



# Using Plants *to Bridge the* Generations

Horticulture and Intergenerational  
Learning as Therapy (HILT)

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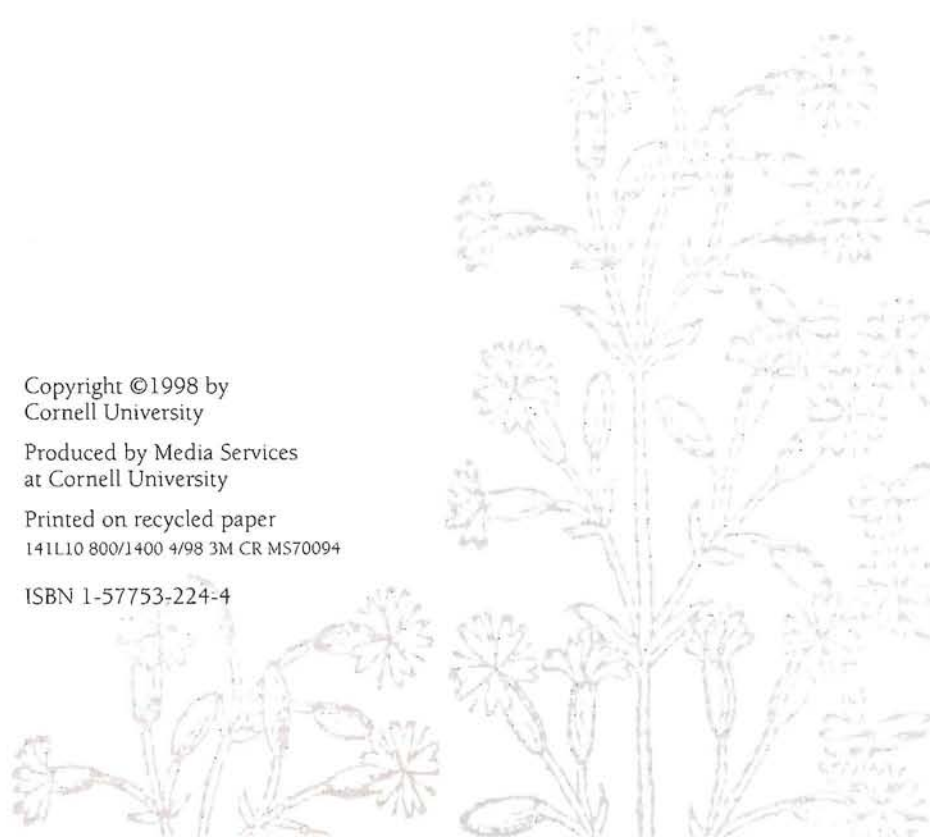
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# Contents

- iii Preface
- iii Acknowledgments
- 1 Horticulture as Therapy
- 2 Development of HILT
  - 2 Benefits for the Elderly
  - 4 Benefits for Kids
- 6 Step-by-Step Guide to Setting up HILT
  - 6 Initial Planning
  - 7 Goals
  - 7 Lining Up Participants
  - 11 The First Meeting of Youth and Elderly
- 12 Tips for Helping a Program Succeed: Using Horticulture and Plants to Break the Ice
  - 12 The Leader's Role
  - 15 Choosing an Activity
  - 16 Materials Needed
- 17 Activities
  - 17 Planning and Planting an Outdoor Garden
  - 30 Planting Bulbs and Corms
  - 32 Forcing Bulbs
  - 33 Integrated Pest Management Projects
  - 34 Drying Flowers
  - 35 Collecting and Storing Seeds
  - 37 Learning about Seeds
  - 40 Asexual Propagation
  - 43 Making Terrariums
  - 44 Bird Feeders
  - 47 Planting Shamrocks
  - 47 Flower Arranging
  - 48 Summertime Activities: Prepare a Meal with Garden Vegetables
  - 48 October Activities
  - 49 Thanksgiving Activities
  - 49 Christmas Activities
- 50 Empowerment and Encouragement: Additional Requirements for a Successful Program
  - 50 Empowerment Tools
- 52 Evaluation
  - 52 Why Evaluate What You Have Done?
  - 52 What Should You Evaluate?
- 60 Appendix
  - 60 Time Line Case Study of Senior Citizen/4-H HILT Project
  - 64 Raised Beds and Container Gardens
- 65 Bibliography





## Preface

Horticultural Intergenerational Learning as Therapy (HILT) is a program designed to use horticulture to bring young and old people together. This program is based on the tradition of using horticulture as therapy for the physically and mentally ill. It benefits the elderly by providing opportunities for them to increase their physical activity and mental stimulation, increase their expectations, and renew their decision-making capabilities. It benefits the youth by introducing them to the concepts of horticulture, as well as by cultivating relationships with the elderly. Youth will learn the value of listening and talking with people who have lived through nearly a century of challenges and changes. Many of today's youth have little contact with elderly people. By participating in this project, they will learn to value the elderly and view their community in a new light.

This manual gives step-by-step instructions for instituting a HILT program in a local community. It includes information on initial planning of the program, lining up young and old participants, funding, how to conduct the first meeting, and specific long-term and short-term activities. Some of the activities include planning an outdoor garden, visiting a garden center, planting bulbs, drying flowers, collecting seeds, building birdhouses, planting seeds, and controlling insects. This manual also discusses quantitative and qualitative ways to evaluate the program and supplies evaluation forms. It contains a sample time line of a specific HILT project and a list of resources for information on horticulture.

The program was piloted in 1995 at White Springs Manor, Geneva, New York; the Mental Day Treatment Center, Clifton Springs, New York, Hospital; Chase Memorial Nursing Home, New Berlin, New York; and Northeast Elementary School, Ithaca, New York, through Cornell University's Graduate School Outreach. It has successfully used the experience and social needs of local elderly citizens synergistically with the inquisitive energy and mentoring needs of pre-school, grade school, and 4-H club youth.


## Acknowledgments

Professor Leonard Topoleski shared his creative ideas for the hands-on plant propagation activities. For her guidance in evaluating this project, we appreciate the efforts of Naomi S. Altman, biological statistician. Thanks to Anne Wallace for compiling and editing the first draft of the manual. Special thanks are owed to the key project collaborators: Patti Classen of Classen Home Health Service and teacher Paula Kilts of the Ithaca project; principal William Connolly, teacher Linda Stuhr, and therapist Leonard Kataskas of the Clifton Springs project; and Ontario County 4-H Cooperative Extension program assistant Betty Sweetland, 4-H leader Nina McCarthy, and White Springs Manor manager and owner Beverly Young of the Geneva project. This intergenerational horticulture project could not have been completed without the time and labor of all of these professionals.






# Horticulture as Therapy




Horticulture therapy uses the appeal and action of gardening to improve people's physical and mental well-being.

- It encourages participants to use their senses of vision, smell, touch, and sometimes taste while working with living materials—plants and soil.
- It allows people to influence their environments.
- It encourages creativity.
- It provides opportunities for both individual and collective accomplishments and self-satisfaction.

## The History of Horticulture Therapy



The first botanical garden to use horticulture therapy was established at Oxford in the early 1600s. In the late 1700s, Benjamin Rush, the father of American psychiatry, declared that “digging in the soil had a curative effect on the mentally ill” (Horne 1974: 74). During the early 1800s, in the Finger Lakes region of New York, Dr. Henry Foster started the Clifton Springs Hospital and Sanitarium, using on a holistic approach to healing physical illness. Foster and his staff blended medical treatment with physical exercise, recreational programs, and horticultural activities. The sanitarium pioneered innovative health practices in pleasant surroundings and included garden therapy in patients' recovery programs.



Early in the twentieth century institutions for both the physically and mentally ill introduced garden and horticulture therapy programs (Ringle 1997). In veterans' hospitals during World War II, it was recognized as a distinctly separate approach to therapy and rehabilitation programs. In the 1950s

and 1960s, Michigan State and Kansas State Universities offered the first college degree programs in horticulture therapy. By the early 1970s, the American Horticulture Therapy Association (AHTA) was established. In the mid-1980s, researchers recognized that gardening not only benefited patients in need of physical rehabilitation but also helped those with mental illness. Researchers have found that it is important to focus on the activity of gardening, without concern about the outcome. When this approach is used, gardening has been proven to lower blood pressure, decrease heart rate, reduce oxygen consumption, increase alpha brain wave activity, and induce feelings of calm and general well-being.



# Development of HILT

This program, Horticulture Intergenerational Learning as Therapy (HILT), takes gardening therapy one step further, making use of the energy and imagination of young people and the experience and maturity of senior citizens. Intergenerational programs are not new. But the advantage of HILT is that it can continue over a long period of time and provide opportunity for youth to interact with the elderly on a personal, individual level. Through the activities presented in

this manual, young and old work together toward common goals. Small children can learn simple tasks from the elderly, and senior citizens can serve as models of adulthood and mentors for the kids they work with. This program helps young and old alike to break preexisting stereotypes and fears about the other generation as they see the positive contributions each can make to the program.

## Benefits for the Elderly

In 1900, 4 percent of the population was over age sixty-five. By 1995, that figure had tripled to 12 percent. Figure 1 shows the projected increase of the elderly population in the United States. The medical advances of recent decades are enabling people to live longer and healthier lives. The effect of aging depends on the individual. Some older people have lots of energy and imagination and a strong desire to stay active and contribute to their community, whereas others have infirmities and health problems.

Aging affects not only the physical aspects of a

person's life but the social aspects as well, as can be seen by looking at people entering an adult care facility. Every new arrival's story is unique. Ed's operation left him disabled. His wife's health was also failing, and she could no longer take care of him at home. Joe, a bachelor and former college horticulture professor, was brought in by a nephew. If he had had a wife or children, he probably would not be in a nursing home. Laura, also unmarried, was put in the nursing home by her brother, and she bitterly resents being there. Maryrose came from the hospital after bypass surgery, and it is uncertain whether the facility will be



A retired horticulture professor shows a young group member the seed head on a type of grass.

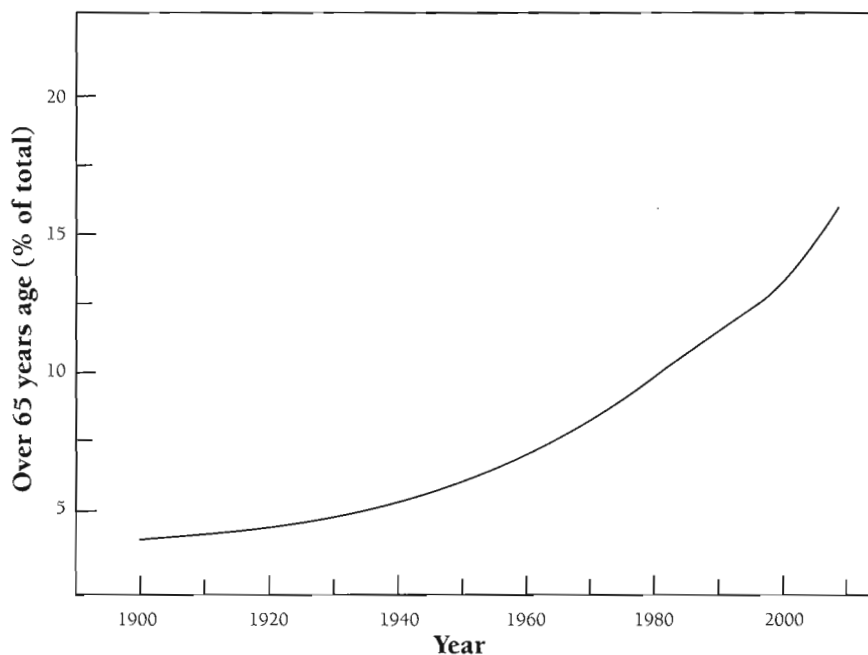


Figure 1. Projected increase of the elderly population

merely a rehabilitation station for her or her permanent home. These people are now being cared for by strangers. Illness and disability have exiled them from family, friends, and their favorite surroundings. They also struggle with adjusting to the nursing home, which, as a general rule, leads to a loss of control over their lives. Many elderly people react to such life changes by shunning social interaction. Others may desire activity but find that few options are available to them. They spend much time sleeping, watching TV, dozing in hallway chairs, and calling for the nurse.

Once inside their new home, the elderly find their decision-making opportunities diminished further. Usually, they cannot choose their roommate. Except for a spouse, many incoming residents have never shared a room with another person, and they are

apprehensive about the prospect. Seniors cannot even choose where to sit at mealtime. Most facilities assign seating in the dining room, and table assignments remain in place unless there are major disturbances. For the most part, meal choices and time are decided by dietary staff. Activities are selected by recreational staff.

Because the life changes resulting from moving into a nursing home are so dramatic and sudden, attitudes and morale of residents in most adult care facilities need to be bolstered. Innovative nursing home administrators are recognizing that they must address these people's needs. Roger Halbert, administrator of Chase Memorial Nursing Home, is one such leader. He comments, "A nursing home represents a new part of a person's life. Chase should be considered as a place to come to live, not a place to die." This attitude is being adopted by state



**HILT gives the elderly opportunities to share their knowledge and experiences.**

and federal agencies that are now mandating holistic changes to meet residents' needs at nursing homes supported by federal and state funding.

The American people, too, must change their outlook. Typically, society has low expectations of the elderly. We often overlook the contributions our elders can make to the moral, mental, and physical development of young people. Let us not forget about the elderly who doze while watching *The Price Is Right* day after day. Let us instead provide opportunities for them to use their skills and knowledge as active participants in their lives and society at large. The golden years have

become tarnished with boredom. It is time to bring out the shine.

How can you help the elderly improve their lives? The first step is to make something happen. Find and create opportunities to involve elderly people. Do you know the expression "Use it or lose it?" It applies equally to sports skills and skills of thinking and imagination. Programs such as HILT are designed to give the elderly opportunities to use skills that have become dormant. The HILT program seeks to improve the social aspect of aging by using the knowledge and talent of our seniors to work with community youth groups in horticulture activities. This program requires a strong and enthusiastic leader. Be an instrument of change. Give the elderly choices. Allow them the



**Members of the nursing home gain a sense of accomplishment and pleasure from helping the children in HILT.**



chance to make decisions, to feel important, to feel needed. For the elderly, work in horticulture with kids can counteract the sense of loss of control, the disengagement from life, and the ensuing depression that can prey on people confined to retirement homes. For many elderly, this program provides an opportunity to use existing gardening skills. For others, it introduces them to something new, providing excitement as they learn new skills. Working with plants and doing the various HILT activities offer the elderly several rewards: the intangible satisfaction of serving as mentors for kids and the tangible satisfaction of planning, planting, and tending a garden or working on another plant project. These rewards provide something that the elderly may need even more than the rest of us: the pleasure of anticipation, of having something to look forward to, as both plants and children grow and evolve through the seasons.

## Benefits for Kids

Young people can learn from the experiences of the elderly. Seniors' personal histories and involvement in the events of the past century provide an abundance of stories as fascinating as any novel. Some lived through the Depression and World War II, whereas most children today have grown up in relatively peaceful, prosperous times. In rural communities, many elderly grew up farming with horses and milking cows by hand. Some remember a time when the roads were a morass of mud in the spring. Most kids today have not lived or worked on farms, and they can

jump in the car when they need to be somewhere. The elderly will recall not just the time before microwave cooking but the time before gas stoves, when people cooked with coal or wood. Most will remember the time before TV, and some will recall life before radio. In the old days, drug use was rare, divorce uncommon, and computers nonexistent. Today's world has been transformed, and talking with the elderly in the context of HILT may give kids their first exposure to a different way of life. With its emphasis on plants, HILT

naturally lends itself to talk of how people used to live, reflecting on a time when many families grew most of their food.

Through their interactions with the elderly, youth will build self-esteem, as well as learn about their local communities, recent history, and themselves. Showing kids a new perspective—one that is likely to be deeply rooted in traditional family values—may even help them resist temptations and peer pressure. HILT will spark new interests for youth, building flames of inner strength. As role models, the elderly participants and volunteers of HILT will be the bellows.



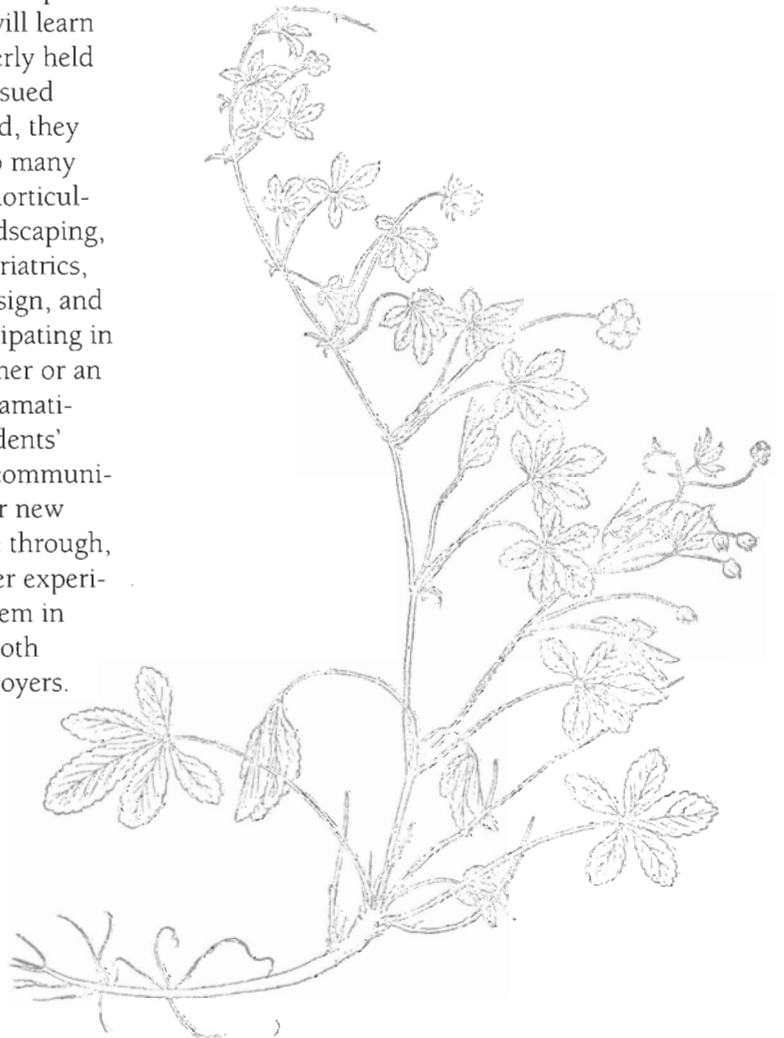
Working with the children in the program gives nursing home residents great enjoyment.



