check that mix is kept slightly moist.
2. Mist cuttings often until the greenhouse fogs a little.
3. Have patience; cuttings will take 4 - 5 weeks to root.
4. TOPIC 7 will cover what to do when cuttings have rooted.

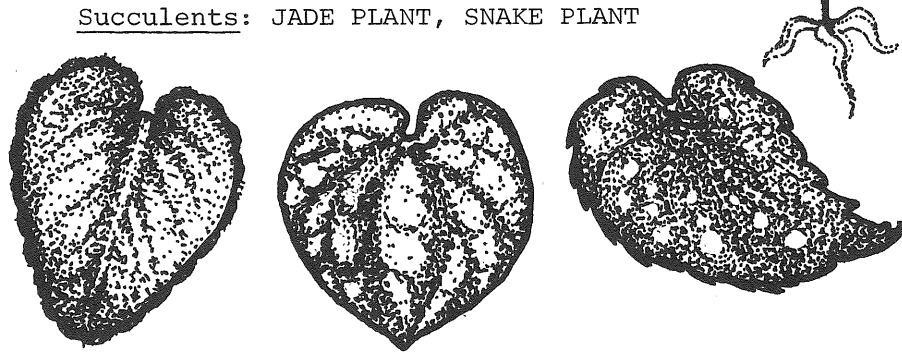


you need

1. MINI-GREENHOUSE - one for each gardener.
2. WATERING CAN - or small jugs with spouts.
3. MISTING BOTTLE.
4. SCISSORS or KNIVES.
5. PLANTS that will propagate by leaves:

Tropicals: AFRICAN VIOLETS, PEPEROMIAS, BEGONIAS

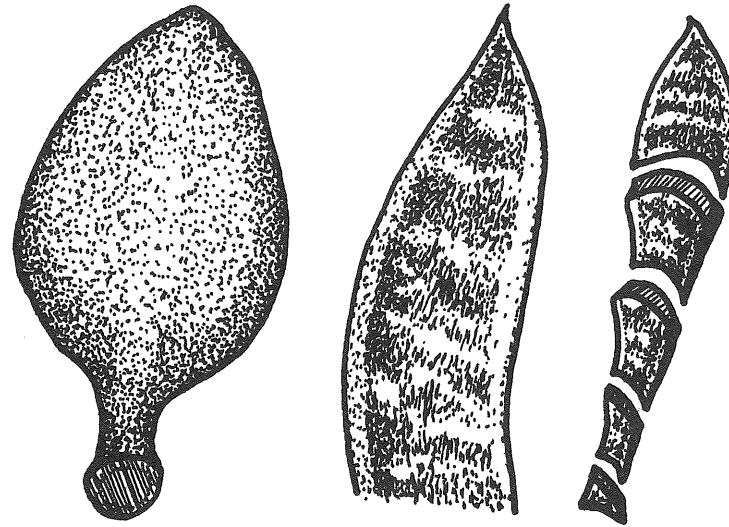
Succulents: JADE PLANT, SNAKE PLANT



added information

Leaf cuttings are as remarkable as stem tip cuttings. From one single leaf a root system can be grown that will support a whole new plant identical to the parent.

Some 'succulent' leaves can be rooted with the tropics, but it is generally easier to separate the warm and dry desert plants from the moist tropics.



hort tips

## MAKING YOUR OWN PLANT FROM A SINGLE LEAF

1. Remove the chopstick and plastic bag from a vacant mini-greenhouse.
2. Check the mix for moisture.
3. Take a good look at the parent plants.
4. Check for new and old leaves and leaf stems.
5. Look for one good, middle-aged leaf.
6. Remove leaf from the parent plant right at the base of the leaf stem.
7. If the stem is long, trim it down to leave 1" of stem on the leaf.
8. Poke a hole in the mix and insert the leaf stem on a 45° angle.
9. Press mix around the stem, making sure the base of the leaf is level with the surface of the mix.
10. If the leaf is large or heavy, lean it against the side of the pot for support.
11. Water and mist.
12. Replace chopstick and bag.

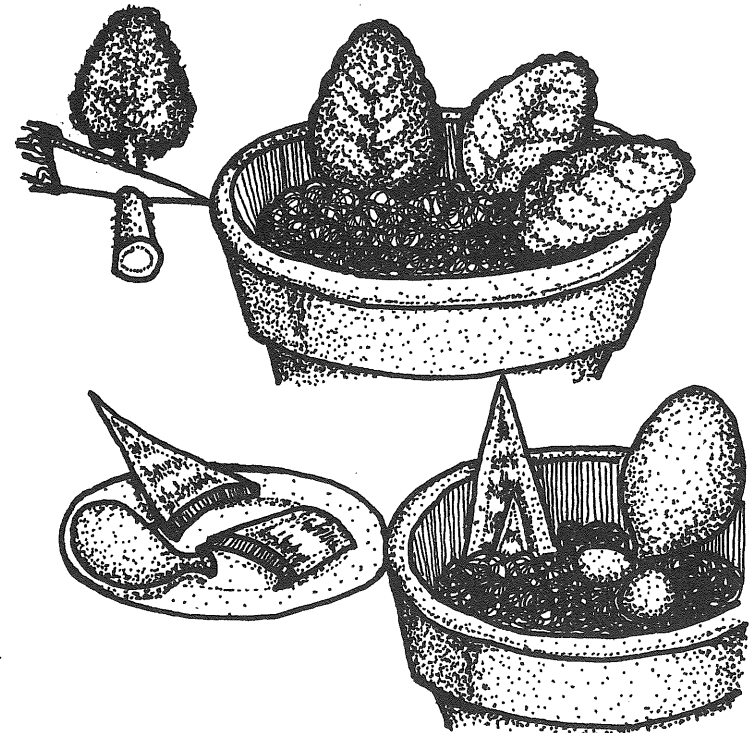
Note: DESERT PLANTS are a little different because they often have no leaf stem and need a drier mix.

- A. Choose leaf and peel carefully off parent.
- B. Allow the leaf to dry, for a day if possible.
- C. Place severed end of leaf into mix.
- D. Humidity is not necessary. Leave off plastic bag but water when mix feels slightly dry.

