

4-H Growing Things Series

Discovering Outdoor Gardening

Welcome 4-H Leaders!

This guide provides you with project meeting plans (**Skill Builders**) that include, a skills list, background information, activity suggestions, and ways to determine if your members have learned the skills identified. In short, all the information and tools necessary to make this project a rewarding one for you and your members are included in this guide.

In this project, members will examine, by **learning to do by doing**, the steps and skills required to grow a successful garden. The Leader Guide is written with the expectation that the project leader(s) will have a working knowledge of the project topics. If not, you may need to do some pre-work / research on the activities, or recruit assistance for certain sections.

There are activities listed and instructions provided in the Leader Guide. You may substitute activities depending on member interest and availability of supplies. Be sure to try out activities, demonstrations, or hands-on work ahead of time to ensure you have an understanding of each Skill Builder - this also allows for any adjustments should an activity not work for you or if any equipment or supplies are unavailable.

The 3D's of Learning - Each Skill Builder has three sections of learning called "Dream it!", "Do it!" and "Dig it!". Below is a description of each.

Dream it! Plan for Success - this gives members a chance to help plan their activities. A skills checklist, background information, important words, and activating questions are included in the Member Manual so they will be able to think about the topic and activity and decide how they will approach it. The Leader Guide contains in-depth background information on the topics, material lists, suggestions, time requirements for activities, and activating, acquiring, and applying questions to engage members' thinking through each step of the learning process.

Do it! Hands on learning - this is where members are engaged in the activity planned / discussed in the *Dream it!* Section. Here members are doing the activities and leaders are observing, recording, and providing feedback on how well they are doing. Allow as much individual practice as required; you are assessing the progress and understanding of individual members.

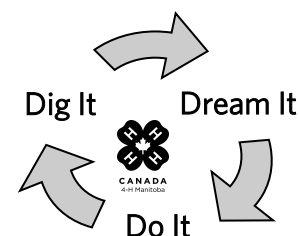
Dig it! What did you learn? - this simply means that members and leaders need to 'dig into their learning'. For the learning cycle to be completed, both need to reflect on how things went and how well they did. For members, this involves self-assessment, giving feedback, creating meaning from their experiences, and thinking about what they would do differently next time. Once this is done they will be in a good position to apply what they have learned to the next experience.

The sequence of project meetings and specific skills building outcomes for members in this project are on the chart on the following page.



| Table of Contents | |
|---|----|
| Introduction | 1 |
| Project Summary | 2 |
| Skill Builder 1: Plants Galore | 6 |
| Skill Builder 2: Planning It Out | 11 |
| Skill Builder 3: Plant, Plant, Plant | 23 |
| Skill Builder 4: Maintenance Matters | 30 |
| Skill Builder 5: The Power of Pests | 35 |
| Skill Builder 6: Harvest Time | 41 |
| Showcase Challenge | 48 |
| Portfolio Page | 50 |

- Revised 2019 -



What Skills Will The Member Learn?

Each section or Skill Builder (or Builder) in this project has activities that will help your project group learn to do by doing while learning new skills and having fun!

DISCOVER

To complete this project, members must:

- Complete the activities in each Skill Builder **OR** a similar activity that focuses on the same skills, as you and your leader may plan other activities.
- Plan and complete the Showcase Challenge.
- Complete the Portfolio Page.
- Participate in your club's Achievement (See the inside back cover for more information about 4-H Achievements).