Children learn about the mysteries in horticulture.

Additionally, HILT encourages responsibility. It provides an outlet for physical and creative energies that produce individual and collective growth in a pleasurable, relaxing context. It also offers intellectual challenges. HILT is a hands-on horticultural program that teaches youth about the scientific process: how to predict, observe, measure, and test. The program can be shaped to make kids more aware of their environment. Activities could focus on environmental issues and how your group can use plants to improve the environment. HILT also allows youth and adults to express themselves creatively by providing opportunities to arrange flowers and plants in a garden.

Soon students will be looking for jobs or going to college. HILT gives them a chance to learn about careers from two perspectives. First, they will learn what jobs the elderly held and how they pursued their work. Second, they will be exposed to many fields, including horticulture, nursing, landscaping, social sciences, geriatrics, environmental design, and psychology. Participating in HILT over a summer or an entire year will dramatically improve students' horticulture and communication skills. Their new abilities will shine through, and their volunteer experience will stand them in good stead with both colleges and employers.



# Step-by-Step Guide to Setting up HILT

The number of youth groups that could benefit from this program is unlimited, and our country has a large reservoir of senior citizens. To bring both populations together takes leadership. That is where group leaders can make a difference. Consider the challenge of HILT. As a group leader, you will be accepting opportunities to investigate the roots, history, and life experiences of the elderly; the talents of youth groups; and the art and science of gardening.

## Initial Planning

Before starting the program, write down answers to the following questions. Collecting this information will give you a document you can use to generate financial support, interest from the news media and potential participants, donations of materials, and a clear idea of what you will do. Consider the following ideas:

- Who will be participating? What youth group and what senior home or hospital?
- What are your key goals? Look at our list of goals on page 7. You may have others. What activities or experiences do your youth or senior group want or need?
- Where could participants meet? Which group is most mobile? Could you go to both youth and senior group locations?
- When could the program start? Give yourself lots of planning time. Consider the season and the project you have in mind. Start with a project you are comfortable with.
- Why is this endeavor important for your community? Write a paragraph on this topic and use it to get funding and support for your project.



## Volunteers

Volunteers are instrumental to the success of HILT. Their assistance is invaluable for

- adding diversity to the group's interactions.
- serving as spokespeople for the program.
- adding expertise.
- giving attention to group members who may need one-on-one care.
- providing transportation for group activities.
- helping with snacks.

The number of volunteers needed depends on the makeup of your group. A good guideline is one volunteer per four group participants. Volunteers may be found in a variety of places: in local businesses such as flower shops and garden centers; local institutions such as colleges, hospitals, and schools; and among parents of participating youth or family members of retirement home occupants. Advocates and volunteers for HILT should be included in the initial planning, should remain as involved as possible, and should be kept informed of the program's progress.

## Funding the Program

In our Clifton Springs project, donations ranged from provision of a greenhouse by the American Horticulture Therapy Association to plant materials from Newark Florist. Businesses also donated valuable time. The Country Florist in Phelps, New York, volunteered to demonstrate flower arranging techniques. Newark Florist agreed to take the group on a guided tour of its greenhouse operation and provide expertise in greenhouse maintenance. We cannot suggest a specific dollar amount that your project may require. There are too many variables, and each situation is unique. But steps for pursuing donations are outlined in Table 1.



## Table 1. Pursuing Funding

- Develop a description of the project, the people involved, and benefits to the community.
- Make a list of needed materials—businesses will ask what you need.
- Make a list of local businesses that could supply what you need.
- Initial contact can be by phone, but make an appointment to meet personally with owners or managers. Divide up the work among your club members; older kids can take the lead.
- In the meeting, describe the goals of HILT. Give the person a copy of the description you developed as outlined above. Ask whether the business can help with donations.
- Show the person a list of other donors. It is important that people feel they are joining a community-wide effort.
- Always follow up with a thank-you letter, regardless of the size of the contribution.
- Hand-written notes from program participants are recommended. Keep donations and lists of donors on file.
- If the project gets news coverage, make sure that contributors get credit.



## Goals

The seven key goals of HILT are to

1. capitalize on an underused, growing elderly population as role models and mentors for youth.
2. build the independence of both elderly and youth groups.
3. break down stereotypes and develop mutual respect. Elderly people may think today's youth are unruly and disrespectful, but they discover that the opposite is true.
4. improve self-esteem and mental wellness in both the young and the elderly through interactions and real-life decision making in horticultural activities.
5. develop young people's interest in horticulture as a hobby and rejuvenate or develop the elderly's interest in plants.
6. enhance awareness of science and horticulture in your community.
7. encourage physical exercise. The activities of gardening and related projects involve both fine and gross motor movements and use muscles from all parts of the body.

## Lining Up Participants

When selecting participants for the HILT program, you will want to match the skills and needs of the youth group with those of the elderly. If your youth group consists of young children who will need supervision and assistance, look for elderly people who are independent and able to provide this assistance. Conversely, if the members of a retirement home seem infirm and require assistance, choose a youth group with older kids who can provide this assistance.

### Selecting a Youth Group

Contact leaders of community youth groups or your own club members.

Explain the program, its objectives, and how the group can benefit from participating. Choose from such groups as the YMCA, Boy Scouts, Girl Scouts, 4-H, Latchkey, After-School/School's Out programs, and public or private school classes. Don't try to reinvent the wheel. It is easier to link up with an existing youth group, 4-H, for example,

that already has members, community resources, goals, parent volunteers, leadership, a meeting place, and a communication system. Often the leaders of such groups are looking for new projects.

Once an interested youth group has accepted the invitation to participate, arrange an informational meeting at its facility to explain the goals of your program and benefits for participants. Gear your presentation to the group. Learn its motto. Is commu-

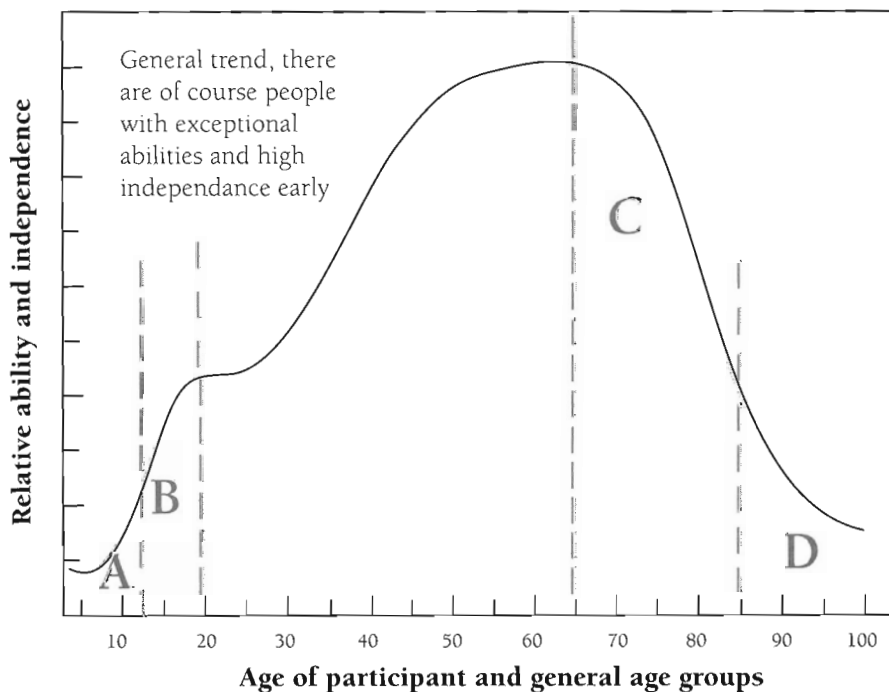
nity service part of its mission? Detail the time commitment (perhaps by showing time requirements on a calendar). Mention the fun the members will have planting, having an intergenerational picnic, and going on field trips (such as to a garden center).

Generally, young children (Figure 2, group A) will need more help working with plants and staying "on task" relative to older children and so may best be paired with early

retirees and those elderly who are able to do more of the physical work or those willing to take a leadership role (group C).

### Selecting a Group of Elderly

Homes for the aged are known by many names—rest homes, nursing homes, retirement homes, extended care facilities, senior citizen compounds, convalescent centers, and life care communities. Each has its own personality determined by the facility, management, staff, and residents. Residents' needs vary depending on the facility. A nursing home resident, for example, may require round-the-clock nursing care, whereas an adult care facility resident is generally more mobile and independent and less dependent on professional nurses. Listen to the needs and expectations the residents express. As one might expect, the older the age group, the higher the percentage confined to retirement homes. In addition to retirement homes, you might want to contact other community organizations for retired persons. Organizations such as a men's garden club or other local gardening clubs have memberships of vigorous, active, older



**Figure 2. Relationship between ages of group members and their skills**

The limited abilities of youth in early childhood (A) may best be nurtured by the independence and generally high abilities of early retirees (C) while elderly with diminished physical or cognitive abilities (D) may benefit and enjoy the assistance of an independent and able adolescent (B). (Brilliant young children and spry independent elderly remind us that this figure is only a generality, not a rule.)

people. For the purposes of this program, however, discussion centers on elderly people from retirement homes.

For initial contacts, consider adult care facilities you may have already visited. Next, check the Yellow Pages under retirement and life care communities. Start by phoning the facility's manager. Many retirement homes are privately owned, and the manager is often the owner. Before visiting with the manager, find out all you can about the needs of the residents. Also, prepare notes for your phone conversation with the manager. During this talk, explain the program briefly, tell how it could benefit the residents, and request a meeting so you can present more details.

If you do not succeed at first, do not take it personally. People are busy and unsure about new ideas. Persevere. Eventually, a group will say yes. Building a solid working relationship with the manager is key to a successful program. Once you have identified an interested senior home or group, meet with the manager at the facility. Be prepared with materials such as this leader's guide, a description of the youth group the residents will work with, and the statement you

prepared about community benefits. Talk about the likely rewards, such as satisfaction, fun, and the opportunity to learn. Ask to be introduced to some of the residents and take time to begin establishing rapport with them. This attention will help the seniors to feel involvement and ownership in the program. Use this meeting to assess the residents' level of enthusiasm for the program. If possible, resolve any concerns they may have. You may also discover some excellent ideas for projects. Also, determine whether any of the seniors have any knowledge about gardening. Before retirement, some might have been teachers, farmers, gardeners, botanists, or have had other connections to horticulture. Ask them for their ideas for the program and discuss ways they might share their knowledge with the youth.

In addition to meeting with the residents of the nursing home, try to meet with the groundskeeper or maintenance person and find out if he or she would be willing and able to help

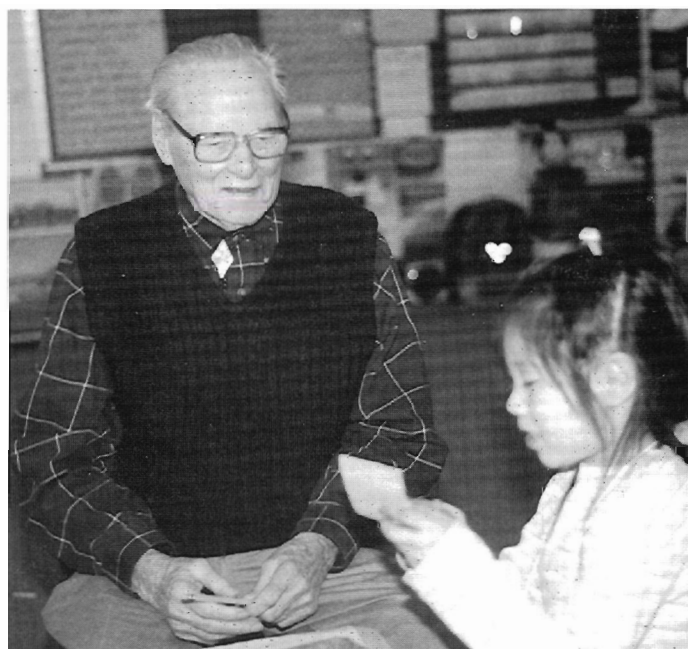
with heavy work if needed. Directly asking this person to help will garner his or her support by providing the opportunity to agree to help rather than being ordered to do so.

Although some individuals remain active and able well beyond 100 years in life, generally those nearing 100 (Figure 2, group D) will be less able to lead a group or manipulate plants with their hands and may benefit from the help and leadership of older youth (group B).

#### **Orientation for the Elderly**

You should meet first with the elderly group to discuss the program so you will be able to tell the kids what they can expect from the elderly.

- Discuss where to hold the initial HILT meeting. It may be easier to meet at the retirement home rather than expect the elderly participants to travel to another location. Determine times for HILT meetings. Consider weekly, monthly, or occasional meetings.
- Explain what the group should expect when meeting the children. Seniors may be reluctant to get involved because they are apprehensive about being with children and insecure about their own skills. They may have stereotypes about today's young people.



Able seniors can travel to schools or other locations to share their knowledge about plants.



- Describe how, as group leader, you will guide discussions with the youth group and how it will be easy and fun for the senior citizens.
- Address specific questions:

How many children will there be? How old are they?

What are the children like and what do they like to do?

How many girls will there be? How many boys?

How often will the group meet?

How should residents interact with the children?



Schoolchildren learn how to transplant plants.

HILT projects such as this one provide opportunities to create friendships and new associations through plants.



- Relax and let things happen.
  - Ask any question you want. Kids are responsive!
  - Make eye contact.
  - Give a hand and advice; children need it.
  - Have fun.
  - Discuss some of the activities that the group will do.
  - Use this discussion to determine what horticultural knowledge the elderly already have.
  - Determine which of the elderly would be able to serve as mentors for the youth groups (e.g., sharing their horticulture knowledge, assisting with particular projects).
  - Provide the elderly with information about the activities so that they may help the youth.
- Orientation for the Youth Group**
- Next, meet with the youth group. They should know what to expect when visiting the retirement home for the first time. Invite a staff member from the retirement home to the youth group meeting to answer questions and speak about special cautions and considerations, the residents' age and physical capabilities, medication procedures, and house rules. Be sure that youth understand that they need to
- be patient.



- treat residents like anyone else, not as though they are fragile and will break. But be prepared for problems they *may* encounter such as drooling, crying, forgetfulness, and getting lost.
- understand wheelchair protocol: if you are talking to a resident who uses a wheelchair for several minutes, pull up a chair. Do not continue to stand. Do not touch the chair. It is considered an extension of the person.
- enjoy the experience and don't worry about making an error.
- ask open-ended questions; listen for feelings, opinions, and concerns.
- make eye contact.
- most important, relax and be yourself. It will be fun.

## The First Meeting of Youth and Elderly

For this first meeting, as well as all subsequent meetings, it would be advisable for a youth group leader and a staff member from the retirement home to be present in case any emergencies should arise. Before the first meeting, make arrangements for

- a meeting time that is acceptable for both groups. Elderly people from independent living facilities may be able to go to a school or after-school program. Those living in a nursing facility often cannot travel easily, and it may be best for youth to travel to the nursing home.

- name tags.
- directions for volunteer parents providing transportation.
- snacks (a key to any activity for young and old).
- tools or materials for the event—bring your canvas bag (see the section “Materials Needed” on page 16).

Communication is critical. Confirm the time and location by phone. The first meeting should last about an hour. The first ten minutes or so should be devoted to introducing and explaining the program. Then participants can spend fifteen or twenty

minutes getting to know each other. Use the purpose of the program—people and horticulture—to help break the ice. Ask participants to name their favorite flower. Encourage them to talk about their experiences with gardening. Plants will become the focus of concentration rather than self-concern or fear, and youth and elderly will begin to sense a common ground of shared interests. Spend the remainder of the time discussing a project the group would like to try. (See the “Activities” section for guidance.) Remember, the key to a good program is group ownership. Each person should be asked his or her opinions. Go around the room and encourage input from everyone.



Residents from a nursing home ask questions about participating in HILT.



# Tips for Helping a Program Succeed: Using Horticulture and Plants to Break the Ice

When two groups of people who don't know each other gather around a table for the first time, they are often slightly uncomfortable. Regardless of their age, it helps to have something to talk about and something to plan. In HILT, the topics of conversation are the plants people like and dislike, their memories and associations with gardens, and the activity being planned such as a garden or other horticulture project. The projects described here are used as catalysts to get the young and the elderly involved with each other and with horticulture. Working with plants leads naturally to reminiscence, discussion, and experimentation. We use it as a means of meeting our ultimate

goal of helping young and old get to know each other. A large part of HILT takes place in small cooperative learning teams as young and old work together to solve problems and apply their decisions in real life. The expected outcome is both individual and collective growth.

## The Leader's Role

As leader, one of your key roles is to facilitate participation. Exchange of information among group members is a vital part of the participatory process. The catalyst of this exchange, learning from each other, is the HILT program. You as a leader can ensure the success of the HILT program by following the suggestions listed below.

## Promoting Flexibility

The interaction among the leader, youth, and elderly increases continually. The leader is a catalyst as the horticultural programs unfold. You should "play it by ear" to see that the needs of the participants are met. Remember to focus on HILT's overall aim: the use of plants to create opportunities for human interaction and to raise participants' self-esteem and independence.



Organize group learning teams so that youth and elderly explore horticulture together and learn from each other.

## Cooperative Learning

As people exchange ideas and tell about their life experiences, they gain a sense of ownership for the program which is essential to its success. To achieve this goal, use a cooperative learning format, with teams doing indoor activities. Some people are intimidated by large groups. Smaller teams are less threatening and therefore encourage exchanges and sharing. We also suggest keeping the same teams each week to make them easier to manage and increase the possibilities for participants to bond. Here are some pointers for organizing teams:

- Have participants help set up the room with several tables and four or five chairs per table.
- Have participants form teams with a balanced ratio of adults to children at each table.
- Make sure the elderly have adult-size chairs.
- Cover tables with plastic (try shower curtains) for easy cleanup.
- For the initial activity, allow time for teams to get to know each other, pick a leader or spokesperson, and select the team's name and recorder.
- During the activity, the leader should move from





table to table to provide guidance, answer questions, and give praise. Try to get everyone involved. We have found that this format is an efficient use of the leader's time because he or she can deal with questions from three or four tables rather than trying to address the needs of twelve to sixteen individuals.

- To make it easier for the leader, the entire group will work on basically the same general activity. Individual teams can work on different aspects of the main project.