13. Place the leaf cuttings back on the pebble tray and in a warm spot with bright, diffused light.

### ON-GOING CARE:

1. Have patience. Leaf cuttings take longer than stem tips as they must grow shoots as well as roots.
2. Water when necessary and mist for Tropicals.
3. Leaf cuttings are ready when new shoot is equal in size to the parent plant. See TOPIC 7 for transplanting.



you need

1. WIDE POTS or TRAYS - at least 3" high and with good drainage holes, one per person.
  2. SAUCERS or TRAYS.
  3. PEBBLES for bases of pots and trays.
  4. SOIL - commercial potting soil.
  5. TONGUE DEPRESSORS or POPSICLE STICKS.
  6. SEEDS - consider whether the seeds are to be grown indoors or are intended for outside use.
- Easy seeds to grow are: MARIGOLDS, BEGONIAS, IMPATIENS, CITRUS, DILL, BASIL, THYME, CHIVES, and TOM THUMB TOMATO.
7. NEWSPAPERS - one sheet per person.
  8. WATERING CAN.
  9. MISTING BOTTLE.
  10. For EXPERIMENT: Beans, blotting paper, glasses, soil, cups or paper bags.



added information

The process of seeds sprouting is called germination. Where this occurs, the outside seedcoat splits and a sprout carrying the seed leaves and a primary root emerge. The sprout works naturally upwards towards the light and the root heads downwards. The seed contains enough food to be self-sufficient until the second set of leaves develops. After this, the plant takes over and begins to manufacture its own food.

For the summer months a planter outside a window or door is an easy gardening experience. Start some suggested seeds now to be ready to move out in early summer.



hort tips



## SEED FARMING

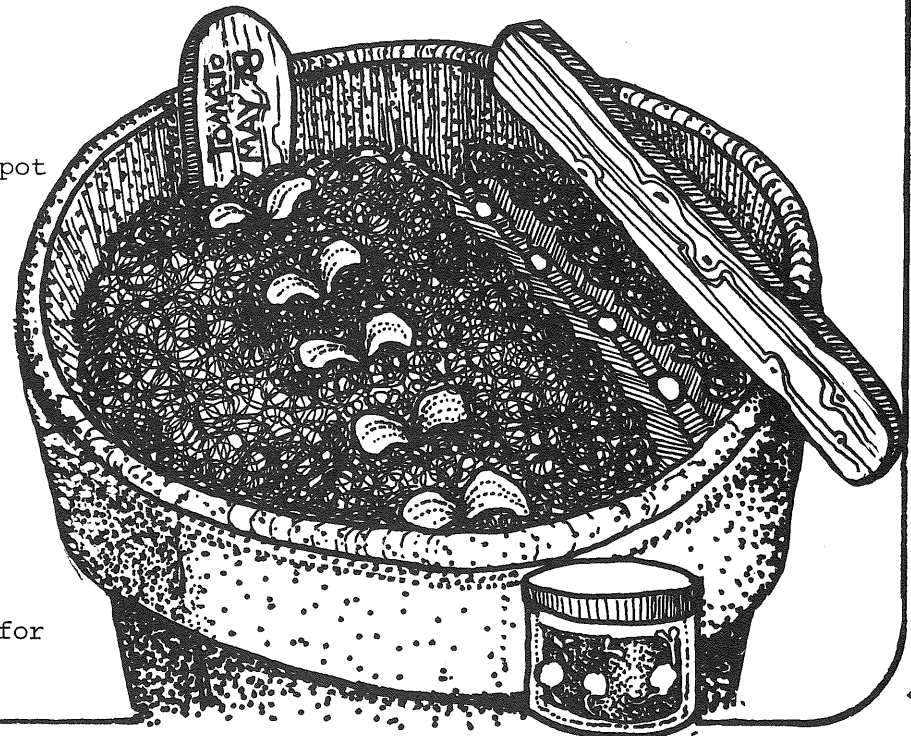
1. Select a seed tray or wide pot.
2. Fill with moist soil to within  $\frac{1}{2}$ " from the top.
3. Smooth the top of the soil.
4. Take a look at your seeds. In general they should be planted  $\frac{1}{2}$ " apart and 3 times the thickness of the seed in depth (e.g. a seed  $\frac{1}{4}$ " thick should be planted  $\frac{3}{4}$ " deep). Very fine seeds are sprinkled lightly on the surface of the soil.
5. Sow the seeds. It's easy to make rows with popsicle sticks and then use the sticks for labels after sowing.
6. Smooth the top of the soil once again.
7. Label all plantings with the date, the variety and approximate number of seeds.
8. Mist the soil surface to make sure seedbed is uniformly moist.
9. Cover with damp newspaper.
10. Place on a saucer or tray and put in warm, bright spot without sunshine.

## ON-GOING CARE:

1. Keep soil moist by watering very gently.
2. Remove newspaper when the first seedlings emerge.
3. Transplant when seedlings show 2 sets of leaves.
4. Start with small pots and repot when necessary.
5. Many seedlings of one kind may be planted together for a mass effect, but more on this later.

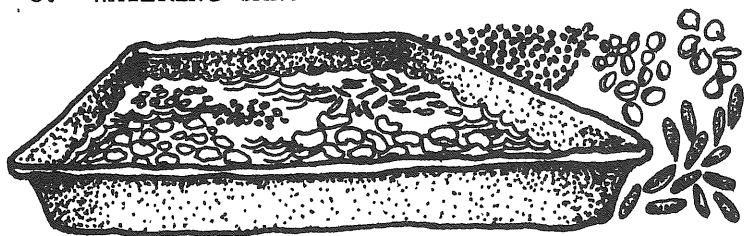
## EXPERIMENT to show a seed sprouting.