| | Members will be able to... | Activities | Page |
|--|---|---------------------------|------|
| Skill Builder 1 | Plants Galore <ul style="list-style-type: none"> • Explain the purpose of a greenhouse • Understand the similarities & differences between annuals & perennials • Identify the main parts of the plant | • Visit a Greenhouse | 7 |
| | | • What Do You Like? | 8 |
| | | • Annuals & Perennials | 8 |
| | | • Try Something New | 9 |
| Skill Builder 2 | Planning It Out <ul style="list-style-type: none"> • Prepare to plant a garden • Select seeds for a garden • Compare the qualities of soil samples | • Do Your Research | 12 |
| | | • Seed Selection | 13 |
| | | • Garden Map | 14 |
| | | • Tools of the Trade | 15 |
| | | • Row Markers | 16 |
| | | • Soil Quality Tests | 16 |
| Skill Builder 3 | Plant, Plant, Plant <ul style="list-style-type: none"> • Plant & transplant plants • Explain the process of planting seeds • Prepare an experiment | • An Early Start | 25 |
| | | • A Gardening Record | 25 |
| | | • Experimental Gardening | 26 |
| | | • Planting Time | 26 |
| Skill Builder 4 | Maintenance Matters <ul style="list-style-type: none"> • Care for a garden • Record changes in garden plants • Describe sustainable maintenance practices | • Sustainable Practices | 32 |
| | | • A Gardening Record | 32 |
| | | • Germination Rate | 32 |
| | | • Experimental Gardening | 33 |
| Skill Builder 5 | The Power of Pests <ul style="list-style-type: none"> • Describe good & bad influences on the garden • Identify various pests • Respond to pests to protect the garden | • Good vs. Bad Bug | 36 |
| | | • A Gardening Record | 37 |
| | | • Fight Back | 37 |
| | | • Garden Inspection | 38 |
| Skill Builder 6 | Harvest Time <ul style="list-style-type: none"> • Collect produce as it ripens • Use fresh produce in a meal • Explain how local food can feed a community | • Taste Test | 43 |
| | | • A Gardening Record | 43 |
| | | • Visit a Farmers' Market | 43 |
| | | • 100 Mile Meal | 44 |
| | | • Too Much Food | 44 |
| | | • Exhibiting | 45 |
| When you successfully complete your builders, you will showcase what you have learned. | | | |
| Showcase & Portfolio | • Explain success in using the skills listed above | • Showcase Challenge | 48 |
| | | • My Portfolio | 50 |

Showcase Challenge and My Portfolio Page

At the end of the members' section are the "Showcase Challenge" and "My Portfolio Page". The Showcase Challenge page encourages members to think about their accomplishments and explain or demonstrate how they were successful. There is information to help them decide how they will best "showcase" their learning to family and friends.



Record keeping is an important part of every 4-H project. "My Portfolio Page" is used to keep track of members' 4-H experiences. As each member learns skills they are recorded on the Portfolio Page. When the Portfolio Page has been completed and confirmed by the leader, then it becomes a record of the member's completion of the project and participation in other 4-H activities beyond the project.

4-H leader assessment of members will occur throughout the project as you observe the progress and learning of each member. Record what you see and hear. Your feedback should be positive and specific (not just "well done"). Share feedback with members often so they can act on your suggestions. How you choose to observe and record is up to you. Remember that members may improve over the project year and that records should be updated to reflect when they showed their best learning. You are discussing how well members are meeting the skills checklists that are at the beginning of each of the project books, in each Builder and on the Portfolio Page.

Projects promote technical, communication, meeting management, and leadership skills, as well as community involvement and real-world experiences. In addition to the specific skills members are to learn in each Builder, these learning goals for members are important: Following instructions - Working with others - Using supplies safely - Using the key words - Improving with practice - Respecting timelines.

4-H Project Series Skill Development Levels

Each project topic series contains three levels of skill development: explore, discover, and master.

Explore - each project series has one manual outlining the basics. All members will be expected to complete the Explore level before moving into the Discover level. It introduces the basic skills and terms needed by members for other projects in that series.

Discover - each project series has several project options and members are encouraged to take as many as they would like. At this level, members practice specific techniques and gain related skills.

Master - project options encourage members to specialize. The Leader's role is to look for opportunities for their members to have more in depth experiences.

4-H LEADER TIPS FOR SUCCESS!