For example, the general activity of planting marigolds in fiber packs<sup>1</sup> could be broken down into the following small group activities:

- Team 1: Prepare seeds and water planted fiber packs.  
Open packs.  
Count seeds.  
Distribute to Team 3.  
Irrigate newly planted fiber packs.
- Team 2: Prepare soil mix.
- Team 3: Plant seeds.  
Place newly planted fiber packs in trays or flats.
- Alternatively, the leader may decide to have each team go through the entire process step-by-step.

### Additional Tips for Success

Be organized. Preparing in advance can minimize problems and confusion. Visualize each activity beforehand to anticipate needs for materials and visual aids. Before beginning an activity, model it step-by-step for the entire group. We suggest calling on group members to aid with demonstration.



When teams are small, everyone can participate.

### Handling Negative Attitudes

Dealing with youth groups and the elderly is a rewarding and exhilarating experience. Still, on occasion, there may be problems. The following guide is meant to aid you if difficult behavioral situations develop.

Children sometimes choose misbehavior over positive actions. Why? They may be seeking to establish an identity within the group. The elderly, too, can create problems. These situations are rare. Still, negative attitudes with seniors can trigger difficult behavioral episodes. If we understand the motivation behind a particular behavior, we can usually defuse a potentially negative development. Usually the unruly behavior comes from one of the following motivations:

- Attention—young and old misbehave to get extra attention. Some participants like to be the focal point of the group.

- Power—some want to be the boss of themselves and the group. A participant will use power ploys by attempting to disrupt established order.
- Revenge—elderly, for example, may lash out because of resentment for being in a nursing home.
- Avoidance of failure—elderly especially will withdraw from an activity that may make them appear inadequate.

If leaders can identify what motivates a participant's behavior, they can interact with that individual more effectively. Group members seeking attention may be demonstrating that they want a relationship with the leader. As leader, look for a way to connect with a difficult group member and redirect negative energy with positive intervention. The following strategies can work:

- Use encouragement and praise to build self-esteem.
- Be a positive role model.
- Try to create an environment that encourages appropriate, courteous behavior and rewards achievement.

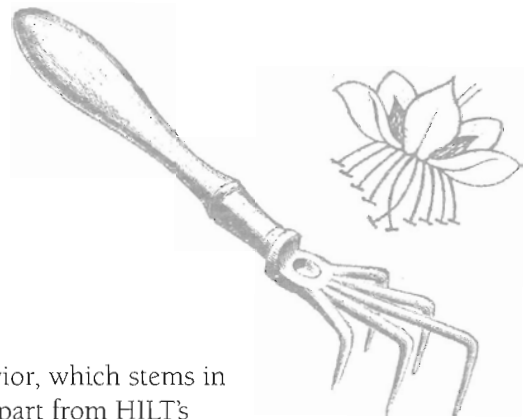
<sup>1</sup> When determining where to grow marigolds, remember that each facility is different. We have used windowsills, shelving in solariums, a small greenhouse, and cold frames. The leader needs to brainstorm with participants for the best choice.

- “Give the eye”—most people know a stare means to stop what they are doing.
- Proximity—standing, sitting, or squatting close by will usually defuse a difficult situation, making words unnecessary.
- Ignore the behavior—many times the goal is to get the group’s attention. Responding to negative behavior is the reward. Therefore, not reacting can be effective.
- Use body language—people of all ages understand facial expressions and hand signals.
- Use a recognizable signal to get the group’s attention (e.g., three claps means settle down).
- Do nothing for a couple of minutes. “Let me know when you’re ready to begin again.” Peer pressure is effective.
- Recognize teachable moments. Here is an example of a situation at Chase Memorial Nursing Home. Our group was just beginning a horticultural activity when a new resident, Ellen, joined the group. She repeatedly interrupted by asking, “When are we going outside to plant?” Other members of the group were getting more and more annoyed with her attempt to disrupt the

agenda. I decided to let the group discuss the pros and cons of planting in early May in upstate New York. After a lively discussion, we voted to wait, mainly because of the danger of frost. Ellen reluctantly accepted the vote. She is gradually becoming a team player.

- Separate disruptive “partners.” For example, Ryan and Jeremy of Chase’s day care program are best friends. They like sitting at the same table. But they understand that if they misbehave, will be separated.
- Work one-on-one with individuals. Some elderly do not work well with children, but they may respond to you. At Chase, there is such an individual. Josephine has energy and mobility, and she likes to work in the garden. Because the rest of the group requires a slower pace, Josephine is often bored. Whenever possible, I work with her individually at a level that maintains her interest.
- Use your life experiences. Use your best judgment based on the tried and true. Each of us has dealt with distracting individuals.

Despite occasional disruptions, group members usually display excellent



behavior, which stems in large part from HILT’s program and organization. First, participation in the program is optional; therefore, participants are generally eager to take part in activities. Next, the cooperative learning format lends itself to excellent activity management. Finally, present hands-on, relevant projects. When a group takes part in planning and participating, there is an exciting atmosphere of cooperation and fun. To help develop effective strategies for dealing with the exceptions, we recommend reading *Cooperative Discipline* (Albert, 1989).

### Supervision

When very young children are participating in the project, it is desirable to have at least one adult supervisor who knows them (a club leader or parent). This supervisor should be aware of any needs the children may

have and be responsible for meeting these needs. Also, some older seniors may have lost physical or mental capabilities and would benefit from at least one adult who is familiar with their needs (for example, a nurse from the nursing home). Youth and seniors should never be left without supervision by a leader or volunteer. Adherence to this rule will help you avoid situations that lead to inappropriate touching or misbehavior. Normally, any inappropriate contact between the elderly and children is inadvertent, but it is better to avoid such situations altogether.



## Choosing an Activity

In the following pages, we describe many activities, ranging from a long-term outdoor garden project that can run for a year or more to brief investigations that the group can complete in a single meeting. Your group will undoubtedly come up with other creative ideas as well. Probably the most important factor in choosing an activity is what the group as a whole wants to do. Another consideration is the expected duration of the HILT program. To plan and establish an outdoor garden can take a few months, but it can be done much more quickly if you wish. Other projects can be done in a short time. Whatever you choose, be sure you have the resources to do it well, without it becoming a burden.

One recommendation in choosing an activity is to ask your group, "What do we want our horticulture project to look like in one month, one season, one year?" Brainstorm horticultural ideas and ways to gain community support. Give your program the time it needs to develop. If your group chooses a long-term project, plan seasonal goals with reasonable time

lines. It is important to have an overall, long-term plan to manage the short-term weekly operations. For example, to maintain an outside garden, develop a simple plan that includes schedules for watering, weeding, and fertilizing. Undertaking these responsibilities can give participants feelings of pride and ownership. Rewarding them for doing these chores with praise via a thank-you phone call, a remembrance note, or a postcard will keep participants and volunteers coming back.

An organized system with delegated responsibilities and a calendar schedule makes the short-term projects easier to manage. It also gives participants a view of upcoming events. The following short-term activities were completed at the Chase Nursing Home in the spring:

- For Mother's Day at Chase day care, youth brought transplanted cuttings of wandering Jew, English ivy, and spider plants. We started propagating these plants in late March and early April. Together the children and Chase residents decorated the pots with colorful paper and ribbons.
- On several occasions, the group made floral arrangements and gaily decorated bud vases

using colorful ribbons. Flowers were donated by two local florists, Outback and Perfect Solutions. Getting local businesses to support HILT endeavors enhances the concept of community ownership. Residents and children distribute vases in the dining hall, lobby, and to residents confined to their rooms.

- HILT demonstrated an intergenerational horticultural activity on Memorial Day at New Berlin's Village Fair. The logistics of this activity were as follows:

Nursing home residents were transported by special van.

Parents drove day care children to the site.

The activity was to plant annuals in flower boxes. (Boxes were donated by Chase nurses, and the annuals were propagated by residents and children.)

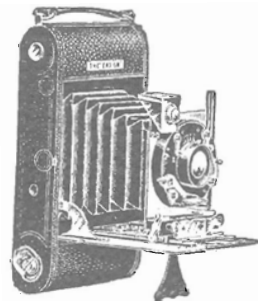
The dual purposes of the activity were to increase public relations for the HILT program and to enhance the gardens at the nursing home.



## Materials Needed

A large canvas bag filled with supplies will help you make efficient use of time. Adapt the contents to your needs. Include extras that group members may have forgotten. You may want to include the following:

- Seeds
- Seed and bulb catalogs
- Clipboards and paper
- Poster paper or portable chalkboard
- Chalk
- Markers
- Colored pencils
- Crayons
- Small garden tools such as trowels (enough for all participants)
- Hand clippers, as activity requires
- Bulb hand planter
- Jackknife
- Magnifying glasses
- *Annuals Garden Guide* (Fell 1992) and other gardening guidebooks
- Camera
- Measuring tape
- String



You will want to make additions and deletions to this bag to fit your needs.

# Activities

## Planning and Planting an Outdoor Garden

An outdoor garden can keep you busy year-round. Although your group can prepare an outdoor garden entirely in the spring, many preparations can be done during the fall and winter. In late summer, when the trees are still in full leaf and you can see which spots are sunny, you can decide on a site for your garden. During the fall, the group can remove the grass, add cow manure or other soil amendments, or build a stone wall or raised bed. You can also choose, buy, and plant bulbs, peonies, and many other plants in autumn. For additional suggestions, see *Taylor's Guide to Bulbs* (DeWolf, 1986). In winter the group can read catalogs—which usually come out around Christmas—choose what to plant, and order seeds or plants for spring. Some flower seeds can be planted as early as February if you have a good, bright window or fluorescent light setup. Gardens can also be dug and most plants planted in the spring. Once the garden is planted, it probably won't need too much attention—a bit of weeding, trimming, mulching, fertilizing, watering during dry spells, and harvesting.



## What Kind of Garden Should You Plant?

Your group should decide what kind of garden they want. You should consider the nature of the garden sites available, local growing conditions, and the physical capabilities of the participants and volunteers. You can't start every kind of garden everywhere, but you can have some garden anywhere.

The range of alternatives is endless, and there are many questions to consider. Do you want a flower garden or a vegetable garden? If you want a flower garden, should it be of annuals, which provide a bright burst of color by midsummer but have to be replanted every year? Should your garden have perennials, which live through the winter and usually get bigger and better over time? Should your flower garden be mainly for viewing, designed to look good outside? Should it be a cutting garden, providing bouquets for indoors? Do you have room for a flowering tree, shrub, or climbing vine? Should you include bulbs for a spring display and perennials for summer blossom?

Vegetable gardens are traditionally designed just to produce food, but they can be beautiful, too. You can choose old-time favorites for a "heritage" or "heirloom garden" or champion producers for a "victory garden."

Intergenerational partners enjoy a summer day stroll at Chase Nursing Home's gardens.



Check out publications such as those listed in the bibliography section of this guide. If you're considering a vegetable garden, you might check with the kitchen staff of the elderly housing facility to see if they can use small quantities of fresh vegetables. Many kids have never grown their own vegetables, and the elders may enjoy watching them harvest for the first time. Besides, home-grown vegetables taste better than ones from the store. You might also want to consider fruits that don't need a lot of attention such as blueberries, currants, or even peaches. An excellent book about gardening basics is the *Better Homes and Gardens New Garden Book* (Knox, 1990).

Not only is the group involved in planting and tending a vegetable garden, but they also get to enjoy the "fruits" of their labors. The following is an excerpt from an article printed in the *Gazette* newspaper (New Berlin, New York, July 31, 1997), written by Margaret McDonald, a resident of the Chase Memorial Nursing Home and a participant in the HILT program. Her article relates the pleasure group members find in the program. She writes:

We had a horticultural class Monday and Tuesday, one class in the morning and one class in the afternoon with Vin, our horticulturist, and our day care children. They were very educational and the children were delighted and so interested in harvesting the vegetables and presenting them to our dietary department head, Gracie Lloyd.

We were taught about the many herbs that grow in our garden and their uses in the meals which makes them taste very good by Vin and by John Haight. John is a retired horticulturist professor from Morrisville College, and boy, do we enjoy his expertise.

During one of the horticulture classes as we were all sitting under the tree listening to Vin speak, two different colored butterflies were flying around us. I bet they were looking for a place to sit down so that they too could enjoy our conversation.

### **Macro and Micro Climates**

Local conditions will influence what you can grow. You can probably assume that plants sold in local nurseries will do well in your area. If you order from catalogs, you should know your region's climate zone, which is based on the lowest average annual temperature. Most catalogs and plant books include zone maps. If you plan to grow vegetables, it helps to know how long your growing season is. Garden centers, nursery, or Cooperative Extension staff can tell you. It is also useful to know the date when danger of frost has passed and when you can expect the first frost in the fall. Temperatures are usually higher in cities and near large lakes and rivers than in the surrounding countryside because buildings and water tend to absorb heat. Elevation also makes a difference; higher areas are usually cooler than lower





ones. Your specific garden site may also affect your options. If only heavily shaded woodland sites are available, you probably won't be able to have a good vegetable garden because most vegetables prefer full sun. Flower gardens can be grown in sun or shade.

Another issue to consider when choosing an activity is the capabilities and limitations of your group members and volunteers. A group of sixteen-year-old kids and active elderly people can do a lot of digging, but a group of five-year-olds and frail elderly will need much more help. Removing turf and tree roots, turning over soil, and working in peat moss and manure is hard work, as is building a wall of stone or railroad ties. What volunteer help can you count on? Do you have access to a rototiller? Try to include groundskeepers or facility managers in your planning from the outset. They would be a major help in getting your garden project going.



Elderly participants who just want to watch will have a better view if the garden is accessible to wheelchairs and lawn chairs.

## Designing the Garden

### Encouraging Group Participation

As participants talk about what sort of garden they would like, you'll probably discover that some of them do not express many opinions. Our experience has been that at first, young children are generally eager but seniors are reluctant. The elderly are hesitant to participate for a variety of reasons:

- Elderly people may not have done horticultural activities for many years and feel unsure of themselves. This lack of confidence curbs assertiveness.
- A considerable number of residents have limited fine and gross motor movements and range of motion. Also, an average of 80 percent (approximately the same percentage as at Chase Nursing Home) of nursing home residents in the United States have to use wheelchairs so they are initially intimidated by the physical requirements of participating in the activities.
- The intellectual faculties of some residents may have deteriorated, and they may have accompanying emotional problems.
- Some elderly tend to be pessimistic, for example, taking the attitude that it won't work and kids are hard to deal with.

You might stimulate discussion by providing illustrated catalogs; addresses may be found in horticulture magazines. We suggest making this a group activity. Supply postcards and have participants address them and write requests for catalogs. Working in teams, participants can browse through the catalogs, discuss their favorite vegetables and flowers, and pass catalogs around. Each person or team should have a chance to say what kind of garden he or she prefers and present ideas. Some consensus will probably emerge. If there is no consensus, it's almost as easy to make two five-by-five-foot gardens as it is to make one ten-by-five-foot garden.

Before shopping for plants, make a list of those you are looking for.

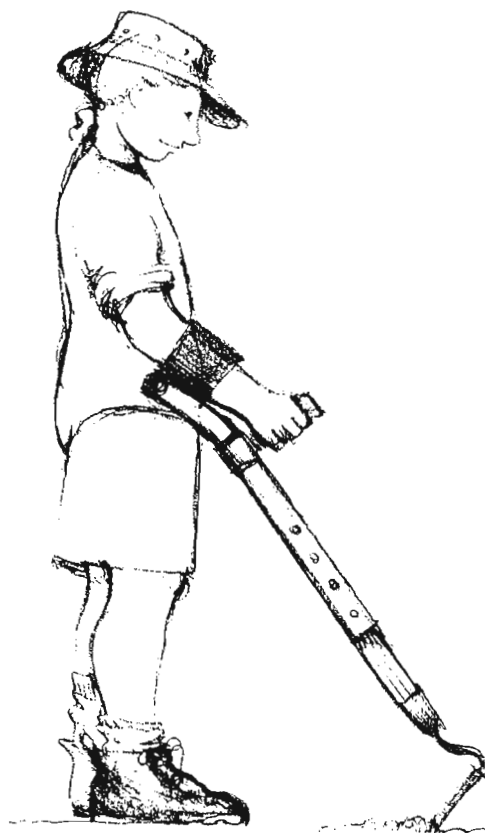
The planning process will help you evaluate the interest and knowledge of your group. Participants will develop feelings of responsibility and ownership for the project; try to get everyone's opinion. Not all participants will choose to jump right into the program, but, with time, their involvement will increase. Be patient. Also, some elderly people receive a great deal of enjoyment just from watching young children complete their activities. Don't take away from their enjoyment by pressuring them to do more than they are comfortable with.

### Choosing a Site

The garden should be accessible to everyone, including the handicapped. We learned after our Geneva project that one resident could not participate in our flower bed activities because she had difficulty bending. Others could not easily touch the plants because they were in wheelchairs. Unfortunately, none of these people mentioned why they had not become involved, which taught us to be aware of the limitations of group members. Know the participants' abilities and handicaps and plan accordingly. Select a guidebook such as *Easy Things to Make, to Make Things Easy* (Greenstein, 1992). Make smooth, hard, level paths to permit free wheel movement with minimal effort. You might wish to plan your garden near a sidewalk, where tall plants are accessible to participants in wheelchairs. Alternatively, you could plant your garden in a raised bed, in large pots or plastic containers that sit on the ground, or in smaller pots in a wooden framework that raises them off the ground. These possibilities are discussed in more detail in the Appendix, page 64. An array of plants in pots can be an attractive element in a traditional garden and increase accessibility.

How big should your garden be? The answer depends on the number, age, capabilities, and enthusiasm of participants and perhaps of volunteer help as well. It might be best to start small—this is supposed to be fun, not

work—and allow space for future expansion. It is easy to expand a garden, and doing so will provide additional horticultural activities. Gardeners should have enough room to make an attractive plot or to grow the ingredients for at least one mixed salad for each participant. For the physically able, four by four feet per participant might be about right; for those who need more help, two feet by two might be more appropriate. If there are ten members, the vigorous group could make a garden as large as five by twenty feet, the less physically able group might make one four by ten feet.