1. Line the inside of a glass with damp blotting paper.
2. Poke beans between the glass and the blotter.
3. Fill the glass with potting soil.
4. Water and keep moist.
5. Place glass inside cup or paper bag to keep seeds from light.
6. Remove in a few days and watch the roots and shoots progress. Exposure to light will turn the shoots green.



you need

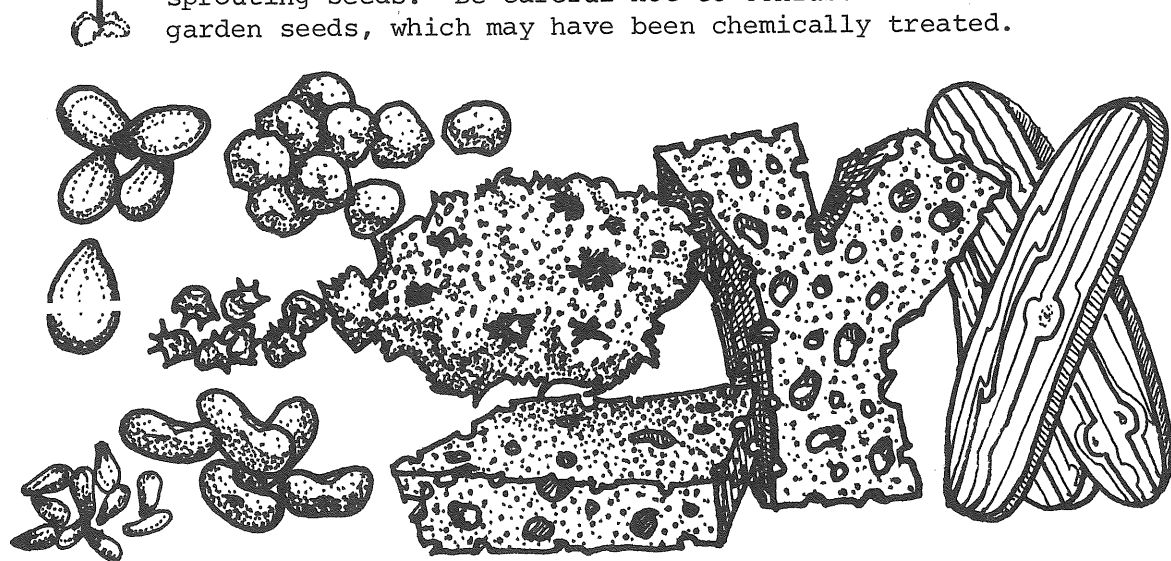
1. CUPS or BOWLS in which to soak the seeds.
2. SHALLOW DISHES or SAUCERS -- one per person.
3. SPONGES -- one per person.
4. SPROUTING SEEDS -- edible.
5. DECORATIVE MATERIALS, washed rocks, figurines, nuts or shells.
6. LABELS with all seeds.
7. SCISSORS.
8. WATERING CAN.



added information

This exercise is mostly for decoration and observation purposes. All of the sprouts listed are edible except the hard beans, which should be cooked before being eaten.

Health food stores provide a large assortment of sprouting seeds. Be careful not to confuse with garden seeds, which may have been chemically treated.



hort tips

## SPROUT A SNACK FROM A SEED GARDEN

Soak all except gelatinous seeds in water overnight. Gelatinous seeds may be planted without preparation.

1. Choose a dish.
2. Cut sponge to fit dish. How about your initials, an animal or a flower?
3. Water sponge until it is saturated.
4. Take a look at seeds and choose several kinds.
5. Arrange the seeds on top of the sponge.
6. For decoration add a rock or figurine, if desired.
7. Place in average light without sun.

### ON-GOING CARE:

1. Keep the sponge moist at all times.
2. Harvest the sprouts when they are 1-2" tall.

### SUGGESTIONS:

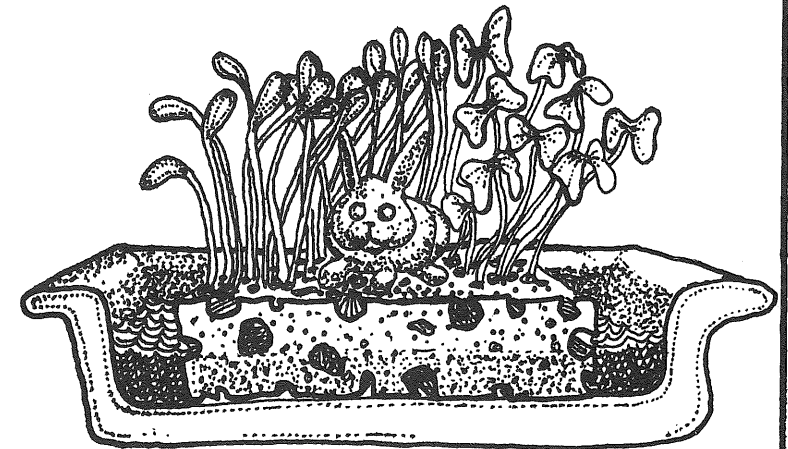
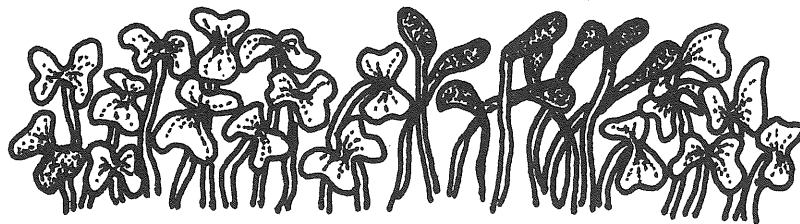
1. Try growing sprouts to eat! Look up the procedure for doing this.
2. Record the length of time it takes for different seeds to sprout.

3. Try new seeds. There are many more seeds available than those listed here.

Small seeds:	ALFALFA, SESAME
Grains:	WHEAT, BARLEY, RYE
Tender beans:	MUNG, LENTIL
Hard beans:	GARDEN PEAS, GARBANZOS
*Vegetable seeds:	PUMPKIN, BEETS, LETTUCE
Gelatinous seeds:	GARDEN CRESS, CHIA

4. Try to find a similarity in taste between the sprout and the seed as you know it.
5. When all sprouts are up and used, wash the sponge thoroughly and start again.