DISCOVER

- ◆ Pages 2 and 3 in each leader guide summarize what the member must do to complete the project.
- ◆ Depending on time available, group size, and member abilities, you may wish to break the Skill Builders into more than one project meeting.
- ◆ The internet has many interesting websites and educational activities. We do not endorse any website or any products they may sell. Information/products will be used at your own discretion.
- ◆ Safety is a number one priority. Care has been taken to create safe, age appropriate activities throughout this manual. As leaders, it is important for you to emphasize safety rules and adapt activities to safely match your members' abilities. Ensure members have a good understanding of safe practices when using tools, that they use the right safety equipment when necessary, and that good supervision is provided. A quality experience needs to be a safe experience.
- ◆ The multiple intelligences theory teaches us that people learn in at least 8 different ways. All individuals will be stronger in some ways of "intelligences" and weaker in others. It follows that the more ways we teach, the more members we will reach. Throughout this project, you will find a mix of teaching and learning methods. Teaching projects using a broad blend will help increase the learning potential of all members.
- ◆ Projects are designed to teach many skills, but the 4-H member is always more important than the subject matter. Stress cooperation in the activities to develop teamwork and cooperation skills. These are valuable life skills. Ensure the work is completed in a manner that members feel good about themselves and their efforts. This can be done by assigning tasks based on member's individual abilities. Modelling and expecting supportive behaviour (i.e. no "put-downs") in the group also contributes to a positive experience.
- ◆ There will be opportunity for experimentation and applying skills that members have learned throughout this project. Experimenting can be frustrating, but learning through trial and error is an important life skill. Explain to members that it is alright to either go on to the next Builder or do the Builder again if they need the practice. Help the members work through their challenges until they are satisfied with the final results. Creating inventive 4-H members will be very rewarding.
- ◆ Celebrating success is an important but sometimes overlooked part of our lives. We encourage you to use the final section to empower the members by celebrating all they have learned in a fun manner. Anything that you do to add to the spirit of fun and the sense of accomplishment of each member will likely be remembered as the highlight of their 4-H year.

Have fun and thanks for your belief in young people!



This guide, included in the Basic Gardening Manual for Northern Manitoba (Manitoba Agriculture 2007), will be useful from the planning stage to the harvest stage. This table is included on page 3 of the Member Manual.

PLANTING GUIDE FOR THE HOME VEGETABLE GARDEN

| Kinds | Distance between Rows, Feet | Distance within rows, inches | Amount of seed, or # of plants per 50-foot row | Depth to cover, inches | Days to Emergence (good temp & moisture) | Number of days to seeding to harvest | Approximate yield per 50-foot row | How to use or store |
|---------------------------------------|-----------------------------|------------------------------|--|-----------------------------------|--|--------------------------------------|-----------------------------------|---|
| Bean (bush) (pole) | 2 2 | 2-3 8-12 | 4 oz. 4 oz. | 1 1/2 - 2 1 1/2 - 2 | 7-10 | 52-70 65-70 | 30-50 qt. | Fresh, fresh frozen, canned, pickled |
| Beet | 11/2 | 1-3 | 1/2 oz. | 1/2 | 4-10 | 55-70 | 250 roots | Fresh, pickled, canned, cool cellar |
| Broccoli Early Late | 21/2 21/2 | 18 18 | 1 packet 1 packet. | transplants 1/2 | 4-10 | 60-80 | 30-40 qt. | Fresh, fresh frozen |
| Cabbage Early Late | 21/2 | 18 | 1 packet. | transplants 1/2 | 4-10 | 60-80 100-105 | 30 heads | Fresh, raw Fresh, raw, kraut, or storage |
| Carrot | 11/2-2 | 1-2 | 1/4 oz. | 1/2 | 6-18 | 60-75 | 30-75 lb. | Fresh, raw, canned, cool cellar |
| Cauliflower | 21/2 | 18 | 1 packet. | transplants | 5-10 | 60-80 | 30 heads | Fresh, fresh frozen |
| Chard, Swiss | 2 | 8-12 | 1/2 oz. | 1/2 | 4-10 | 50-60 | Use all season | Fresh |
| Corn | 21/2-3 | 12-18 | 2 oz. | 1-2 | 5-8 | 60-100 | 45-75 ears | Fresh, fresh frozen, canned |
| Cucumber Slicing Pickling | 4 4 | 12-24 12-24 | 1/8 oz. 1/8 oz. | 1/2-1 1/2-1 | 6-10 | 65-75 60-70 | 100-150 50-150 fruits | Raw, Pickled |
| Lettuce (leaf) (head) | 11/2 11/2 | 6 12 | 1 packet. 1 packet. | 1/4 1/4 | 6-8 | 40-50 50-75 | 100 50 heads | Raw Raw |
| Onion Transplants Seeds or sets | 11/2 11/2 | 3 2-3 | 1 packet of Seed, 1/2 lb sets | transplants Seed 1/2 Sets 1 | 6-10 | 115-135 95 | 50-75 lb. | Raw, fresh, dry dark cool storage |
| Parsnips | 11/2-2 | 2-4 | 1/4 oz. | 1/2 | 14 | 120-150 | 150-300 roots | Store sand, moss, sawdust; or leave in ground over winter |
| Pea | 11/2-3 | 2 | 4 oz. | 11/2-2 | 6-10 | 60-80 | 20-40 qt. pods | Fresh, fresh frozen, canned |
| Potatoes | 2-3 | 12 | 5 lbs cut to 1.5 oz | 4 | 4-11 | As soon as big enough | 60-100 lbs | Fresh, stored |
| Pumpkin | 6-8 | 36-48 | 1 oz. | 1 | 4-10 | 110-130 | 30-50 fruits | Fresh, store dry |
| Radish | 1 | 1 | 1/2 oz. | 1/4 | 4-10 | 25-35 | 30-100 bunches | Fresh |
| Rutabaga | 2 | 6 | 1/2 oz. | 1/4 | 4-10 | 110-130 | 100 lb. | Fresh, stored |
| Spinach | 11/2 | 4-6 | 1/2 oz. | 1/2 | 5-12 | 40-45 | 1-2 bu. | Fresh, fresh frozen |
| Squash | 6-8 | 36-48 | 1 oz. | 1 | 4-6 | 90-115 | 100 fruits | Fresh, store dry |
| Tomato Staked Not Staked | 2 3 | 18-24 36 | 25-33 plants 17 plants | transplants | 6-12 | 100-130 | 150-300 | Fresh, canned |
| Turnip | 11/2-2 | 3-4 | 1/2 oz. | 1/4 | 3-8 | 50-70 | 150 roots | Fresh |