**A one-handed hoe, illustration reprinted with permission from Doreen Greenstein, *Backyards and Butterflies*, published by Brookline Books. For more information about tools that can be modified for handicapped people, read references in “Psychology and Therapy of Gardening” section of the bibliography.**

Other points need to be considered when choosing the site for your garden:

- Water—the garden should be within easy reach of a hose.
- Sun—most flower gardens and certainly all vegetable gardens should have a minimum of six hours of full sun per day. A little shade is fine. If the site is very shady, you might want to create a garden of spring flowers that bloom before the trees leaf out or of forest flowers adapted to grow in shade.
- Slope—less is better.
- Drainage—look for an area that drains well.
- Existing plants—attractive small trees or shrubs already on the site can be an asset. Besides being appealing themselves, they may offer shelter from the hot sun and perhaps a structure for a climbing vine.
- Views—put gardens where they can be seen from windows in the house.
- Community collaborators—when planning your site, make use of local experts. A garden club or county extension agent can help you determine the site, develop the overall garden plan, and assess soil quality and irrigation needs. When looking for a site, remember that the leader should not do everything. The most effective leaders delegate.

- Easy accessibility and close proximity to the facility so the garden will be user-friendly for the handicapped.

### Arranging the Plants

Your group will find it exciting to brainstorm various ideas about how the garden can be arranged. You may have already looked at garden catalogs. Ask a local nursery, garden club, or county extension office to give a slide show of plants that are available. Pictures of family gardens would also be fun. In addition to your own creative ideas, some knowledge of basic design principles will be helpful. Your group may want to think about issues such as the following:

- Put short plants in front and tall ones in back so that viewers can see all of them and the tall ones won't shade the short ones. Ask participants if they know which plants will be tall and which will be short. Check seed catalogs for this information as well.
- If access or visual impairment is a concern for some participants, try to plant the front row with some plants tall enough that people in wheelchairs will be able to enjoy them. Consider fragrant plants such as lilies and textured herbs and plants such as fennel.

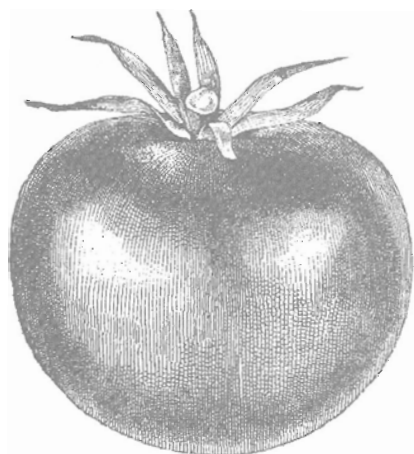
When plants are placed near a sidewalk, every group member can participate in the hands-on pleasure of gardening.





- In the Northern Hemisphere, plants will tend to lean south, toward the sun. If possible, it may be best to plant the garden running east-west, with the shorter plants in the front along the south side.
- Trailing plants should be on the edge of the bed where they can climb up a fence.
- Set plants close enough together that they will cover most of the ground when they are mature. Descriptions in the catalog and on the seed packet will tell how much space plants need.
- Arrange for clusters of color to make a showier garden. Use several of each kind of plant to make a stronger impression. Think of blocks of color and don't plant in straight rows (except perhaps in vegetable gardens).
- Know which plants need full sun and which need or tolerate shade. For most plants, the more light the better, but many others, such as impatiens, foxgloves, coleus, and browallia, do well in some shade.

If participants are interested, have them practice making scale drawings of the garden site on graph paper, with each square representing a certain amount of garden space. This exercise will also help you figure out how many plants you need. Color in the spaces with flower colors using pencils and crayons. In our programs, we have found that the young participants enjoy drawing



Exploring what's inside a dead marigold flower head—seeds for future garden experiments.

and coloring flower bed designs and the elderly have fun looking at these creations. The group together should decide on the final design. As another option, the leader may suggest combining several design patterns.

Finally, consider creating a design for your garden only if group members have fun doing it. You can always run to a nursery in May, buy a bunch of plants you like, and plant them in the ground in a way that you think will look nice. Chances are the garden you make will be just fine. For more ideas on design, see *Perennials for a Flower Border* (Schaufler, 1982) and *Sequence of Bloom of Perennials, Biennials, and Bulbs Including Height and Color Range* (Mower and Lee, 1992). Both are available from your Cooperative Extension office. On annuals, see *Annuals Garden Guide* (Fell, 1992). Full citations are in the bibliography.

## Preparing Garden Soil

Physically, this is the most taxing part of making a garden. It is also one of the most important because preparing the ground well initially will pay dividends for years. If you have some vigorous adult volunteers—especially volunteers with rototillers—ask them for help with this phase. Gardens are often turned over in the spring, but this task can also be done the previous fall.

The best general garden soils are rich, free-draining loams; annuals like sandy loam. If you think your soil might be deficient in some way, have it tested by your extension agent, who will recommend amendments as necessary. Check the soil's pH. A reading of 6.2 to 7.2 is ideal. Depending on the soil condition, the agent may recommend that you add peat, compost, decomposed animal manure, sand, sulfur, lime, or perhaps other elements. Have these elements on hand when you begin turning over the soil.

## Materials

Rototiller, if possible (You can sometimes rent one if you have a volunteer to operate it.)

Measuring tape

Stakes

Hammer

String

Flat-edged shovel (These are useful for giving the garden a straight edge and to use as a "spatula" to lift off the top layer of grass.)

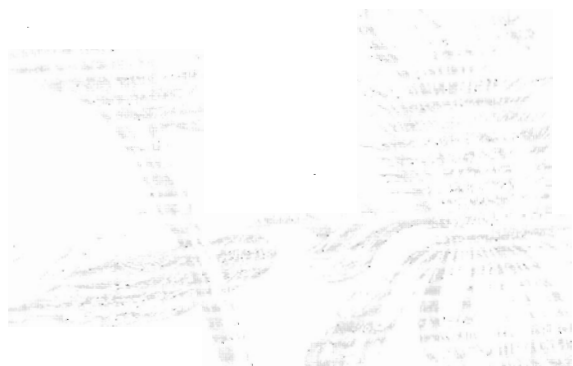
Shovels

Spading fork

Rakes

## Procedure

1. Measure the plot and stake out the shape and size of the garden. If the garden is going to have straight edges, mark them by tying strings to the bottoms of the stakes as a guide for the shovel. A hose is good for marking curved edges.
2. Remove the layer of grass. If you have a robust rototiller you can churn the grass into the soil, but it is likely to show up at the surface again in a few weeks.
3. Turn over soil to a depth of five or six inches and break up the clods. You can do this with a shovel and spading fork, but it is much easier with a rototiller. Spread the soil amendments over the surface and work them in thoroughly. Dry peat doesn't blend well with moist soil. It is much easier—and much heavier, and much, much messier—to blend in when thoroughly soaked. So make a hole in the bag of peat and fill it with water before blending it in.
4. Rake the surface smooth.



## Getting Plants for Your Garden

### Growing Plants from Seed

Purchasing plants from a nursery or garden center may be the easiest way to acquire them and may be necessary depending on the individuals in your group. Yet growing plants from seed is one of the immense pleasures of gardening. Choosing seeds from a catalog or garden center, planting them, watching them germinate, tending them through their delicate early stages, and then transplanting them to the garden will seem miraculous to a five-year-old. Perhaps it will be even more miraculous to a ninety-year-old. Watching seeds sprout and plants unfold as they grow makes us intimate with the world's cycle of renewal. It is a hopeful event, and planting seeds can be a testimony to a faith in the future.

Seeds may be planted directly in the garden or in small pots indoors for later transplanting. Plants that grow quickly from seed, such as lettuce, squash, cucumbers, beans, peas, and corn, are planted directly in the garden. Plants that take a long time to mature, such as cabbage, tomatoes, eggplant, broccoli, squash, peppers, and many flowers, are often started indoors.

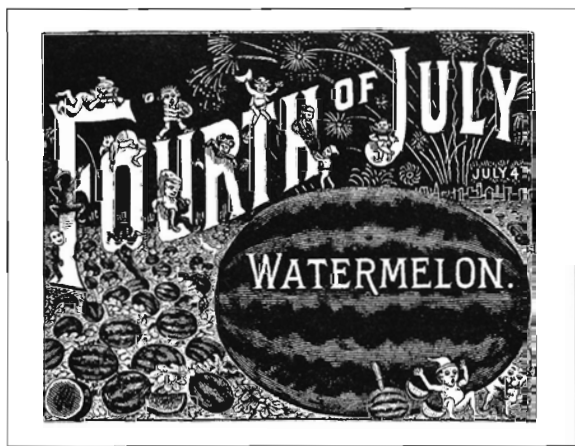
Growing plants from seeds is quite straightforward. Seed packets, whether purchased locally or ordered through the mail, usually

include good germination instructions.

Starting seeds in a greenhouse or cold frame is ideal, but you can also use a bright window or fluorescent lights. Be warned, though, that plants grown indoors in inadequate light and warm temperature often develop long, gangly, weak stems. Try to grow plants in low light and a cool atmosphere and acclimate them to full sun as soon as you can. Plants raised indoors need daily attention, water, and southern exposure for sunlight. Have the youth take the seeded pots home to tend and then bring them to the activity site the week the seedlings are to be planted. (You may want to have a backup source for plants.)

The great advantage of growing plants from seeds (aside from the direct pleasure of watching seeds grow into plants) is that a tremendous variety of seeds are available through catalogs and garden stores, much more than you will find in even the best nursery. Additionally, seed-grown plants are extremely cheap, often just a few cents apiece. If you have extras, you can give them away. If you have lots and lots of extras, you can have a plant sale to raise money for your club. Even if your seed-growing efforts fail, it won't have cost you much, and you can still go to a nursery and buy the plants you need. If you have specific questions about growing plants from seeds, contact the master gardeners at your county extension office.

Master gardeners also donate time to the community. This corps of volunteers is a knowledgeable resource and can be helpful on the site as well.



### **Buying Plants through the Mail**

Few aspects of gardening are as intoxicating as browsing through plant catalogs and dreaming of spring in the middle of the winter. But ordering by mail has several disadvantages. You have to pay shipping costs, although even with these charges the prices may be about what you would pay locally. Also, you don't see the plants you are getting until they arrive. The nursery may run out of the plants you want so order early. You must be sure that the plants will grow in your region. You can't be sure when the plants will arrive, and you must tend them until they are planted.

Don't let these minor issues dissuade you. Most plants you order will arrive in good condition and transplant nicely into the garden. The great advantage of ordering by mail is selection. If you have an assortment of catalogs, youth and elderly will be able to choose from thousands of plants. Again, if it doesn't work out, your group can always take a trip to the garden center.



### **Buying Plants from a Garden Center**

A trip to a local nursery is great fun. Also, you are supporting local businesses, and garden center personnel are a valuable resource. If you choose to purchase your plants from a local garden center, combine this visit with a tour of the facility, where the group can learn more about seeds, plants, fertilizer, and tools. Group members will not only come away with great plants for their gardens, but they can also learn more about horticulture in the process.

Here are some tips for avoiding problems while at the garden center:

- Meet with nursing home staff to find out what special needs residents may have. Take only those people who are physically able.
- Meet with the garden center manager before the visit. Let the manager know when you are coming and request a guide.
- Know how many seniors and club members are going and arrange for transportation. Bring an additional, strong chaperone and a portable step to help seniors into vehicles.
- Hold a brief intergenerational meeting on what to expect at the garden center and on what is appropriate behavior during the visit.
- Pair up youngsters with seniors.
- Anticipate possible problems. Find out where bathrooms are, have a first aid kit handy, and find out where the telephone is in case of emergency.
- Take along a staff person who is trained to work with the elderly. It would also be helpful to bring volunteer parent to aid with monitoring the children.
- Encourage participants to ask questions. You might even meet before the visit to think of questions to ask at the garden center.



## Planting Plants

If you have worked out a plan for the garden on paper, the arrangement of plants will be all set. But be prepared to improvise. Things tend to look different when you're standing in the garden, shovel in hand and fifty pots of plants arrayed around you, than they did at the table with ruler and graph paper. You can mark out areas for different plants by drawing in the dirt, outlining areas with lime, or simply standing the pots around. Remember that spacing is important. A just planted garden should look rather sparse. You have to allow for additional growth during the coming months.

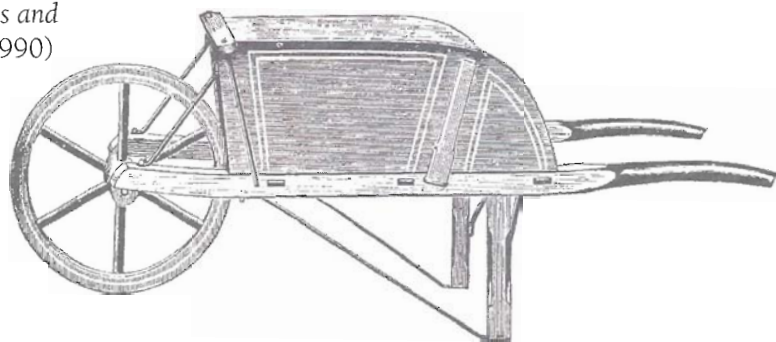
Choose a damp or cloudy day for planting if possible. Water the plants thoroughly before planting. If the roots have grown into a tight clump, gently tease them apart and spread them out in the planting hole. Plant them at the same depth as they were in their pots. Make a little dike around each plant to hold the water where you want it and then water until the soil is drenched. Until they get established (after a week or two), the plants' roots should never be allowed to dry out. If plants are wilting or burning, give them some shade. One gardener we know breaks branches from trees or shrubs and pokes them into the ground where their leaves shade newly planted plants. Be aware that some group members may have difficulty with planting and may just want to watch. Be sure to have an appropriate number of volunteers to help if necessary. For additional information, the *Better Homes and Gardens New Garden Book* (Knox, 1990) describes basic procedure such as planting plants.

## Watering, Fertilizing, and Mulching

Once your plants are established, they shouldn't need water except during dry spells. Even then irrigating once a week will probably be enough if your soil is good, you use a mulch, and you water properly. Occasional deep waterings are much better than frequent shallow waterings. If your watering wets only the top few inches of soil, that is where the roots will grow, and the sun will quickly dry out surface roots. Water long enough to saturate the soil down to the plants' deep roots. Few people have the patience to hold a hose until the entire garden is correctly irrigated so plan on using a sprinkler or soaker hose.

Fertilizing should not require a large amount of time. Most gardeners add a time-release fertilizer once as they are preparing beds, or they scratch fertilizer into the soil around plants at planting time.

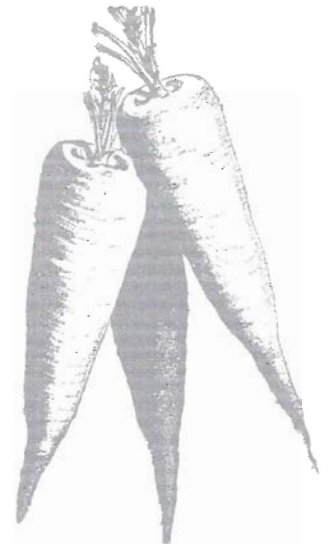
Adding mulch to the soil is an excellent idea because it cools the soil, helps retain moisture, suppresses weeds, and can provide nutrients and improve soil texture. People use a great variety of mulches. Probably the most common is wood chips. Ask nursery and extension personnel for advice on an appropriate choice and application of fertilizer and mulch.

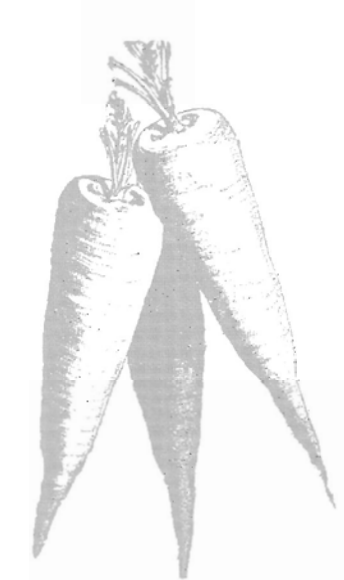


## Keeping People Excited: Thirty Ways to Hold Gardeners' Interest

Our experience has been that both children and elderly tend to lose interest in the garden after the planting is done. Here are some suggestions for keeping up their enthusiasm:

1. Take notes on common interests and use them to set group priorities on future activities. Discuss what it is about the experience that interests them the most. (For children it is most often getting hands dirty, hands-on experiences, finding bugs, and deadheading. For elderly, it's the kids. Mostly they like watching them.)
2. Contact your local newspaper about doing a story on your project. Having their faces in the news will keep participants enthusiastic.
3. Remember that this project is supposed to be fun. Don't overwhelm people with too many tasks at once or too much work. Keep it simple. A small garden with several varieties of vegetables and flowers planted close together will discourage weeds, provide an appealing visual display, and produce vegetables.
4. Take lots of breaks. Young children and elderly tire easily, both mentally and physically.
5. Take slides. Most people love seeing pictures of themselves on a big screen. Show the slides again in the dead of winter, when summer's lushness will seem miraculous. If you go on an outing, bring back slides to show those who couldn't go.
6. Demonstrate gardening techniques, using visual aids such as charts, slides, skits (with gardeners' participation), field guides, and seed and plant catalogs.
7. Encourage questions.
8. Involve all participants in as many decisions as you can. Capitalize on the human desire to share knowledge. When group members want to be helpful, give them a chance. Participants who are truly in control feel a sense of ownership, which fosters interest, motivation, creativity, and independence.
9. Grow some plants that are quick to mature, hardy, and likely to succeed in your area.
10. Plan for a succession of bloom throughout the seasons. Because many plants bloom in spring, people tend to have lively spring gardens but far fewer flowers later in the year. With a little planning, you can have flowers throughout the year, from March until October. See Mower and Lee's *Sequence of Bloom of Perennials, Biennials, and Bulbs Including Height and Color Range* (1992). One of the great pleasures of gardening is anticipation, and careful planning will be repaid many times over.
11. Plant some garbage. Yes, that's right, try planting an old pineapple top or an avocado pit. You will be surprised at what might grow. In the fall you might have to bring the plant indoors or it will freeze.



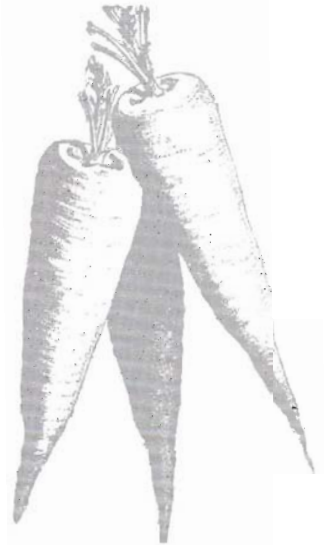


If it is a cutting or top of a plant, you can often plant the base or stem right in the soil. Keep it watered. Placing a plastic bag over the plant for the first two weeks will help it take root. If it is a big old seed like an avocado, you might stick toothpicks in it and suspend it partly in water. Another idea is to go to the store and pick out strange fruits and vegetables and plant their seeds.