\*Check to see if seeds have been chemically treated. See ADDED INFORMATION.



you need

1. 4" POTS - one per person.
2. SOIL - sterilized heavy potting soil, or sterilized topsoil if available. (Six 4" pots full of soil will equal 1 gallon).
3. PEAT MOSS - 1 gallon per person.
4. COARSE SAND - 1 gallon per person.
5. STORAGE - strong plastic bags and ties. Ice cream tubs.
6. WATERING CAN.



added information

1. Pots are measured by their width. A pot 4" in diameter is called a 4" pot.
2. Most commercial potting soils need amendments, so if treated as topsoil for the mixes, they will work well.
3. A few days before the garden meeting, add enough hot water to the dry components to make them quite moist.
4. This Topic should provide enough soil for most of the upcoming topics and will save mixing for every activity.
5. One further mix to look at is a soilless mix. It usually consists of peat and vermiculite with chemical nutrients added to replace the soil. It is handy for cuttings and seeds as it comes already mixed. An example of a soilless mix is MICA PEAT.



hort tips

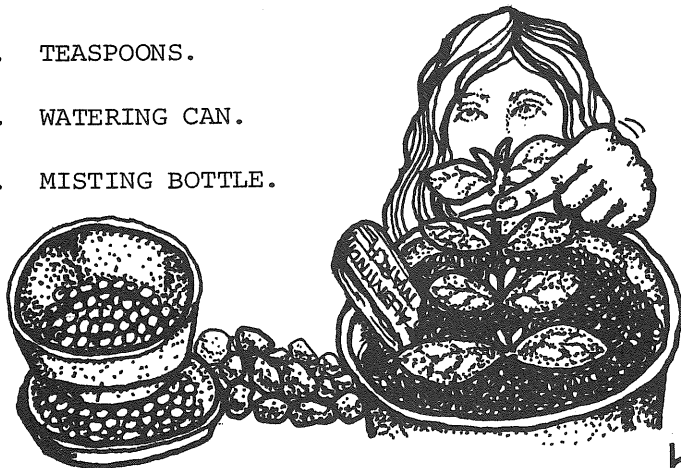
## HEARTY SOILS FOR HAPPY PLANTS

1. Feel the propagation mix from TOPIC 1.
2. Remember the mix was half PEAT and half SAND. (PEAT for moisture and SAND for air). This mix has no nutrients and does not burn the tiny roots as they develop.
3. When the cuttings are rooted and ready for transplanting, they now need a rich soil to provide nutrients for the growing plants.
4. A good potting soil should contain: NUTRIENTS, MOISTURE and AIR.
5. Feel the SOIL, PEAT and SAND - each should be slightly moist.
6. Add together small amounts of each component until mixture feels a little gritty and moist.
7. It is ready when you can squeeze a handful, relax your hand and have the mixture crumble lightly apart.
8. This would be a good TROPICAL PLANT potting soil.
9. Mix 6 pots of the basic Tropical mix.
10. Store the Tropical mix.
11. Mix about 2 pots of FERN POTTING MIX. This should be moist and light, and can be obtained by adding more peat to your basic mix.
12. Store the Fern mix.
13. Mix about 2 pots of CACTUS POTTING MIX. This should be dry and aerate very well. Add more sand and less peat to your basic mix.
14. Store Cactus mix.
15. Label and date all three types of potting soil.



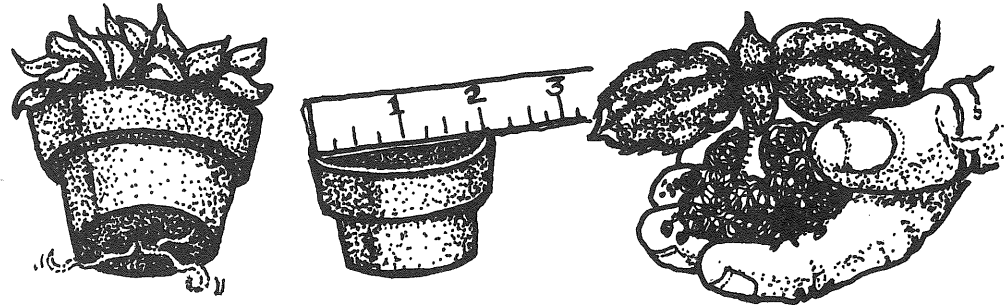
you need

1. POTS or CONTAINERS -- 2-4" in diameter, enough for several cuttings.
2. SOIL -- Tropical mix from TOPIC 6.
3. CUTTINGS -- from TOPIC 2.
4. PEBBLES -- enough to cover the base of the pots and saucers.
5. SAUCERS and TRAYS.
6. TEASPOONS.
7. WATERING CAN.
8. MISTING BOTTLE.



added information

1. Plants should be repotted when roots appear through drainage holes or above soil surface.
2. Disturb the roots as little as possible, keeping rootball in-tact when repotting.
3. Pots are measured by their width across the top. A pot that measures 2" in diameter is called a 2" pot.
4. The fast-growing seasons of Spring and Summer are best for repotting.
5. Plants should not be fertilized for at least 3-4 weeks.