Skill Builder 1: Plants Galore



Skills Checklist

- Explain the purpose of a greenhouse
- Understand the similarities & differences between annuals & perennials
- Identify the main parts of the plant

Dream it!

Background for Leaders

This Skill Builder can be completed at any time during the completion of the Discovering Gardening project. For example, if members are beginning this project in the Fall or Winter months, they can visit the greenhouse and begin caring for their first plants indoors while planning their outdoor garden before the snow melts. This Skill Builder can also be completed in mid-summer when the garden is growing nicely. Check the operating schedule of local greenhouses.

Members will benefit from visiting a greenhouse prior to planting their own garden. They will become familiar with the variety of plants that can be grown locally and they will develop a stronger understanding of the care that is required. Members may also choose to return to the greenhouse multiple times throughout the year to observe the seasonal activities and changes. Some greenhouses are operational year-round as they produce seasonal plants such as poinsettias in December, Easter lilies in early spring, and a variety of bedding plants for planting in May and June.

Greenhouses grow a variety of vegetation. Annuals are plants that grow completely in a single growing season. This means that they will produce flowers and die in the same season as they are planted. Zinnias, impatiens, pansies, and sunflowers are some examples of annuals. Many vegetable garden plants are also annuals (beans, tomatoes, peppers, etc.). Perennial plants continue growing and bloom each year. These plants can live in a garden for many years. Perennial flowers include Asters, Lavender, Hollyhocks, and Stonecrops. Asparagus, Rhubarb, Strawberries, and Raspberries are also perennial. Succulents are plants with thick, fleshy parts to retain water in dry climates. Succulents can form very unique structures. Cacti are one example of succulents.

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|------------|---|
| Greenhouse | A glass or plastic covered building used to grow plants while protecting them from cold weather. |
| Annual | A plant that completes an entire cycle (from germination to production of seed to dying) in one year. |
| Perennial | A plant that lives for more than two years. |
| Succulent | A plant with thick, fleshy parts to enhance drought-resistant capability. |
| Herb | Any plant with leaves, seeds, or flowers that is used for food, flavouring, medicine, or perfume. |

Age Considerations

- 12 +

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.



DISCOVER

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- Can plants grow during the winter?
- What plants have you grown in the past?
- What garden produce do you enjoy eating?

Visit a Greenhouse

Time Required: 1 hour

Supplies:

- Pencil
- Transportation to a Greenhouse

Directions:

Locate a local greenhouse and arrange an appropriate time for a tour. Discuss the purpose of a greenhouse.

- Greenhouses grow plants under very controlled conditions. Wind, heat, moisture, and pests are all controlled.
- Greenhouses are able to trap heat from sunlight, creating warm conditions even in very cold winters.
- Greenhouses give plants an early start. They can have plants in full bloom in early May.