12. Connect the gardening program to the larger community by planning field trips to garden-related places such as
  - a nursery.
  - a fruit and vegetable market.
  - a garden center.
  - a greenhouse.
  - a private garden run by a dedicated and enthusiastic gardener; most will be delighted to show their gardens.
  - a public garden.
  - an arboretum.
  - a university botany department.
  - a garden club.
  - a bonsai, orchid, rock garden, or other plant society.
  - a garden show.
  - a vegetarian or other restaurant that uses locally grown produce.
13. Visit knowledgeable horticulturists or invite them to address your group. You might ask
  - an herbalist.
  - an urban forester responsible for the planting and care of city trees.
  - a traditional farmer or organic farmer.
  - a vegetable grower or other commercial grower.
  - a beekeeper.
  - an orchardist or fruit grower.
  - an employee in the fruit and vegetable section of a supermarket.
  - a florist.
  - a golf course supervisor.
  - an entomologist.
  - an ornithologist.
  - a cook who can help you make a fancy dish with vegetables you grow or show you canning or pickling procedures.
14. Celebrate Arbor Day at the end of April. Free trees are distributed in many locations—get some and plant them.
15. Note the dates on which flowers begin and finish blooming; see if they change from year to year.
16. Keep a garden journal. Assign a different person to record what happens at each meeting. Read the journal together during the winter.

17. Numerous books and videos deal with gardening. Get a video of, for example, *The Secret Garden*, watch it together, and then discuss it. Someone might enjoy reading a garden book and talking about it with others.
18. Keep lists of the insects that pollinate different flowers. Bees are involved in pollination, of course, but so are flies, beetles, wasps, and others. Perhaps you could get an entomologist to outline the classes of insects for you. You could also investigate whether different insects are active at different times of day.
19. Plant flowers that attract hummingbirds and hang a hummingbird feeder in the garden.
20. Cut some plants back when they have flowered and see how they respond. Many will experience a second burst of growth and flower again.
21. Plant some flowering climbers and see what happens.
22. Collect seed and save it for the next year; note if the flowers differ.
23. If your group would enjoy it, try some friendly competitions: see who can grow the biggest squash or pumpkin, the tallest sunflower, the tiniest flower in a pot.
24. Give genuine individual and collective praise.
25. Realize that many factors influence interest in and success of gardening, including the program's goals, the goals and interests of both the youth and elderly, and the facilities and funding available.
26. Treat youth and elders as equal partners.
27. Have magnifying glasses available for close-up investigations.
28. When doing garden projects, the big challenge is getting through the summer. After planting, some participants may lose interest. Youths will probably not visit summer gardens on their own. They need mentors such as club leaders, parents, and seniors who are able and willing to coordinate or lead activities.
29. Recruit other community members to help with activities and to spur interest.
30. Develop a maintenance schedule for activities such as weeding and watering.

You will have succeeded if both kids and adults come to appreciate that gardening can be a consuming, lifelong interest that presents an opportunity for a new beginning each year.





## Planting Bulbs and Corms

Traditionally, we think of planting bulbs and corms in the fall, and that is when garden standards such as tulips and daffodils are planted. But some corms, such as gladiolus, cannot tolerate cold and must be planted in spring and lifted again in the fall, and some bulbs, including lilies, are increasingly being offered in both spring and fall. (Although bulbs and corms are technically different, they are treated similarly in the garden so for simplicity we refer to them both as “bulbs” throughout this section.)

Planting bulbs and corms is fun and gives residents, staff, and visitors something to look for next spring. Few sights are as pretty as the first snowdrops pushing through the snow, followed by the surprise colors of crocuses and the great spring show of tulips, daffodils, wonderfully fragrant hyacinths, alliums (flowering onions), and dozens of less familiar plants. Novices can put together a display by following a few basic, easy rules. If you're planting a garden in the spring, consider preparing the site in the fall and planting bulbs for a spring display to inspire you before you plant the other plants.

## Choosing a Site for Bulbs

Most sites that are good for other types of gardens will also be good for bulbs (see “Choosing a Site” above, page 20). It's a good idea to mix bulbs with other plants in a flower garden. Many spring bulbs are glorious in April and May, but by June the bulb foliage is dead or dying and looks horrible. Leave the foliage until it dies back naturally. That is how the plant builds strength to flower the next year. Until the plants emerge again in the spring, that spot will be bare if you weed it carefully, a haven for weeds if you don't. Plant some other flowers to cover the area later in the year. Spring bulbs look good with the emerging leaves of other plants, which will come into their own period of exuberance just as the bulbs are fading.

If you want to have a garden exclusively of bulbs—perhaps a cutting garden, part of a vegetable garden, or just a bulb garden in a location where the dormant period won't make any difference—try to make it at least five feet square rather than planting a few feet here and a few there. You can plant lily and other bulbs for summer and fall to continue the display.



## Choosing the Bulbs

Like potted plants, bulbs can be purchased locally or through the mail. Buying by mail gives you a wider selection, and many companies send out catalogs in April or May and again in the summer showing bulbs for fall delivery. Advantages of shopping locally are that you can inspect the bulbs before buying and talk to garden center personnel if you need advice.

Choose bulbs by group consensus, getting everyone's opinion on colors and types. Ask the group to consider height and time of bloom as well.

Buying bulbs at a garden center can be a group field trip (see "Buying Plants from a Garden Center," page 25). Look for large, healthy, firm bulbs that are smooth and feel heavy for their size. Avoid bulbs that have sprouted or appear to be diseased.

## Preplanting Group Lesson

We found that group instruction before planting began was helpful. This session can be used to teach the group about bulbs. Bulbs contain a plant, just like a seed. Bulbs are big because they contain stored energy (plant food) from the previous year's growth. This stored energy is like the energy of a potato, which we cook and eat as food. Have the group cut open a potato and a bulb. Realize that some in your group will have knowledge to share; perhaps they can explain the parts of bulbs and how they grow. You could also give some general pointers about how bulbs should be planted. Follow directions on the package. Generally the pointed end of a bulb goes upward and the root hairs go downward.

## Planting

### Materials

Shovels  
Trowels  
Bulb planter  
Bulb fertilizer  
Rakes (for smoothing soil)

### Procedure

The procedure for getting the site ready is the same as for other gardens (see "Preparing Garden Soil," page 23). Before planting, demonstrate a planting procedure, using a hand bulb planter, trowel, or shovel. If you are planting lots of bulbs, it may be easier to dig a trench big enough for all the bulbs rather than make an individual hole for each one. Mix some bulb fertilizer or bone meal with soil and put it at the bottom of the hole. The bigger the bulb, the deeper it should be planted. A rule of thumb is to plant three times deeper than the diameter of the bulb. Generally, daffodils are planted at about five inches and tulips at six inches. Check reference books on bulbs if you're not sure of planting depth. As you begin planting the bulbs, have participants work in teams of young and old. The flowers will be showier in springtime if they are planted in clusters of three to nine. The smaller the bulbs, the more you'll need to plant to produce a good display. For a more interesting display, plant in a zigzag arrangement or in bunches or groups, not in straight rows. *Taylor's Guide to Bulbs* (DeWolf, 1986) is a comprehensive guide to gardening with bulbs.



## Forcing Bulbs

Bulbs are usually grown outdoors, but they can also be planted indoor in pots, a process known as forcing. You can do this activity whenever bulbs are available; plant them in early winter for winter or spring bloom. Keep holidays in mind. Easter and early spring are great times for this activity because the bright color of the blooms will help chase away the winter “blahs.”

Purchase bulbs from a garden center or by mail order and plant them close together in a small container with a freely draining soil mixture and moisten the soil. To have blooms for Easter, plant the bulbs in January (we recommend daffodils, hyacinth, tulips, or crocus). Press the bulbs (three to five to a pot, more for crocus) into a layer of soil and bury them with one to two inches of sand. Water them well. Give the bulbs a few weeks at around 50 degrees for the roots to form. Then put the container of planted bulbs in a refrigerator, a cold garage, or another location where the temperature is in the low forties. Most bulbs need a period of cold—usually two months—before they will bloom. Bulbs are essentially storage organs—they gather energy one year to bloom and produce foliage the next. By fall, they have saved enough energy to bloom again, but they need a period of cold before they become active. This is nature’s way of ensuring that bulbs don’t produce new foliage at the onset of winter. We recreate the same conditions through this cold treatment, which makes the bulbs bloom when we want them to. They should need little or no watering during this time. Some bulbs are



sold especially for forcing and do not need cold treatment or have already had cold treatment before they arrive in stores.

After cold treating the bulbs, bring the container out of the cold and put it in bright light at warmer temperatures—the fifties or low sixties are ideal for most. If the temperature is too high and the light level too low, plants will be floppy. By bringing plants in from the cold at different times, you can have flowers in bloom from December until May. If you want to plant the bulbs in your garden for the next season, water and fertilize until the foliage dies back naturally and plant them when they are dormant. Forcing is hard on bulbs, though, and it may be several years before they bloom again. Read *Taylor’s Guide to Bulbs* (DeWolf, 1986) or contact your county Cooperative Extension office for more information on bulb forcing in winter.



## Integrated Pest Management Projects

Integrated Pest Management is a system designed to control pests through environmentally friendly means. The system favors nontoxic methods of pest control. When chemical pesticides are needed, they are used in minimal quantities and targeted at specific species during the time they will be most effective.

### Using Beneficial Insects to Manage Pests

Insects such as certain flies, wasps, butterfly and moth larvae (caterpillars), and aphids may damage your plants and make your vegetables and fruit unattractive to eat. Only a tiny proportion of all the insects that flourish during warm weather are potentially damaging to our gardens. Insects are an integral part of any garden. They pollinate the plants, making it possible for them to produce seeds. Your group may enjoy catching some garden insects and examining them with a magnifying glass or microscope. Many people have never looked at an insect close up. Those who do will discover that they are as exotic, strange, and varied as any "alien" in movies and far more appealing.

For every insect that damages our gardens, there are others that eat them. You can order tiny parasitic wasps no bigger than the period at the end of this sentence that prey on fly larvae. At the opposite extreme in size are the familiar praying mantises, which feast on cutworms, beetles, flies, and aphids. You can buy their egg cases, put some in the garden, and keep some in an empty fish tank to watch them grow, but be sure to add a plant infested with aphids to feed them. Ladybugs can also be purchased and put in your garden to get rid of aphids. An interesting activity would be to find a ladybug and talk about its beneficial eating habits. There are many other insects to experiment with.

Two excellent books on insects are *Life on a Little-Known Planet* by Howard Ensign Evans (1986) and *Natural Enemies of Vegetable Insect Pests*, by Michael P. Hoffmann (1993).

### Homemade Insect Spray

Many gardeners use homemade sprays to keep insect pests out of the garden. *Guide to Kids' Gardening* (Ocone and Pranes, 1990) offers the following easy-to-make recipe that controls insects but is not lethal to humans or pets. It provides protection against cabbage worms, caterpillars, tomato hornworms, and aphids.

#### Materials

Two hot peppers

Six cloves crushed garlic

One minced onion

One tablespoon pure soap (not detergent); naphtha soap is recommended because it dissolves easily

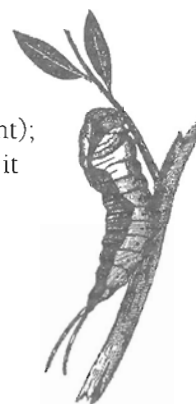
One gallon hot water

Four tablespoons rubbing or isopropyl alcohol

#### Procedure

1. In a blender, blend the peppers, garlic, onion, and soap in hot water. Let the mixture sit for a day.
2. Add alcohol. To keep the alcohol from evaporating, keep mixture in a sealed container until you are ready to use it.
3. Strain the mixture and spray it on insects.
4. Repeat until pests are eliminated.

In this mixture, the water and alcohol work as a carrying medium that gets the plant wet. Soap makes the spray stick to the plant. The pepper, garlic, and onion juices are the active ingredient that insects will avoid.





At Chase we found the following recipe effective for eliminating aphids on the lupines.

**Materials**

Dishwashing liquid

Water

32 oz. empty plastic spray bottle

**Procedure**

1. Put 1 teaspoon of dishwashing liquid in a plastic spray bottle.
2. Add water to top of bottle.
3. Spray plants daily until aphid problem no longer exists.



Homemade insecticide proved effective.

## Drying Flowers

Flowers can be dried whenever they are available, usually in summer to early fall. Capturing the color and beauty of summer gardens for display in winter is easy, rewarding, and fun.

**Materials**

Plants (see list on page 35)

String

Scissors

Rubber bands

Floral tape

20-gauge straight floral wire

**Procedure**

1. Pick the flowers before they are fully developed.
2. Remove the leaves from the flower stems, then group the flowers into small bunches.
3. Leaving a piece at the end to make a loop, use the string to tie each bunch of flowers together firmly. Use the loop to hang the flower bunches in a dry, warm, dark, airy location to avoid mold and mildew. The time needed for drying depends on the weather and the relative humidity.
4. Flowers with weak stems need the support of a wire. To attach the flower to a wire, cut the stem about two inches from the flower base. Hold the stem and wire next to each other. Wind floral tape around both. Stretch and press the tape as you wind. Tear the tape and press it tightly around the stem.

## Examples of flowers that dry well

### Annuals

Bells of Ireland

Starflower

Statice

Strawflower

### Perennials

Baby's breath

Columbine

Statice

Pansy

### Wildflowers

Dock

Goldenrod

Queen Anne's lace

Rabbit's foot clover

For more ideas, read the *Guide to Kids' Gardening* (Ocone and Pranes, 1990), which also illustrates a step-by-step flower-drying technique.

## Collecting and Storing Seeds

Collect garden seeds in mid- to late summer or fall.

Some elderly people who grew up on farms and had home gardens may recall saving seeds. Ask them to share their memories about collecting seeds. Use questions to prompt a discussion. For example, how did they collect the seeds? Where did they store them in the days before refrigerators? Kids also enjoy collecting seeds—it's another way of becoming intimate with the seasonal cycles of life. Modern kids may be surprised that you can collect seed from the plants you grow, plant them in the spring, and get plants again, without ordering or buying—needing no seed packets and no money. We found during our summer project in New Berlin, New York, that the children in summer camp listed collecting flower seeds from annuals as their favorite activity. Unbelievably, a group of six loved doing it for an hour at a time. They nearly had to be dragged away from this activity.

You may want to explain that many plants we use today are hybrids, deliberate crosses between plants of two different types to produce some desirable characteristic. The offspring of hybrids may vary tremendously, depending on the mix of genes they receive. So if you simply must have Giant Beefsteak tomatoes, you should buy new seeds rather than planting the ones you saved from last year's Beefsteaks. If you do use the seeds you collected, it might be interesting to see what the tomatoes you get are like.

Have young and old work together on this project, the kids working with the seeds and the elderly supervising. Kids often have smaller hands and greater dexterity for working with small seeds.

### Procedure

Collect seed pods and flower heads and prepare them for drying during one week's activity. Extract seeds during the next activity



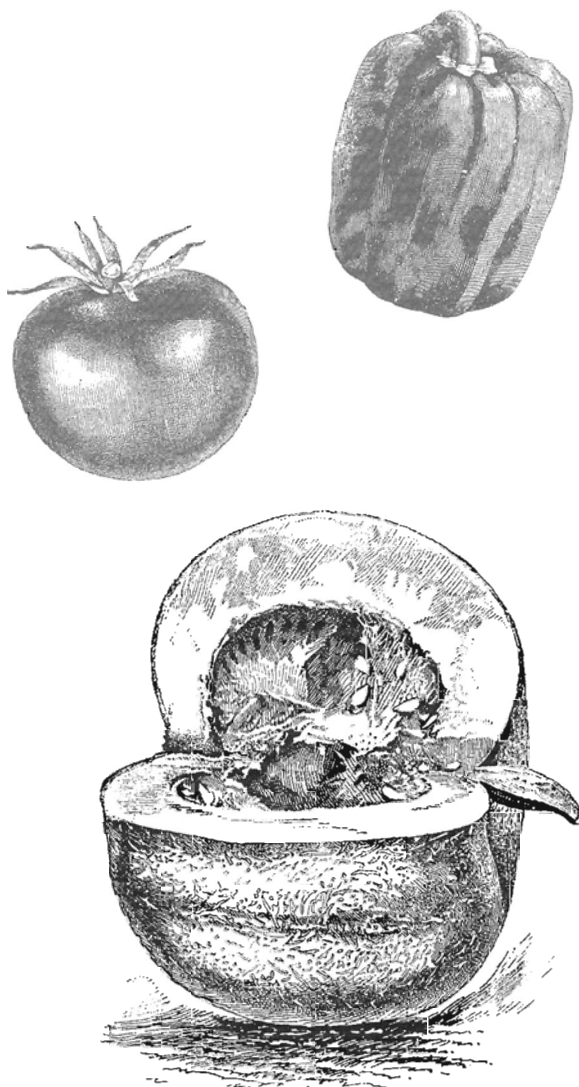
when the plants have had a week to dry. Marigolds are a good choice because their seeds are very easy to collect. Look for marigolds that are very dry in the stem. The swollen part of the dying flower contains the seeds. After drying the flowers for a week, open them, tip the seeds into an envelope, and label it. Zinnias and cosmos can be treated the same way.

You can collect larger volumes of seed by gathering flowers on their stems and bunching them together with a rubber band. Hang them upside down to dry with the heads enclosed in a paper bag lightly tied around the stems. Shake the bag occasionally to knock off the seeds. To clean seeds, rub them over a screen with holes larger than the seeds. The seeds will fall through onto a newspaper, but the debris will not. When seeds are dry, put them in an envelope and label them.

For beans and peas, pick the mature pods and dry them in paper bags. Split the pods open to remove the seeds. Generally, wet seeds need to be spread out and dried on paper. For example, pepper, squash, pumpkin, watermelon, and cantaloupe seeds can be scooped out and dried on newspaper. Of course, pumpkin seeds can be harvested as part of a Halloween pumpkin carving event.

## Seed Storage

The viability of seeds after storage depends on the rate of physiological change, or aging, and varies with the kind of seed and environmental conditions of storage. Temperature and humidity are the main factors that affect viability. Keep seeds in a slightly dry sealed container with the temperature just above freezing. Refrigerators work fairly well for most northeastern seeds. Your Cooperative Extension agent and local garden center personnel are excellent sources of more in-depth information on seed storage. Seed collecting is well described in *Growing with Gardening* (Moore, 1989).