hort tips

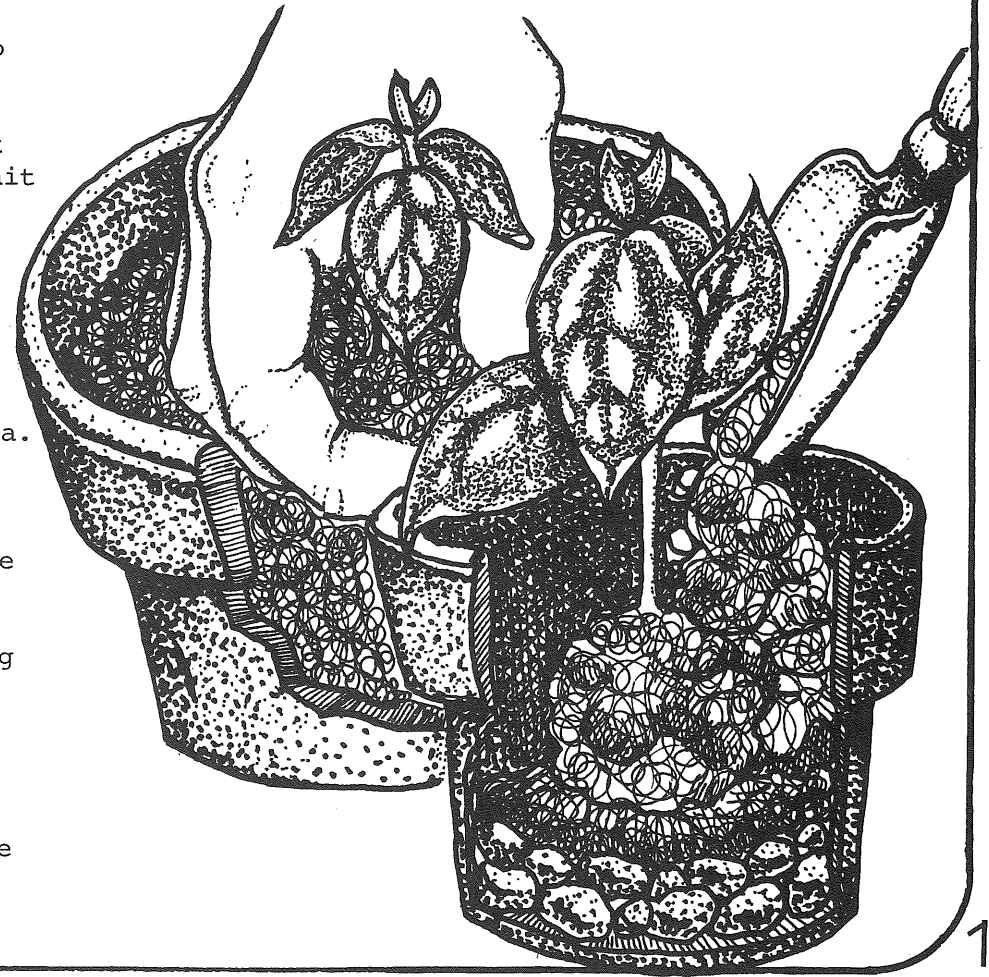
## TRANSPLANTING AND REPOTTING

### Checking the Cuttings for Roots

1. Take a look at your cuttings. Are they growing? Do they look firm?
2. Take the stem of one cutting and tug lightly. If it resists it has roots.
3. Scoop down below the cutting with your finger, or a teaspoon, and carefully remove it from the propagation pot.
4. If there are enough roots to roughly cover the size of a quarter, then the cutting is ready to transplant into soil.
5. If the cutting is not well rooted, slip it back into the mix, mist and water thoroughly, and wait a little longer.
6. Check the roots on all of the cuttings.
7. Tap the pot on the table to settle everything in place.
8. Place pot on pebble tray.
9. Water thoroughly with lukewarm water until it runs out the drainage hole.
10. Mist the leaves.

### Transplanting and Repotting

1. Choose a clean pot 1-2" wider than the root area.
2. Cover the base of the pot with pebbles.
3. Cover the pebbles with potting soil to where the base roots of the plant would reach.
4. Place the plant on top of the fresh soil, making sure it is well centred.
5. Carefully add soil around the edge of the plant and press lightly.
6. Check the soil level -- it should be  $\frac{1}{2}$ " from the top of the pot.



you need

1. 4" POTS for each person.
2. 12" CORDS for each pot -- a cotton pajama cord, wicking or rope work well.
3. PLANTS in 4" pots.
4. PLASTIC CONTAINERS with lids (e.g. sour cream, yogurt, sprouts, etc.).
5. KNIVES or SCISSORS to poke hole.
6. WATERING CAN.

added information

1. If plants should seriously dry out, plunge the pot in water until the soil stops bubbling, drain and water as before.
2. Plants in closed containers (no drainage holes) are watered in a different way. Instead of thorough watering, it should be on a replacement basis only. If the soil is dry to a depth of 2", then only enough water to moisten the soil 2" should be added.



hort tips



## CLIMATE CONTROL: WATERING AND HUMIDITY

### Why not an automatic watering system?

1. Take a 4" pot and a 12" cord and poke the cord through one hole leaving 8" inside the pot.
2. Spiral the cord around the inside of the pot.
3. Carefully repot your plant.
4. Punch a hole in the lid of a plastic container and put the 4" of cord through the hole.
5. Fill plastic container with water and carefully put the lid and pot into place.
6. Water plant from the top only once; the wick will draw up water as needed.
7. All you need do is keep plastic container supplied with water.

### If you want to water the plants yourself, remember a few points

1. The water should be lukewarm for comfort.
2. Too much water will force air out of the soil, causing roots to rot and leaves to pale and drop.
3. Too little water will cause soil to dry out and leaves to burn and drop.
4. If you allow soil to become dryish and then water thoroughly, good root growth and leaf growth usually follow.
5. Water until excess runs out of drainage holes.
6. Saucers with pebbles are very important to catch the run-off, but always allow the pot to sit above the water level.

### How to tell when your plant needs water.

1. Feel the soil on top and below the surface; look at the soil; feel the pot weight; knock on the pot (a hollow sound indicates dry soil). Find a few methods that suit you.
2. Consider what type of plant you are growing: moisture loving (ferns), regular (most tropicals), or dry (like cactus).
3. Plants should not wilt or wrinkle for lack of moisture, but if in doubt about watering -- DON'T.

### Humidity

1. Humidity is appreciated by most plants except Cactus.
2. Easy ways to provide humidity are pebble trays, placing plants together and misting.
3. Misting is best done in the morning, but should never be directed at fuzzy-leaved plants.
4. Lack of humidity, or hot dry air, causes leaf tips to brown and turn almost papery to the touch.