# Learning about Seeds

You can learn about seeds whenever you have seeds available.

## Examining Seeds

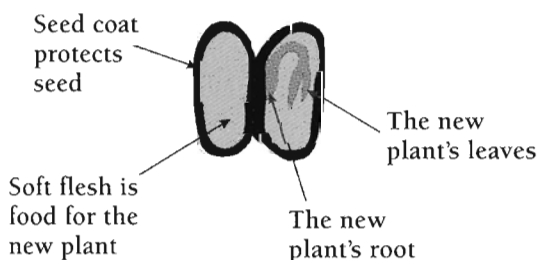
In this activity, participants discover the basic parts of the embryo:

- cotyledons
- shoot apex (apical meristem)
- hypocotyl (stem)
- root apex (radicle) (root meristem)

The apex of the meristem is the point from which new leaves or roots grow.

### Procedure

1. Soak lima or fava bean seeds in water overnight before giving them to participants to dissect. We recommend using fava beans because they are slightly larger. Thumbnails or index fingernails work fine for dissecting beans. The bean has two halves and can be split open easily.
2. Have participants examine each seed with a magnifying glass.
3. Then ask each participant to sketch his or her observations.
4. Have each team discuss and record similarities and differences among the seeds.
5. All groups then will discuss observations. Every seed has a seed coat and an embryo made of leaves (called cotyledons), a stem, and a root system. Have each group try to locate these parts. Compare the seeds you dissect with the figure below.



If this investigation goes smoothly, you may want to use the same procedure with corn seeds.

## Planting Seeds

Spring is the best time to plant seeds if you hope to use the plants in the garden.

### Procedure

The purpose of this activity is to show how seeds are planted and how young plants grow. Each participant will fill six-inch pots full of soil mix (a fiber pack may be used instead of pots). Then each will do the following:

1. Firm the soil mix in the pot.
2. Use a pencil to record name and date on a plastic label.
3. Plant four beans one inch deep and equally spaced in a pot. In another pot, plant four peas, and in a third pot, plant four corn kernels. In a fourth pot, plant six to eight onion seeds half an inch deep.

Newly planted seeds and seedlings require a lot of sun. You might want to have the youth take the pots home to watch and care for them. If weather permits and the pots are large enough so that the plants won't dry out, the pots could be placed outside on the nursing home grounds. Keep soil moist. Encourage the group to record any observations they make about the plants growing. How long does it take before a sprout appears? How do the bean sprouts differ from the peas, corn, and onions? Do the different plants grow at different rates? How will you determine when the seedlings should be planted outside? (After danger of frost is over.) Have the students observe the plants over the next four weeks and sketch their observations.



## Determining Seed Viability

This activity involves a simple test to determine whether seeds will germinate. (Germination means that seeds start to grow.) If you have any old seeds, you might test them to see if they germinate in smaller percentages than fresh seeds. This activity is done in two parts. The first week the group puts the seeds in a moist environment; the second week they assess results. If the seeds germinate quickly, we know that they are viable and will grow in our garden.

### Materials

Each team will need

Ten corn seeds

Ten marigold seeds

Four paper towels

Two rubber bands

One plastic bag; large zip-closing bags work well.



Children in the HILT program are counting the seeds that germinated after their seed viability experiment.

### Procedure—First Week

1. Dampen paper towels and wring them out. They should be moist, not drenched.
2. Lay towels on a table or counter. Evenly place the seeds half an inch to an inch apart on a paper towel, leaving a space of two to three inches from the bottom edge of the towel and an inch or two along each side edge without seed. It is okay to put the corn and marigold seeds on the same paper towel. Fold the bottom edge of the towel up to cover the seeds, then roll up the towel the rest of the way. Put rubber bands on both ends of the rolled towel. On a plastic label write the type of seeds used and the date the project was begun. Place the label and towel in a plastic bag.
3. Seal the bag and punch two holes in it with a pencil.
4. Store bags in a dark place at room temperature.

A week later, groups will open their bags to discover what percentage of seed has germinated.

### Procedure—Second Week

1. Open paper towels.
2. On a portable chalkboard make a table showing the number of seeds that have begun to germinate.
3. Add up the number that germinated. Dividing this figure by the number attempted will give you the percentage of germination.
4. Discuss results. How many seeds germinated? How were they stored? Was there a difference in germination between seeds you harvested and those you bought?

## Factors Influencing Seed Germination

### Treatment A: Depth of Planting

Hypothesis: Seeds may fail to germinate when they are planted too deep.

#### Materials

Two one-quart milk or juice cartons per group

#### Procedure

1. Using a pencil, punch several holes in the sides of the cartons near the bottom.
2. Add two inches of free-draining growing medium to each carton.
3. In the first carton, place three corn seeds and six radish seeds on top of the two-inch layer.
4. Fill the rest of the carton with growing medium. Label the carton with the date and how deep the seed is buried.
5. Fill a second carton with growing medium to within two or three inches from the top. Place three corn seeds and six radish seeds on top and cover with about one inch of growing medium. Label it and set it next to the other carton.
6. Water both cartons.
7. Make observations over the next three weeks and discuss reasons for the different rates of germination. An alternate activity would be to plant several cartons—one with seeds on the surface, one with seeds one inch down, one with seeds two inches down, and so on. Presumably the ones buried most shallowly will germinate first, others may struggle up after a time, and still others won't ever make it.



### Treatment B: Excess Water

Hypothesis: Too much water can keep seed from germinating.

#### Materials

Each group will need two milk cartons, potting soil, and corn and radish seeds. You may use either one-quart or two-quart milk cartons, although one-quart cartons work just as well and require less potting soil.

#### Procedure

1. With a pencil punch several holes in the bottom of one carton.
2. Fill each carton to within one inch of the top with growing medium. Place three corn and six radish seeds on top of the growing medium. Cover with approximately one inch of growing medium and press firmly. Using a measuring cup, slowly add water to each container until it begins to drain from the bottom of the container that has holes in it. Place the carton on a pie tin or saucer to catch the water.
3. Label each container with the participant's name and date.
4. Make notes of your observations over the next three weeks. In particular, measure and record the growth of seeds in the different cartons. Be prepared to discuss your group's conclusions. During this discussion, groups should attempt to point out which treatment had better results and explain why.





### **Treatment C: Light and Darkness**

Hypothesis: Plants grow better in light than in darkness.

#### **Materials**

Provide the following items for each team:

- Four plastic pots
- Growing medium
- 8 muskmelon seeds
- 8 marigold seeds
- Labels

#### **Procedure**

1. Fill four plastic pots with a growing medium.
2. Plant four muskmelon seeds each in two pots and four marigold seeds each in the other two. Label them with the group's name and date.
3. Place one muskmelon pot and one marigold pot in a well-lighted area.
4. Place the other two pots in darkness in a closet or cupboard.
5. Over the next three weeks, make observations and drawings of what you see. Discuss any conclusions you draw. Observations and discussion should focus on the growth in various treatments as recorded by the groups and attempt to explain why results were better for some than for others.

## **Asexual Propagation**

Propagation by cuttings has been practiced since ancient times. We present three activities, the key to all of which is maintaining the right balance among several elements: humidity in the atmosphere, moisture in the rooting medium, and correct amounts of heat and light. Geraniums and herbaceous (soft and green, not hard like wood) plants are easy to root; deciduous woody plants can be more difficult.

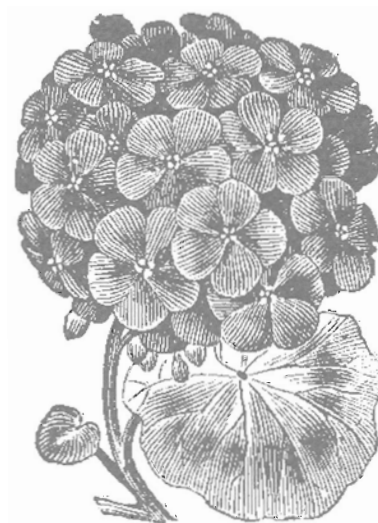
### **Rooting a Geranium Cutting**

Geraniums are frost-tender South African plants grown for their bright flowers, scented leaves, and attractive foliage. They are one of the easiest plants to root.

Geraniums can be rooted any time, but new, soft growth in early summer is more prone to rotting if the rooting medium is too wet.

#### **Materials**

1. Enough geraniums to provide two cuttings for each participant
2. One large plastic cup for each per person
3. Growing medium—straight sand works well because it reduces the risk of overwatering, but any mix will work well if overwatering is avoided.



## Procedure

1. Write the names of participants and the date on the cup. Poke holes in the bottom and fill it with the rooting medium. Moisten soil only slightly—remember that the main reason cuttings fail is that they are too wet.
2. Each participant should make two cuttings as demonstrated by the instructor. If circumstances permit, cuttings can be taken half a day ahead of the meeting to allow the cut to dry, which may reduce rotting. A good cutting need be only three or four inches long. Leaves along the bottom of the cutting should be pulled off; leaves on top can be left.
3. Suggest that participants remove flowers from the cutting. Flowers compete for the nutrients necessary for rooting, and cuttings are likely to drop their flowers anyway. Those who decide to retain their flowers can later compare them with cuttings from which flowers were removed.
4. Stick the cuttings in the rooting medium so that they are in full contact with the soil. They should be kept in bright indirect light. It is better to avoid full sun, although geranium cuttings, unlike most, might tolerate it.
5. Make notes on observations over the next month. You can tell if a cutting has rooted by gently tugging at it; if it resists, the plant has probably rooted. Rooted plants can be turned out of their pots and repotted in five-inch pots with a free-draining soil mix.
6. Participants may wish to donate some plants to the seniors' residence.

When working with stem cuttings, you may find the following information useful:

A stem cutting is a portion of a stem or branch, usually three to six inches long, that has one or more nodes (place where leaf is attached). If a stem cutting includes the tip of the stem or branch, it is called a tip or terminal cutting.

The condition of the parent plant greatly affects the ability of the cuttings to establish roots. Cuttings should be taken from plants that look healthy, well formed, vigorous, and free from injury, disease, or nutritional disorders.

To encourage development of a healthy plant, the rooted cuttings should be transplanted to a rich soil, watered, fertilized, and placed in good light.

## Herbaceous Plants

Herbaceous plants can be rooted any time.

### Materials

Rooting hormone (optional)

Pots or plastic cups and free-draining rooting medium for each member of the group

Plants to provide enough stem cuttings for all participants. Some good plants for cuttings are Swedish ivy, wandering Jew, and spider plant with daughter plants.

### Procedure

1. Fill a pot with rooting medium and moisten it slightly. If you can squeeze any water from it at all, it is far too wet. If you are using plastic cups, poke holes in the bottoms for drainage. Label cups with the participants' names and the date.
2. Prepare cuttings. Stem cuttings of Swedish ivy and wandering Jew should include at least two nodes and preferably three or four; the leaves should be removed from the bottom one or two. Daughter plants can be removed from the spider plant and rooted, or they can be left attached to the parent and removed after rooting.
3. Poke holes in the rooting medium with a pencil or dowel rod. If you are using





rooting hormone, Rootone #3 is appropriate for soft herbaceous cuttings; follow the directions on the package. The new spider plants can be pressed into the soil and pinned down if necessary with a bent wire or a paper clip.

4. Stick the cuttings in the holes and firm the soil around them.
5. Keep the cuttings warm and moist and in bright, indirect light, ideally in a humid but not stagnant atmosphere.
6. Cuttings should root within a few weeks. If they die, attempt to discover why.
7. After cuttings have rooted, transplant the plants into three-inch pots and place them by a south window.

### **Rooting a Willow or Other Deciduous Tree or Shrub**

Most willows can be rooted at almost any time of year. We have had success with leafless cuttings taken before the leaves unfurl in spring and with firm young shoots taken at the end of June.



### **Materials**

Enough plant material to give each member two cuttings

Tags or plastic labels

Enough small pots for all group members or one large pot if all members will be putting their cuttings in the same pot to facilitate care

A free-draining rooting medium such as half peat and half perlite

Misting bottles

### **Procedure**

1. Each group member will make two five- to six-inch cuttings from the materials brought in by the instructor. Strip leaves off the bottom two-thirds of the cutting and attach a tag with the name and date on each cutting if all members will be putting cuttings in the same pot or on a label if each participant has his or her own pot.
2. Cuttings can be dipped in root-promoting hormones such as Rootone #8. Check labels to determine which strength to use for the species you are trying. Willows will often root without hormones.
3. Poke holes in the growing medium to avoid knocking off the hormone as you put cuttings in the pot. Stick cuttings in the holes and firm the soil around them. A moist soil mix is good for willows.
4. The plants should be kept in bright, indirect sunlight and a humid environment. If they are kept inside, misting will help. If they are kept outside in summer, it may be sufficient to keep them in a shady spot and wet the soil around them daily. The evaporation will help keep the cuttings firm. Custodians could be asked to help out. If they do, send them a note of thanks.
5. After five weeks, the cuttings can be pulled. Those that have rooted can be potted and taken home or given away.



Seniors help children make plant cuttings for propagation.

## Propagation by Runners

This procedure can be done any time plants with runners are available.

Some plants send out runners, stems that grow over the ground and eventually form new plants at the end. We have had success propagating strawberry begonias in this way. You could also use fruiting strawberry or spider plants.

### Materials

Strawberry begonia plants with enough new plants to supply the group

Pots of any size and potting mix

Paper clips

Labels

### Procedure

1. Put a pot filled with moistened potting soil next to the mother plant.
2. Using a straightened paper clip, pin the new plant to the top of the soil in the small pot.
3. When the new plant starts to grow, it has formed roots.
4. Cut the runner or long stem connecting the two plants.

## Making Terrariums

A terrarium may be created any time plants are available. Spring is best if you plan to transplant plants from outside. This project is good for encouraging teamwork.

### Materials

One glass or clear plastic container for each group; goldfish bowls or aquariums work well. The container should have a removable lid.

Potting mix

Crushed charcoal

Paper and pencil for working on design

Plants: Many species can be used, including peperomia, strawberry begonia, and gold dust. A small container could fit three to five plants.

### Procedure

1. Decide on the plant arrangement by drawing on paper an outline the size of the container and moving the potted plants around on the outline until you find a pleasing arrangement.
2. Fill the container with two inches of soil consisting of three parts potting soil and one part crushed charcoal.
3. Plant plants in the soil, spreading out roots.
4. Add soil and firm it around each plant.



5. Water slowly and very lightly—only enough to moisten the soil slightly. Plants in a terrarium lose little moisture to the air so they need little watering. Too much water leads to mold problems that can quickly destroy the plants. At the first sign of mold, the lid should be removed. It is often best to leave the lid partly off to ensure some air circulation.
6. Keep the terrarium by a window with bright indirect light. Cool temperatures in the fifties or sixties are best.
7. Do not add fertilizer.

Terrariums can also be made using desert plants, mosses, ferns, and common weeds. For more information about terrariums, see pages 30–31 of *Growing with Gardening* (Moore, 1989).

## Bird Feeders

In early and midsummer, birds are feeding their broods and will be searching for food. Summer, though, is full of distractions to keep people busy. You will probably find that interest is greatest in winter when watching birds can help fill the void.



Although not specifically related to horticulture, making bird feeders and observing and identifying birds can give your group hours of pleasure. Find out if group members are interested and if you have money to purchase bird seed. If your group is going to continue for a long period, perhaps you could grow your own. Black oil sunflower seed is a favorite. Add various mixes to attract different birds (see the next activity). Participants may have suggestions for bird seed that they've used in the past. You also need to decide where the feeders will be located and who will keep them filled. If you have enough money, you can buy a bird feeder from a garden center.

## Making a Cardboard Feeder

### Materials

String

Scissors

Half-gallon cardboard milk or juice container or a plastic milk container, which will last better against squirrels. An amusing project would be to construct a bird feeder in hopes of outwitting squirrels using baffles, trap doors, and other devices. Squirrels are clever about getting to food, though, so it's not easy.

Paper punch

### Procedure

1. Cut large, square holes, one inch from the bottom, in each side of cardboard carton.
2. Staple the top together.
3. Using a paper punch, make a hole in the center near the top.
4. Tie on the string.
5. Fill the bottom with bird seed.

Figures 4 and 5 show alternative plans for building bird feeders.

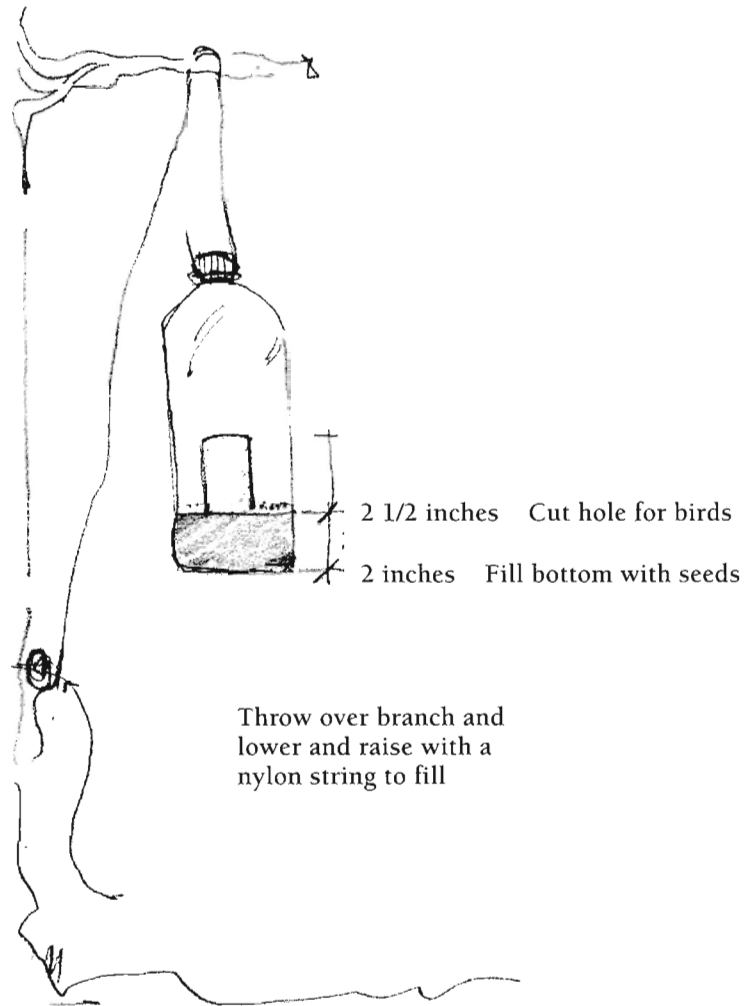


Figure 4. Bird feeder made from a two-liter plastic bottle







## Bird Food Experiment

Interest in feeding birds is usually greatest in winter, but the variety of birds may be greater during summer when the migrants are here.

Experiment using different kinds of bird feed, including table scraps, in your bird feeder. Keep track of what the birds like. Also, observe which birds like what food. The group may be surprised to see how much food waste can be recycled as bird feed. But don't use meat, fat, or oils because they have strong odors. Buy some bird feed from the store to use as well. You can plant some bird seed in a cup or pot to see if it grows and what kind of plants it came from.

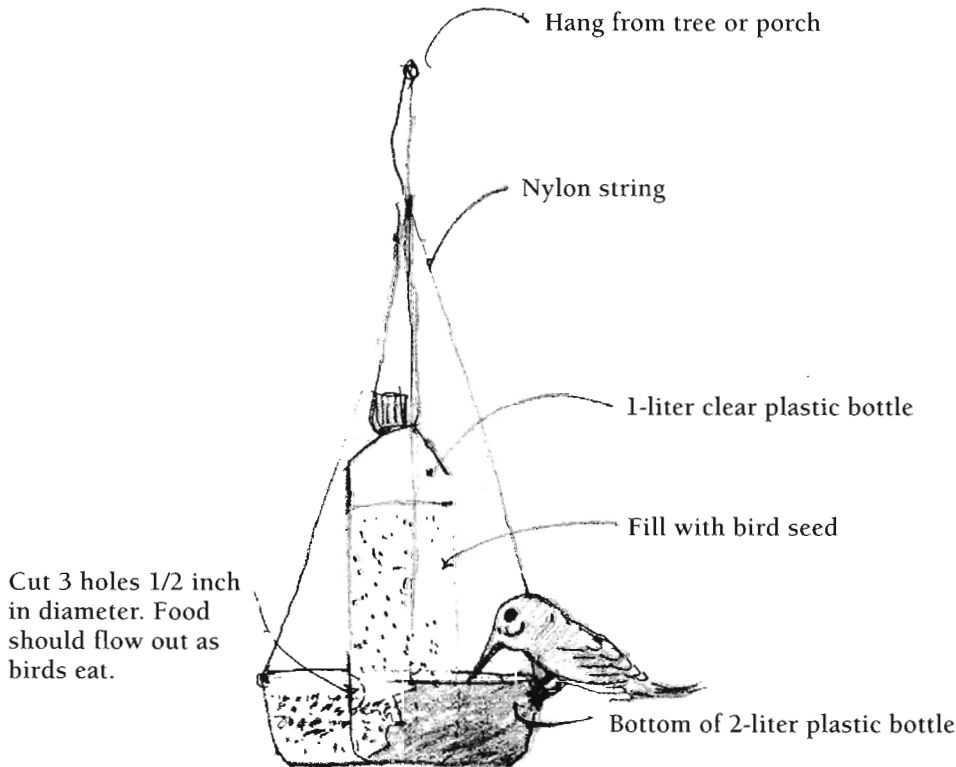


Figure 5. "Automatic" bird feeder made from two plastic bottles



## Planting Shamrocks

To have plants ready by St. Patrick's Day, you should begin by the third week in January.

### Materials

A five-inch pot for each participant

Soil mix

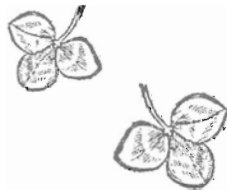
Materials for  
decorating pots

Shamrock seeds



### Procedure

1. Decorate pots as desired.
2. Sow ten to twelve shamrock seeds in each pot. Cover lightly with soil mix and add water.
3. Place the pots where they receive direct, bright light from a southern window. Use a general house plant fertilizer, following printed instructions.
4. During the week of St. Patrick's Day, give plants to moms and dads, nursing home residents, the hospital lounge, the library, and friends.



HILT members prepare floral arrangements.



## Flower Arranging

A good time for this project is late spring or for Mother's Day.

Let people know that spring is here by having a flower arranging session. You will need to stop by a florist's shop to pick up some long-stemmed flowers and ferns. Ask the florist to donate the flowers or purchase colorful and affordable flowers such as carnations and chrysanthemums. Have groups of two or three people work together to arrange the flowers. Demonstrate that the flowers should be cut to ten to fifteen inches in length and dipped in warm water before putting them in the vase. This will keep them fresh for a longer time. The activity will take about thirty-five minutes. When the flower arrangements are complete, lead the group in parade style through the nursing home to show off the arrangements and to give them away to seniors who could not attend the session. The youth will feel great about this, and a few more seniors might decide to come and join in the next week's project.

After making floral arrangements, the whole group heads toward the residence quarters to give flowers to elderly who could not participate.



## Summertime Activities: Prepare a Meal with Garden Vegetables

When the vegetables in your garden are ripe, you may want to plan a meal to taste the fruits of your labor.

Plan the meal with the kitchen staff of the nursing home. Form a planning committee, consisting of the head of the nursing home's dietary department, two or three residents, two or three youth, and the HILT leader. Use as many items from your garden as possible. If you have herbs, use them to season a special dish. Plan a vegetarian meal or salad from the vegetables in your garden. If you planted a flower garden, cut flowers to decorate the table.

Here is an example of a meal planned and prepared by the participants from the Chase Nursing Home.

### Veggie Kabobs

Split the group into several intergenerational teams. Set out materials so each team has a work area with plenty of room to do the following:

- Cut flowers or wildflowers and arrange vases for the table.
- Harvest the veggies.
- Set the table (including paper table cloths).

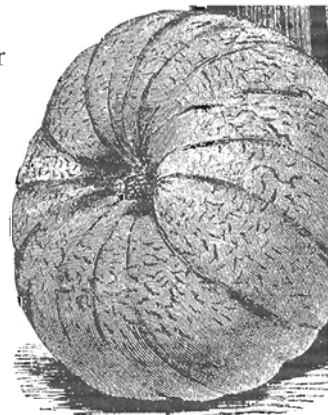
- Wash veggies and slice them for the kabobs (one-inch-square chunks work best for most vegetables).
- Assemble veggies on skewers.
- Grill kabobs over a charcoal fire or gas grill.
- Add whatever else you'd like for your meal. For the Chase activities, the kitchen grilled hot dogs, hamburgers, and buns, along with Kool-Aid as the beverage.

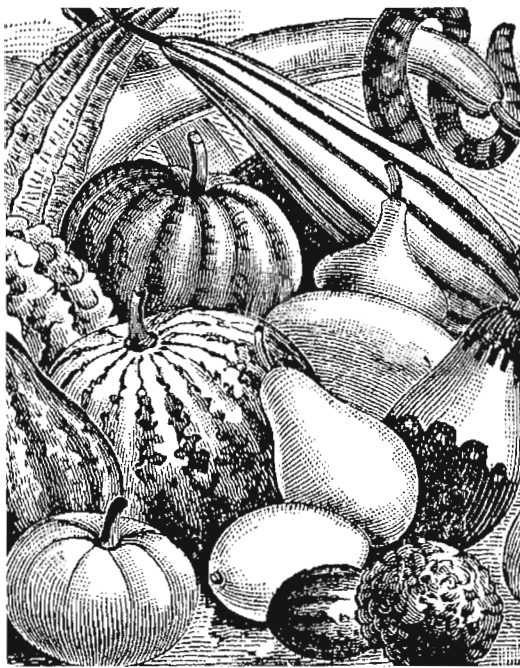
## October Activities

Painting pumpkin faces is great fun. If you have planted a pumpkin patch, harvest several around mid-October for group members to decorate. Have a contest to see who can create the best literary figure, monster, historical figure, action hero, and so on. Be sure to recognize every member's accomplishments.

Decorate the nursing home. After the pumpkins are decorated, set them around the facility. Add cornstalks for a festive look, and bring in mums for color.

Plan a Halloween party. Plan costumes for every group member, young and old. Bake Halloween cookies. Traditional cider is always a hit. Brainstorm for additional party ideas.





## Thanksgiving Activities

Plan these events for the second or third week in November. Be sure to take holiday vacations into account when setting the date for an activity. If you plan too close to Thanksgiving, people may have other obligations.

Decorate the nursing home for Thanksgiving. Save some of your October decorations such as cornstalks for Thanksgiving. Add other decorations such as gourds from the garden, if you have any. Children may be able to contribute gourds from their home gardens. Make floral arrangements with wildflowers and dry flowers.

Consider cooking or baking something traditional. Whatever you select, remember to keep it as simple as possible and still be fun. At Clifton Springs, we tried cooking a complete turkey dinner. It was a great experience but also a lot of planning and work.

## Winter Holiday Activities

The following activities would be appropriate for the holiday season.

- Make holiday ornaments from pressed flowers. For example, a pressed Queen Anne's lace flower can be glued to a four-inch piece of colored velvet ribbon. Form a loop at one end of the ribbon and insert an ornament hanger.
- Plan an intergenerational outing to buy gifts.
- Get together to sing holiday songs and have home-baked cookies with hot cider.



White Springs Adult Care residents and Geneva 4-H'ers enjoy Christmas festivities.





# Empowerment and Encouragement: Additional Requirements for a Successful Program

Although the activities in HILT are the key to a successful program, other elements will help make your program a positive experience for everyone involved. Listed below are some areas that should be considered when initiating the program.

## Empowerment Tools

Appropriate tools and equipment will alleviate frustration and help make activities work more smoothly. Try to obtain good quality tools. Well-made tools last longer. Check flea markets and garage sales. Ask for donations from the community. At our Clifton Springs program, the intermediate school teachers held a greenhouse shower. Parents of students were sent a list of tools needed for the greenhouse and adjacent gardens. Tools were creatively wrapped and given to the group members. This idea was successful, fun, and created a bond between the school and the community.

A trip to buy tools and supplies can be incorporated into a group activity. Tools scaled to children's small sizes and, increasingly, small, lightweight tools for the elderly are available both at garden

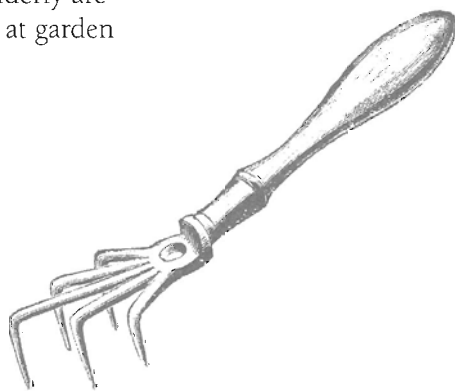
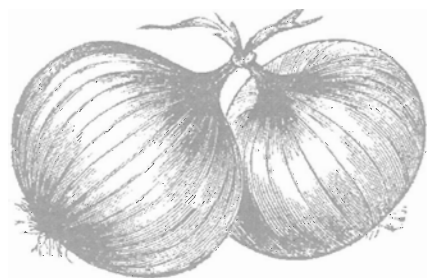
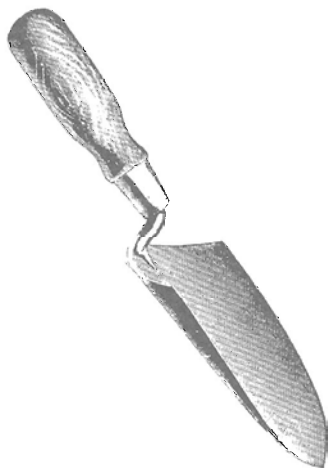
centers and through the mail. The following are basic garden tools:

- Spades to dig and edge garden beds
- Shovels to dig, handle compost, and add soil amendments
- Spading forks to cultivate deeply, break up dirt clods, and aerate compost
- Iron rakes to break dirt clods, remove rocks, and smooth garden beds
- Leaf rakes to gather leaves and other organic matter
- Hoes to weed and cultivate. Many people find it much easier to use a scuffle hoe for weeding than the familiar chopping hoe.
- Trowels—the familiar pointed mason's trowel is excellent for weeding
- Hose rainbow attachment
- Gloves
- Watering cans

Consider the special needs of disabled participants. Tools can be adapted to meet their needs. To find or tailor tools specific to your needs, we recommend a book on the subject by Doreen Greenstein, *Easy Things to Make, to Make Things Easy* (1992).

## Capitalize on Individual Strengths

Know the strengths of your participants. Some may be excellent gardeners and will be handy resource people for the more complex gardening tasks. The small-group, cooperative learning setting of HILT is an excellent way to enable them to share their special knowledge. As participants share their information and skills, they become contributing members of a group rather than simply bystanders. Always remember, however, that the key to a successful program is to work as a team. As leader you must attempt to have the whole group enjoy the experience through sharing the handling of plants, soil preparation, water management, and related activities.



**Vicarious Experience:  
Understanding How Others  
Feel**

Because HILT pulls together disparate individuals, some group members may have difficulty understanding the special needs of others, particularly those who are physically handicapped or limited. By combining groups of youth and elderly, your program will introduce children to circumstances that they may not initially understand, and you may need to help them gain an understanding. Karl Pillemer's *Project EASE* (1993) describes several sensitivity exercises your group can use to get some small sense of what it is like to live with a handicap. Pillemer offers experiences for becoming sensitive to changes in hearing, sight, and touch. Our experience is that in the beginning, children think these activities are simply fun and games, but they will take them more

seriously when they begin to associate certain handicaps with the elderly residents at the facility.

Another important step in developing sensitivity to others' circumstances is to allow group members to share their feelings about their associations with others. In our pilot programs we found it beneficial to meet with youth participants after their initial visit to the nursing home. The purpose of the meeting is to give the kids a place to discuss their feelings openly. As leader, your role is to encourage them be honest. You will hear both positive and negative comments. Be sensitive to all ideas. Let the group know that they do not have to wait for a meeting to express concerns. They will feel more comfortable if they know they have an ear when needed.

During the project, participants may experience sadness, joy, anger, fear, and death. They will need an outlet for responding to these experiences. At our White Springs Manor Adult Care Facility project in Geneva in 1995-96, we

experienced death. Mildred was one of the 4-Hers' favorite residents. After we learned that she had died, I took the kids into a private room, and their 4-H leader and I listened to them express their feelings about Mildred. Learning how to deal with this real-life sadness brought us closer together by making the most of a teachable moment.



# Evaluation

## Why Evaluate What You Have Done?

A main purpose of HILT is to engage the elderly in stimulating, enjoyable activities. For residents of a nursing home, most of the tasks of daily life—shopping, cooking, cleaning, doing the laundry—are taken care of by others, and infirmities keep many elderly from at least some of the activities they enjoy. The consequence is that many residents need both physical and mental recreation.

HILT is beneficial to the elderly because it uses both physical and mental skills in activities many enjoyed when they were younger. But how do we know whether the program has improved their quality of life? Have our efforts improved creativity, produced something tangible, made good use of time, created beauty, increased life satisfaction, increased physical activity, or encouraged laughter? Has the program brought more happiness to people's lives? For the elderly, has it decreased use of medication or increased activities of daily living?

We feel in our hearts that we make a difference when we help others. But if we want not just to *hope* we succeeded but to *know* and understand precisely what worked and what didn't, we must assess our program. Evaluation provides a tangible measurement of how this program has improved the lives of its members, and it gives us inspiration for future programs. It also helps us decide what projects or activities work best for us, for the youth club, for the seniors, and for the retirement or nursing home, as well as showing us which areas need improvement. Knowing the program's strengths and values will be useful, too, as we describe our group's activities to potential sponsors, participants, and volunteers and to reporters and others who may be interested.

Evaluations may be qualitative or quantitative. Qualitative evaluations give you a general sense of the program's strengths and weaknesses. In quantitative evaluations, various aspects of the program are assessed on a numerical scale. Some forms of evaluations you can use are recording attendance, noting positive and negative comments, and using questionnaires.

## What Should You Evaluate?

### Attendance

People who like an activity will come back again. Keep track of how many kids and seniors participate each week that you have an activity. Participation can then be graphed over time or from project to project. You might note the total number of residents at the retirement home, too, so you can determine what percentage of them were involved in the program. As you plan for future events, try to emphasize activities that were well attended by both young and old. Tracking the attendance over a period of time also reveals the growth of the program. Table 2 shows how the attendance in three different programs increased over the duration of the project.

### Quotes

Talking with the program participants is another valuable way of evaluating the program. Use a tape recorder or assign one youth as a note-taker to keep track of positive and negative comments. But don't make too much out of recording people's comments, or they might feel uncomfortable or shy about sharing their feelings and reactions. You will remember some quotes forever. A compilation of

**Table 2. Adult participation in the program**

Attendance at Project Location	Attendance at Project Beginning	Project End	Project Duration
White Springs Manor (total number of residents = 25)	5	8	7 months
Clifton Springs School Community Program (total number of outpatients from Mental Daycare Center = 7)	1	4	9 weeks
Ithaca's OP Outreach	4	6	8 weeks

comments can constitute a synopsis of your successes, as well as a record of issues you need to address differently. Following are some comments from our programs and analysis of these comments:

*Comments by Elderly Participants*

Gladys, 88 years old, was a reluctant participant in May. At Christmas, it was satisfying to hear her say, "Can't you folks and the children stay a while [longer]?"

"I just love it when the kids are here. Are they coming back next week?" (Margaret, 99). She looks forward to the HILT program, especially seeing the girls.

"I would like to go out and water in the garden, but the watering can is too big!" (Elizabeth, 84). Learn from this comment, and

take action—get a smaller can.

"I didn't think that I could remember how to plant tulips. I guess I surprised myself, didn't I?" (Dorothy, 85). She was delighted with herself and felt increased self-esteem.

"Being out there with those girls made me feel like a little girl again" (Anita, 74). "Those kids bring life to this old house, they really do" (Gladys, 88). These two comments indicate that the residents enjoyed the interaction with the youth. They describe feeling refreshed and revitalized after participating in the program.

"That wasn't so bad" and "It was fun" (anonymous). This person was probably nervous at first but obviously enjoyed it later. Clearly, you did something right.



*Comments by the Youth*

"I like to see senior citizens enjoying themselves. I think I want to continue again this year" (Caroline, 8).

"I'd like to continue too. The very best thing is getting dirty. So count me in" (Katie, 9).

"I would like to keep the project going. I liked planting the flowers and

learning about the residents" (Heather, 8).