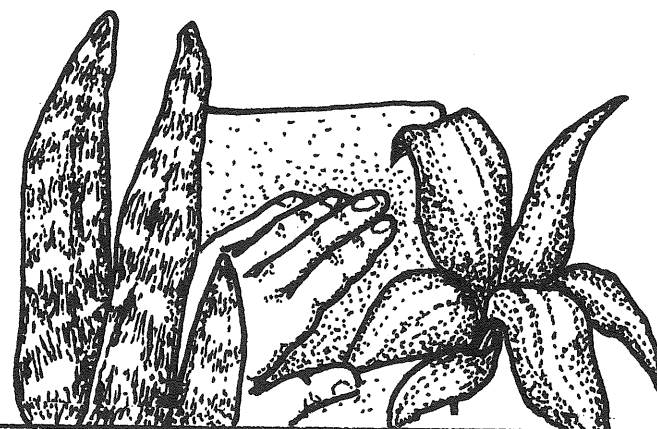


you need

1. WHITE PAPER -- one sheet per person.
2. MANY PLANTS for dividing into light groups.
3. COLOURED PICTURES of PLANTS would be useful if live plants are not available in quantity.
4. HOUSEPLANT BOOKS for reference.
5. PROBLEM PLANTS if available.

added information

1. This topic is mostly informative and will be used as a reference for other topics.
2. Now is a good time to organize and to check on the progress of earlier activities.
3. Use project plants and cuttings to look for signs of LIGHT, TEMPERATURE, WATER and HUMIDITY problems.
4. If you have some problem plants, try to guess the cause, or causes, of problems.



hort tips

## CLIMATE CONTROL: LIGHT AND TEMPERATURE

### Light

1. A quick check for light is to place a white piece of paper where you wish to sit the plant.
2. Hold your hand a foot above the paper and take a good look at the shadow:

BRIGHT -- the shadow is dark and clear

AVERAGE -- the shadow is faded but clear

LOW -- the shadow is fuzzy and unclear

3. Nearly all plants can be divided into these light groupings:

BRIGHT LIGHT PLANTS -- often fast growing, flowering, brightly-coloured leaves, variegated leaves, tiny leaves, desert plants.

AVERAGE LIGHT PLANTS -- average speed of growth, average-sized leaves, green in colour even if variegated.

LOW LIGHT PLANTS -- slow-growing, large leaves, often straplike, very deep green and, if variegated, usually very limited colour or in greens.

4. Take a look at the plants on the table and divide them into BRIGHT, AVERAGE and LOW categories. It's easy to see how some fall in between requirements.
5. Decide what light your own plants need.
6. If a plant has insufficient light it seldom blossoms, leaves lose their colour or revert to green, leaves shrink, stems become long and skinny, base leaves yellow and drop causing an umbrella effect.
7. Too much light often causes stunted, compact growth, colour-tinged leaves and brown spots where too warm.
8. Diffused light is better than direct sun.

### Temperature

1. Most plants enjoy the same temperatures as you do.
2. Cooler night temperatures allow plants to relax.
3. Too much heat will sometimes stimulate too much growth.
4. Most rooms can be described as too warm and dry, almost like a desert without sun.
5. In winter leaves touching window panes will often curl.
6. A quick temperature test is to place your hands on either side of your plant. The temperature should be the same, if not, move the plant before the leaves are damaged.
7. Find out where your plants come from. Check their native climate conditions and see if you can simulate them indoors. It's lucky that lots of our houseplants are not very fussy.



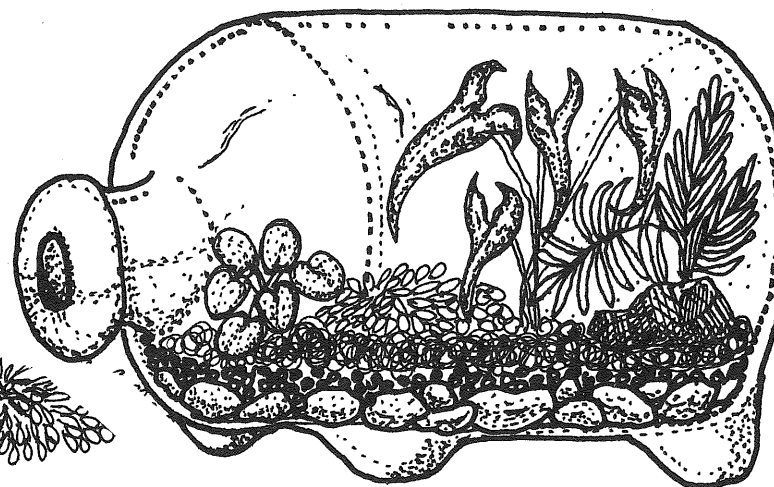
you need

1. FLAT DISHES - 5-8" in diameter and at least 2½" deep.
2. SMALL PLANTS -- 4-6 each of the 2" or 3" size. Use your cuttings from Topic 2.
3. DRAINAGE MATERIAL -- pebbles or bark at least ½" size, enough to cover the base of each dish.
4. CHARCOAL -- enough for a ¼" layer over each dish base.
5. SOIL -- Tropical mix from TOPIC 6.
6. ROCKS, WOOD, BARK, SHELLS or ornaments for the landscape.
7. PEBBLES, BARK or MOSS to cover soil.
8. WATERING CAN and MISTING BOTTLE.



added information

Planting a terrarium is exactly the same except for the extended sides. To work out how much to plot, measure the height and use only the bottom third as a planting area and landscape it as you would a dish. A terrarium requires less humidity and a little less water than a dish. If carefully maintained, dish gardens and terrariums need not be replanted for at least a year.



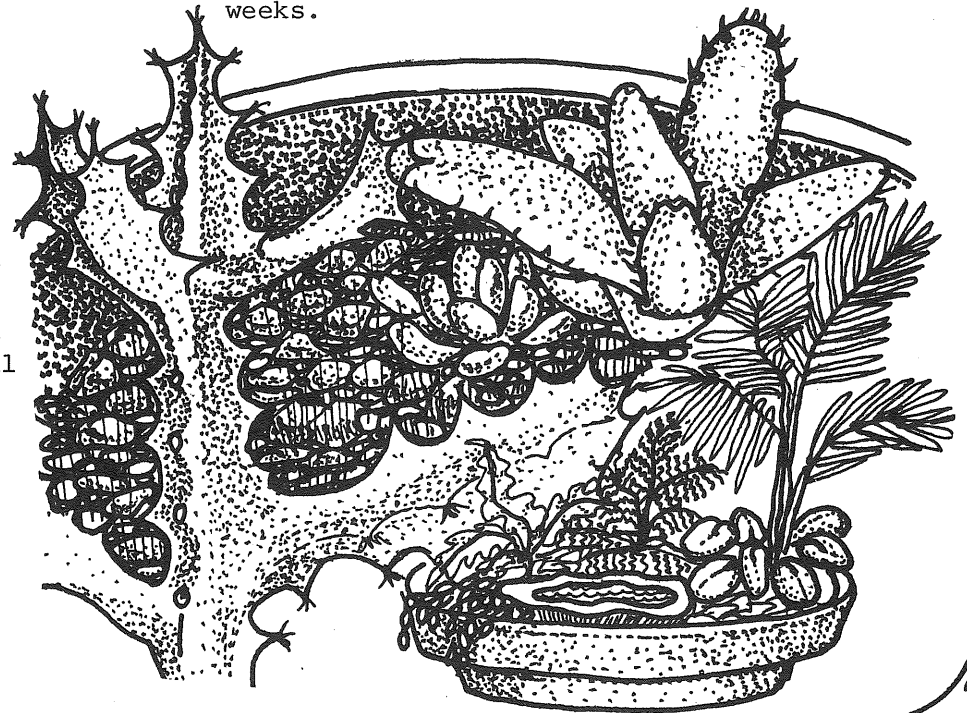
hort tips

## SMALL GARDENS FOR A SMALL SPACE

1. An attractive and fun thing to do with a growing collection of houseplants is to plant some together and make a miniature garden.
2. Plants, like people, do well together, giving and taking water and humidity to create a mini-climate.
3. Choose a dish at least 2½" deep and 6-8" wide. Why not choose one without drainage holes to cut down on watering?
4. Put ½" of drainage material across the base of the dish, or approximately one fifth of the depth.
5. Cover drainage material with ¼" of charcoal.
6. Sprinkle a thin layer of soil over the charcoal.
7. Look at your plants -- make sure they like similar care in light and water.
8. Choose your favourite or feature plant, up end it and tap out of the pot. Giving thought to your overall design, place the plant in the dish and add a little soil to settle it.
9. Choose another plant and add it to your 'garden'
10. Some things to remember: contrasts are pleasing -- coloured plants near plain green ones, large leaves near small leaves, tall plants near short plants. Even spacing looks artificial; a natural landscape usually has groups of plants and then spaces without plants, or perhaps a groundcover. Flat surfaces also look man-made, so add a hill, a valley, a slope, a cliff or a pond using rocks, wood, bark, shells, or just more or less soil.
11. Back to planting. As you plant each plant, add soil around the roots and fill as you go until everything is properly anchored.
12. Press the soil down lightly to make sure there are no gaps.
13. Arrange pebbles, gravel, bark or moss on the surface of the soil to give the appearance of a natural jungle or forest.
14. Water very carefully and sparingly around the roots of each plant, just enough to cover the root area.
15. Mist thoroughly, especially to remove stray soil from the leaves and stems.

### On-going Care:

Replacement watering only. When dry down at least ½", water until that ½" is moist. Mist often and don't fertilize for 3-4 weeks.



PLANT LIST

Botanical Name: Saintpaulia                      Common Name: AFRICAN VIOLET                      Origin: Tropical East Africa

Description: Small rosette-shaped plant with spoon-shaped leaves on brittle stems. Much known for their blooms.

Requirements: Average to bright light; slightly moist, humusy soil; average humidity but not by misting as the crowns rot.

Propagation: Leaf cuttings, seed, division.

Botanical Name: Pilea cadierei                      Common Name: ALUMINUM PLANT                      Origin: Vietnam

Description: A fast-growing plant with oval, bright green leaves that are striped with silver-coloured markings.

Requirements: Filtered light and evenly moist soil with good drainage. Likes house temperatures with dry air in the winter, but prefers humid air in the summer. Should be pinched back occasionally to keep bushy or can become floppy and need staking.

Propagation: Stem tip cuttings.

Botanical Name: Begonia                      Common Name: FANCY-LEAVED BEGONIA                      Origin: Tropics  
(Rhizomatous, i.e. Rex, Beefsteak, Fancy Leaf, Maple Leaf)

Description: Fancy fleshy-leaved and stemmed plants with a great variety of colours, markings and shapes.

Requirements: Bright, diffused light; moist, rich humusy soil; warmth, humidity and good air circulation.

Propagation: Stem tip (Rhizome) cuttings or leaf cuttings.

Botanical Name: Coleus                      Common Name: COLEUS, FLAME NETTLE                      Origin: Java, Indonesia

Description: A brightly-coloured plant with square stems and opposite leaves. There is a great variety of leaf shapes and colours (red, yellow, gold, purple, green and white).

Requirements: Bright light; evenly moist soil; house temperatures and good air circulation. The tips of well-established plants should be pinched out regularly to keep plants bushy and well-shaped.

Propagation: Seeds, stem tip cuttings.

Botanical Name: Crassula argentea                      Common Name: JADE PLANT                      Origin: South Africa

Description: A freely-branching succulent shrub with thick trunk and fleshy, deep green leaves.

Requirements: Bright light and fast-draining soil allowed to dry between waterings. Responds well if pinched back often.

Propagation: Stem tip cuttings or leaf cuttings.

Botanical Name: Peperomia                                      Common Name: PEPEROMIA                                      Origin: Tropical Americas,  
West Indies

Description: A small, bushy tropical with succulent leaves and stems. Unusual, minute flowers borne on long, slender spikes.

Requirements: Peperomia roots rot easily from over watering. Generally they are easy to care for, liking warmth and average light.

Propagation: Stem tip cuttings or leaf cuttings.

Botanical Name: Maranta leuconeura                      Common Name: PRAYER PLANT                      Origin: Brazil  
(where it grows wild)

Description: Slow-growing plant with oval, pale green leaves that have five pairs of dark green spots - sometimes referred to as the Ten Commandments. At night the leaves fold up into a vertical position; in daylight the leaves return to their normal position. This can be created artificially by turning a lamp on and off.

Requirements: Filtered light, avoid direct sun. Likes house temperatures and humid air. Keep on the dry side during the winter. Repot in early spring.