"It was fun when Gladys told me about how Geneva looked in olden days and how it's changed" (Kelly, 15).

"I say, yes, let's start another flower garden. I felt good when I held Martha's hand and helped her plant. Possibly, we'll get new residents to take the



place of those no longer here. So I think we should keep the gardens going again but also think about the future. Maybe it's time to start looking into the nursing homes in Geneva" (Sara, 15).

"The best I liked was working with other adults like Robin, Art, and Shelby" (Jesse, 9).

"The worst thing was not having a plant for my own room" (Linda, 9).

"I really liked doing hands-on and not just looking. It was fun planting seeds, studying seed parts, and observing plant growth" (Vanessa, 10).

"I liked working with Steve and the other adults. I hope we will work with them again" (Brent, 10).

"I enjoyed getting dirty" (Katie, 10).

"I like being allowed to touch and not just look" (Katherine, 10).

"We are learning skills we can use in the future" (Dan, 8).

#### *Comments from Staff, Parents, and Others*

"The 4-H girls were all excited about working together and planting. The kids loved every minute of it, and the residents really bonded with the young people" (Betty Sweetland, extension educator at Geneva).

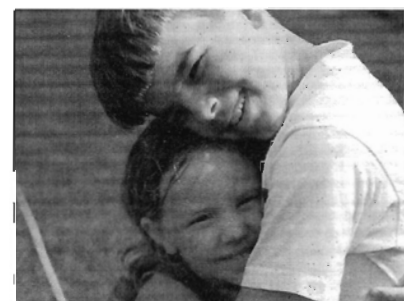
"I was amazed at the persistence of the girls. Even though we faced adversity, they were willing to regroup and keep the project moving. They were facing up to a real-life situation, looking at the options and making decisions. This is a strong example of the kind of individual and collective growth that can evolve" (volunteer leader).

"I think the girls very much look forward to coming here to White Springs because it makes a difference in the lives of these residents, fulfills a 4-H responsibility of doing a community project, and it's fun. However, I feel that we need a bigger commitment from Mrs. Young, the retirement home owner, and Heather, the home manager. For the program to blossom, we need their involvement and input in planning on a higher level than they have demonstrated" (Nina McCarthy, 4-H leader).

"The children thrived on the adult attention they've been getting. The intergenerational sharing has definitely been a positive experience. The class has been more enthusiastic about science. Clients sharing their experiences about mental illness gave the children an awareness that all people are not the same" (teacher Linda Stuhr).

"I think the program has been great. Everybody gained from this experience. Fantastic" (Leonard Kataskas, therapist at the Day Treatment Center).

"The intergenerational horticulture program has been wonderful. The children are learning new things and expanding. The seniors made us all a little



Friendships grow within the group.

bit better. I would definitely like to continue the program next year" (Paula Kitts, public school teacher).

How should you interpret the quotes you collect? Evaluate each one. Consider whether the quote suggests that you need to fix something or if it can be kept as a "nugget" to use when telling people about the project. Remember that HILT activities are supposed to help people face real-life situations, build independence through decision making, increase self-esteem, and bolster intergenerational interactions.

#### *Questionnaires*

To know whether kids are enjoying what they are doing, as well as if they are learning new concepts, you can ask them questions before and after each event or give them a list of statements and see how they respond. If you are working with young kids, you might ask them to respond to each statement with a smiley face, straight face, or sad face. In Table 3



Children love the hands-on opportunity to explore and get dirty.

we show the responses of Clifton Springs fourth graders when asked whether they enjoyed the activities listed in the first column.

Another approach to evaluation would be to assign one youth to sit aside from the rest and evaluate the body language, mood, and feelings of participants. Be sensitive to the participants' feelings about being evaluated and try to be as unobtrusive as possible. Creativity and enjoyment may be stifled if the participants feel they are being watched for "correct" responses. The following method could be used for participant observation:

- Make a score sheet with a column for each participant and a row for each characteristic that you will evaluate (see below for possibilities).
- Make copies of this sheet and fill it out at the start of your project, midway through, and at a celebration meeting near the end of a season or year.
- You can measure such factors as
  - eye contact (looks off into space = 1, looks at people when talking = 10)
  - smiles (frown or stern look = 1, big smile = 10)
  - arm movement (folded over chest = 1, open or moving = 10)

**Table 3. Activities that youth recalled when asked what they enjoyed most. Clifton Springs fourth graders, April 1996**

Activity	Number of Responses
Learning about how plants grow	4
Touching plants	6
Planting seeds and plants	20
Propagating plants (making cuttings)	6
Getting dirty	3
Talking to older people	5
Checking visible growth of plants	8

seniors helping youngsters, or youngsters helping/being involved with seniors (staying back = 1, participating = 10)

laughter (none in 10 minutes = 1, frequently = 10)

negative comments such as "it won't work" (none in 10 minutes = 10, often = 1)

The assessor can add up the scores and compare them for each participant before beginning, after one month of activity, and after several months. Report findings to the leader. You could present the assessment in a poster and report it at your State Fair as a science experiment or community project.

Use your evaluation to make adjustments. One resident mentioned that she would like to water plants but couldn't because the can was too big. Get a smaller can! Encourage caretakers to give residents opportunities to enjoy their immediate environment. Work with the staff to eliminate obstacles and make the garden and activities in the garden accessible. Let the nursing home staff know about your quotes and the rest of your evaluation. Don't tell staff what to do—let them decide.

**Evaluation Forms**

The following evaluation forms for parents, administrators, and leaders, teachers, staff, and aides are based on forms from *The Effect of Hort Therapy and Animal Therapy on Emotionally Disturbed Children* (Chronister, 1993). Each form has been simplified and redesigned to meet HILT's goals.

# Participant Form

Name \_\_\_\_\_

Date \_\_\_\_\_

**Please answer the following seven questions.**

1. What did you think the program would be like before it started?
2. How does working with others make you feel?
3. How does working with plants make you feel?
4. Have you ever grown plants indoors or worked in a garden? How did that make you feel?
5. Make a list of things you especially liked about coming to the HILT program.
6. Is there anything you didn't like?
7. Please share comments about HILT you heard from your friends.





# Administrator Evaluation Form

Name \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_

**Please answer the following five questions.**

1. What benefits did people gain from the HILT program?
2. Describe the general reaction of your staff to this program.
3. Have you noticed behavior changes in students participating in HILT?
4. Describe concerns about the program based on your observations or feedback from students, teachers, and parents.
5. What changes, if any, have you noticed in the senior citizens as a result of this program?

# Leader, Teacher, Staff, or Aide Form

Name \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_

**Please answer the following five questions.**

1. Describe the changes, if any, you have observed in the children and senior citizens participating in the HILT program.
2. Describe the feedback you received from students and seniors in regard to the program.
3. What are some of the weaknesses of HILT, if any?
4. Describe concerns of parents, if any.
5. Describe feedback you have received from colleagues concerning HILT. Have opinions changed?

# Appendix

## Time Line Case Study of Senior Citizen/4-H HILT Project

Date	Event
February, week 2	<p>Called Betty Sweetland, assistant program director of Ontario County Cooperative Extension 4-H programs. Explained our intergenerational horticulture program. Asked if she would match us with an Ontario County club to work with a Geneva senior citizen group.</p> <p>Betty Sweetland returned our call. She found a club interested in participating, the Sun Up Saddle 4-H Club, Nina McCarthy, group leader.</p> <p>Mailed Betty Sweetland a thank-you postcard.</p> <p>Called Nina McCarthy and briefly explained the program. Her response was favorable. Promised to update her as the project progressed.</p> <p>Called Beverly Young, owner and manager of White Springs Manor, a residence for senior citizens in Geneva. Explained the HILT program and what White Springs Manor and its residents stand to gain. Young was receptive. We agreed to start the program with a late spring flower garden. I said I would call again in late March with an update.</p>
February, week 3	<p>Called Nina McCarthy with a progress update.</p>
March, week 4	<p>Called Beverly Young and arranged time to meet.</p>
April, week 1	<p>Met with Beverly Young and discussed the project. Young and her staff were enthusiastic and wanted to participate but said they have limited personnel and could not hire additional help. Consequently, the manager and staff needed to be assured that the project would not be a lot of additional work for them.</p>
April, week 2	<p>Called Nina McCarthy and arranged a meeting date and time at her house. Called Beverly Young and asked if she could attend the meeting. She agreed.</p>
April, week 3	<p>Met with the eight girls and one boy of the 4-H club (ranging in age from seven to sixteen), Nina McCarthy, and Beverly Young. The first part of the meeting was introductions. Using an informal format, we discussed the variety of fun activities they would be doing.</p> <p>Young talked about the White Springs Manor facility and grounds, house routine (dispensing medicine, dinnertime), and the general physical condition of residents. Children had a question-and-answer period. We arranged the next meeting.</p>

Date	Event
April, week 4	Met with Nina McCarthy and the 4-H group. Discussed the process of aging. Children participated in several sensitivity exercises and stated their feelings. Children both enjoyed and learned from this session.
April, week 4	Called Beverly Young and Nina McCarthy. Worked out a mutually acceptable time and date for the first intergenerational meeting. The meetings would always be held at the White Springs Manor, White Springs Lane, Geneva.
April, week 4	Called Nina McCarthy. Asked about transportation. She already had a volunteer with a fleet at the ready. A big advantage of connecting with a youth organization is that they already have volunteers for communication and transportation.
May, week 2	First meeting. Casual atmosphere. Introductions (we used name tags.) We talked about our favorite flowers and favorite colors. Browsed through catalogs in cooperative learning teams. Walked outside together (the 4-H group, seniors, Beverly Young, and volunteers) and talked about sites for a flower garden. Asked 4-H group members to draw a flower bed design for the next meeting. Parents volunteered to bring spades, rakes, forks, and trowels. Beverly agreed to help with water cans, hoses, and basic garden tools. Arranged the next meeting date.
May, week 3	Checked with Beverly Young to find out if residents would be able to go on a field trip to Harvest Hill Garden Center (minutes by car from White Springs Manor). She was enthusiastic and offered to pay for half of the plant materials. Cooperative Extension agreed to pay one-quarter, and the Cornell University Department of Floriculture and Ornamental Horticulture chipped in one-quarter.
	Called Harvest Hill Garden Center to let them know when we were coming and that two residents used walkers.
	Dan Tennesen, Cornell Cooperative Extension plant science youth leader, volunteered to drive a Cornell van.
May, week 4	Unloaded garden tools. Discussed garden designs. Selection was by group consensus. Each designer was praised spontaneously and applauded. Field trip to Harvest Hill Garden Center. Five senior participants and four 4-H members, along with two parent volunteers and Dan Tennesen, boarded a van and



Date	Event
June, week 1	<p>a station wagon. Dan brought the list of the group's favorite plants and colors. We found that a stool came in handy to help the elderly step into the van.</p> <p>The remainder of the youth group and seniors stayed and prepared beds for planting.</p> <p>Upon return from the garden center, the whole group planted flower beds.</p> <p>We ordered two large pizzas with beverages.</p> <p>We put the remaining plants under a shade tree.</p> <p>Watered, using a hose and water can.</p> <p>Beverly Young said her staff would water as needed.</p> <p>Recorded the event with photos.</p> <p>Celebrated our work with pizza and beverages in the yard. Beverly Young had enough lawn chairs for all the adults. The 4-H members sat on the lawn.</p> <p>We agreed to finish planting the following week.</p>
June, week 4	<p>Finished planting the flower gardens.</p> <p>Brought two liters of Coke and thirty chocolate chip cookies for a snack.</p> <p>Made a maintenance schedule with 4-H members and their parents.</p>
July, week 1	<p>Called Nina, planned a July celebration.</p> <p>Early Fourth of July celebration with slides from our planting, snacks, much laughter, and conversation among old and young.</p> <p>Bertha, a manor resident, presented the children with two thank-you posters made by the residents.</p> <p><i>Finger Lakes Times</i> covered the event. (Betty Sweetland had called the <i>Times</i>.)</p> <p>Mailed thank-you postcards to 4-H group, Nina McCarthy, Betty Sweetland, Beverly Young, and the residents.</p> <p>Article about intergenerational gardening appeared in <i>Finger Lakes Times</i>.</p>
July, week 3	<p>Met with Nina McCarthy and her volunteers, Beverly Young, and her daughter Heather to discuss the program for modifications and adjustments. The consensus was that the participants, young and old, were enjoying it. It was recommended to plan a maintenance day in August and a bulb planting in October.</p>

Date	Event
August, week 3	Called Nina McCarthy to firm up the date and transportation.
August, week 4	Deadheading, weeding, and watering maintenance day. Called Nina to arrange storytelling day.
September, week 1	Schoolteacher friend told several stories to our audience, aged seven to ninety-seven. Browsed through bulb catalogs. Discussed and recorded favorites on post-it notes. Mapped out a garden diagram by group consensus.
October, week 1	Purchased approximately \$80 worth of various bulbs at Walmart, along with five bulb planters.
October, week 2	Called Nina McCarthy and Beverly to coordinate planting date.
October 3	Dug up annuals. Prepared soil by spading the top seven to ten inches and fertilizing. Planted bulbs. Beverly surprised the group by providing a horse-drawn intergenerational hay ride. Capped off the day with Halloween snacks. Everyone had a ball.
November, week 3	We had a pen pal exchange in which participants told what they had to be thankful for.
December, week 2	Nina had kids make holiday ornaments for the seniors. Heather had seniors make ornaments for the children.
December, week 3	Exchanged ornaments. Decorated the tree. Children interviewed seniors about what holidays were like when they were growing up. Gladys, a senior, played a holiday songs on the piano. The group sang. Each 4-H member and volunteer was given a porcelain carousel ornament. The year was a very rewarding experience.

## Raised Beds and Container Gardens

You might consider raised garden beds for two reasons: to create a flat planting area on a hill and to bring plants within reach of those who cannot bend easily and people in wheelchairs. You can build raised beds from all kinds of materials, including natural stone, paving slabs, railroad ties, and pressure-treated wood. A carpenter or garden group might be willing to build a raised flower bed with pressure-treated lumber donated by a local lumber company.

If you don't have access to a garden plot, you can make a very appealing garden with large clay or ceramic pots, plastic pots, or even five-gallon plastic pails. Even if you do have a regular garden in the ground, consider adding large pots near the edges. They can easily be worked into a garden plan, they can readily be moved around as circumstances dictate, they are easy to maintain, and, best of all, they offer a simple, flexible means of involving people who can't work in a regular garden.

The most attractive pots are clay or ceramic, but big pots can be very expensive



Some elderly members of the group may be able to bend and work in a flat garden, but raised gardens or flower boxes may allow more people to participate.

and are beyond the budget of most clubs. Watch for them at yard sales, though. Big, inexpensive plastic pots are now readily available in many discount stores in spring, and you may be able to get a discount for being a club or doing community work. Clay and ceramic pots and perhaps plastic pots as well will break in winter when the wet soil freezes and expands. You may want to plant annuals, take the pots into a sheltered area for the winter, or cover the pots with a couple of feet of leaves if they are left outside. If you stand these pots in a big saucer and keep it filled with water, you can grow swamp plants such as cattails or certain water-loving irises.

Ordinary five-gallon plastic pails can also be good garden containers. Drill holes in the bottom for drainage, or don't drill

holes and devote a few containers to water lilies and goldfish (they will have to be brought inside in cold weather, though). Even someone with minimal carpentry skills could build a wooden framework to hide the containers. Ortho's *Container Gardening* (Beley, 1992) describes an easy-to-make box to hold



Flower boxes are another excellent way to make gardening accessible to every member in the group.

containers. This box can sit on any ledge at the best height for easy accessibility. The box will hold four to six one-gallon nursery pots or six-inch plastic pots.



A raised bed allows elderly to sit and garden at the same time—an ideal situation for those who are in wheelchairs.

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**Daniel J. Tennesen** is an assistant professor of horticultural physiology and youth plant science education at Cornell University. Tennesen chairs the Cornell 4-H Program in the Plant Sciences, an interdisciplinary outreach effort that includes faculty and staff in the Departments of Entomology, Floriculture and Ornamental Horticulture, Fruit and Vegetable Science, Plant Pathology, and Natural Resources and nearly a dozen county extension efforts throughout New York State. In the Department of Floriculture and Ornamental Horticulture, his research is on genetic modification of plant light responses. Tennesen believes that youth and elderly can benefit each other in a modern world where they might otherwise be overlooked and that projects enabling hands-on learning in nonstructured environments are ideal stepping-stones into the sciences for youth.

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## A Home

In sleep, I dream of a house.  
The house has many rooms.  
Children are laughing,  
A dog barks.  
By the window a lazy cat,  
stretching in the sun's heat.

The dining room table is set for a meal.  
Fresh baked rolls,  
Corn on the cob,  
Summer green beans,  
Mashed potatoes and melted butter,  
Roast pork with apricot sauce.  
Black-eyed Susans proudly decorate the table.

The back door opens.  
A man appears.  
The children run to him for hugs and kisses.  
In the kitchen a woman smiles.  
This is a home.

Awake, I'm in a room of many rooms.  
Pictures hang on the walls.  
My heart's love.  
My children, young and grown.  
The little children are my children's own.  
By the window a lazy cat,  
stretching in the sun's heat.

The dining room's many tables  
are set with meals for many.  
Summer green beans.  
Yellow squash.  
Fresh, fat, red tomatoes picked earlier from the vine.  
Black-eyed Susans proudly decorate the tables.

Outside the big window is our yard and gardens.  
An old man sits in the sun.  
An old woman sits in the shade of the patio awning.  
Two old women sit side by side in  
peaceful companionship.

Children come running to the man and the woman.  
Faces smiling.  
Hands reaching for hugs and kisses.  
I smile.  
This is a family.

—M. Li, *Seneca Falls*, following her first visit to Chase Nursing Home

Horticultural Intergenerational Learning as Therapy (HILT) uses horticulture to bring young and senior citizens together. HILT builds on a tradition of using horticulture as therapy by providing opportunities for the elderly to increase their physical activity and mental stimulation. It introduces grade school children to the concepts of horticulture and helps them forge relationships with older people.

This manual tells how to institute a HILT program in any community and outlines a variety of activities, among them

- planning an outdoor garden
- visiting a garden center
- planting bulbs and seeds
- drying flowers
- building birdhouses



*Margaret McDonald with day care friend.*

Margaret McDonald, age seventy-six, said of HILT activities with grade schoolers at Chase Memorial Nursing Home: "It brings us very close together, it's like a family in here" (*Washington Post*, November 21, 1997).