Propagation: Division of roots, stem tip cuttings.

Botanical Name: Zebrina pendula                      Common Name: SILVERY WANDERING JEW                      Origin: Mexico

Description: A fleshy, trailing plant. Leaves are 2" long, deep green to purple with shiny, silver bands on top and purple undersides.

Requirements: Filtered light, occasional misting and cutting back regularly to force branching.

Propagation: Stem tip cuttings (very easy).

Botanical Name: Callisia elegans                      Common Name: STRIPED INCH PLANT                      Origin: Oaxaca  
(Mexico)

Description: A good climbing plant that stays close to the ground. Leaves are green and white striped on top and purple underneath. Can have small white flowers. Good for hanging baskets.

Requirements: Filtered light; even moisture; heavy soil and good air circulation. It is tolerant of house temperatures and prefers cool night temperatures.

Propagation: Cuttings.

Botanical Name: Plectranthus australis                      Common Name: SWEDISH IVY                      Origin: Australia,  
Pacific  
Islands

Description: A creeping, bushy plant with round, leathery, bright green leaves. A good privacy plant: when hung in the window, it filters the light. Suitable for use on a table or in a hanging basket.

Requirements: Filtered light and slightly moist soil; tolerates dry air and either cool or house temperatures.

Propagation: Stem tip cuttings.



S U P P L I E R S

<u>Item</u>	<u>Source</u>
Potting Soil . . . . .	Plant Shops & Retail Nurseries
Peat Moss	Department Stores
Bark Chips	
Vermiculite . . . . .	Plant Shops & Retail Nurseries
Mica Peat	
Sand, Pebbles . . . . .	Lumber Yards
& Gravel	Sand & Gravel Companies
	Plant Shops & Retail Nurseries
Pots, Saucers . . . . .	Plant Shops & Retail Nurseries
Seed Trays	
Plant Labels	
Terrariums . . . . .	Aquarium & Pet Shops
Dishes	Plant Shops
	Department Stores
Sprouting Seeds . . . . .	Health Food Stores
	Food Chains
Garden Seeds . . . . .	Seed Stores
	Plant Shops & Retail Nurseries
Root Hormones . . . . .	Plant Shops & Retail Nurseries
Misting Bottles . . . . .	Plant Shops & Retail Nurseries
Watering Cans	Department Stores
	Food Chains

We have avoided recommending specific retail outlets but you will find them in the Yellow Pages of the telephone directory under the headings given above.

R E F E R E N C E S

FILMS (No Rental Charge)

Tara's Mulch Garden

30 minutes. Available from: National Film Board, 1161 West Georgia Street, Vancouver, B.C.

The Great Garden Plot  
(#37266)

10 minutes. Colour. Personal satisfaction and financial advantages of tilling family vegetable garden evident in this story. Available from: Modern Talking Picture Service, 1875 Leslie Street, Don Mills, Ontario

Floral Heritage

22 minutes. Colour. A visit to Kirstenbosh National Botanic Gardens near Cape Town, where records are kept on flower species and samples may be obtained for shipment around the world. Available from: Modern Talking Picture Service, Associated Audio Visual Ltd., 1572 W. 4th Avenue, Vancouver, B.C.

BOOKS

The following is an abbreviated list of the vast number of gardening books available:

- |   |      |   |
|---|------|---|
| Baylis, Maggie                          | 1973 | Houseplants for the Purple Thumb. 101 Productions, San Francisco.   |
| Baylis, Maggie                          | 1975 | Plant Parenthood. 101 Productions, San Francisco  |
| Brooks, Howard D. and Charles Oppenheim | 1973 | Horticulture As A Therapeutic Aid. Rehabilitation Monograph #49, Institute of Physical Medicine & Rehabilitation, New York. |
| Compton, Joan                           | 1973 | House Plants - Knowledge Through Color. Bantam Nature Series.   |
| Consumer Magazine Guide                 | 1978 | Raising and Caring for Indoor Plants. Garden magazine quarterly, Winter 1978, Volume 172.                                   |
| Field, Xenia                            | 1966 | Growing Bulbs in the House. Studio Vista Ltd., London, England.   |
| Fink, Ed                                | 1976 | Look, Mom, It's Growing. Countryside Books, A.B. Moore & Co., 200 James St., Barrington, Ill.                               |
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- Brooks, H.D. and  
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NOTES

OTHER BOTANICAL GARDEN PUBLICATIONS AVAILABLE

T E C H N I C A L      B U L L E T I N S

*UBC Botanical Garden Accession System (BGAS)*  
1977. 2nd ed. rev. Roy L. Taylor, Stephen Sziklai and Annie Y.M. Cheng. Technical Bulletin, Botanical Garden, The University of British Columbia, No. 2. pp. vi + 47.

Price \$4.00 + postage

*UBC Botanical Garden Plant Labelling System*  
1977. Roy L. Taylor, Kenneth Wilson and Sylvia Taylor. Technical Bulletin, Botanical Garden, The University of British Columbia, No. 3. pp. vi + 20.

Price \$4.00 + postage

*Vascular Plants of British Columbia: A Descriptive Resource Inventory.* 1977. Roy L. Taylor and Bruce MacBryde. Technical Bulletin, Botanical Garden, The University of British Columbia. The University of British Columbia Press, Vancouver. pp. 778.

Price \$28.00 + postage

J O U R N A L

*DAVIDSONIA* - A quarterly journal containing horticultural and botanical information on British Columbia plants. Activities and programs of the Garden are provided. Special issues have been published on the Nitobe Garden, Campus Plants, Rhododendrons at UBC, Trough Gardening for Alpines and the Alpine Garden.

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M I S C E L L A N E O U S      P U B L I C A T I O N S

*Meet the Natives! The B.C. Native Plant Garden Resource Book.* 1976. Elaine V. Mascali and Roy L. Taylor. The Botanical Garden, The University of British Columbia, Vancouver. pp. 70

Price \$3.50 + postage

B.C. Native Garden Trail Guides published by the Botanical Garden:

<i>William F. Tolmie Trail</i>	25¢
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<i>Alexander Mackenzie Trail</i>	25¢
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