Encourage members to prepare questions in advance. Members should try to learn about the following aspects of greenhouse operation and plants:

- Planting Process
- Business Operation
- New Plants
- The Local Growing Zone and Season
- Plant Parts & Growth
- Annuals & Perennials
- Plant Propagation Methods
- Pest Management
- Indoor Growing Challenges

Members will record three things that they learned during their visit to the greenhouse.

Complete the Do It! Section of this Skill Builder at the greenhouse, too!

Do it!

What Do You Like?

Time Required: 15 minutes

Supplies:

- Pencil



DISCOVER

Directions:

Members will be surrounded by a variety of plant options while at the greenhouse. Encourage them to think about these questions relating to their opinions of gardening.

- Why do you plant a garden?
- What veggies do you like?
- What veggies don't you like?
- What new plants would you like to try to grow?

Members will refer to this list as they plan their garden.

Annuals & Perennials

Time Required: 15 minutes

Supplies:

- Annual Plant
- Perennial Plant
- Pencil

Directions:

Complete this activity while at the greenhouse. A greenhouse worker will be able to explain some similarities and differences between annuals and perennials. Place the plants side by side to see if there are any visible differences between the plants. Here are some potential points members might include:

| Annuals | Both | Perennials |
|---|--|--|
| <ul style="list-style-type: none">• Complete life cycle in one season• Flower for much of the season• Must be replanted | <ul style="list-style-type: none">• Grow throughout the summer• Produce leaves & flowers• Decorative or edible | <ul style="list-style-type: none">• Grow for many years• Short season of bloom• Can be transplanted many times |

Try Something New

Time Required: 30 minutes

Supplies:

- Plant from the Greenhouse
- Gardening Tools

Directions:

Encourage members to select a plant at the greenhouse. Although this project focuses on fruit and vegetable gardening, this is an opportunity for members to select and care for a unique plant of interest. Some suggestions include cacti, herbs, water garden plants, trees, succulents, perennials, and non-flowering plants such as ferns.

Many plants can be started indoors and transplanted when the weather improves. Some of these plants may need to be repotted if they will be raised indoors. Encourage members to take good care of their new plant.

Tips: Cacti and succulents should not be overwatered.
Herbs can be grown indoors or outdoors. Herbs can be dried and preserved for use in winter.

Dig it!

Discuss the following questions with members:

- Why do people enjoy gardening?
- Would you like to operate a greenhouse?
- What would you purchase from a greenhouse on your next visit?

What's next?

Skill Builder 2 focuses on preparation for planting a garden in the spring. There are lots of things that can be done before the snow melts.



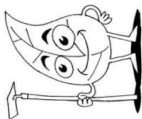
Leader's Notes



Skill Builder 1: Plants Galore

Larry Says...

How many plants could a single person or organization grow? Greenhouses are the perfect place to visit to see thousands of plants under one roof. You might find a new favourite plant at the greenhouse.



DISCOVER

SKILLS CHECKLIST

- Explain the purpose of a greenhouse
- Understand the similarities & differences between annuals & perennials
- Identify the main parts of the plant



Important Words

Watch for these important words throughout this Skill Builder: **Greenhouse, Annual, Perennial, Succulent, Herb**



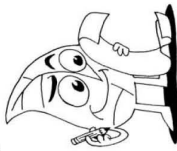
Dream it!

Visit a Greenhouse

Locate a local greenhouse and arrange a time to visit. Owners and operators may have more time for a tour in the off-season. What are the benefits of a greenhouse?

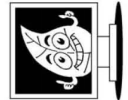
While at the greenhouse, learn about the following:

- Planting Process
- Your Growing Zone & Season
- Business Operation
- New Plants
- Plant Propagation Methods
- Pest Management
- Indoor Growing Challenges
- Annuals & Perennials



Record three things you learned.

Complete the Do it! section of this Skill Builder at the greenhouse, too!



More Leaves...

Take a look inside this greenhouse in Carman, Manitoba <http://www.vanderveensgreenhouses.com/photo-gallery/>. Then, see how vegetable plants are commercially grown for mass production by watching this video: <https://www.youtube.com/watch?v=P9tZHg4ZU3g>

Do it!

What Do You Like?

While you are at the greenhouse, think about what you like to grow by answering these questions. Why do you plant a garden?

What veggies do you like?

What veggies don't you like?

What new plants would you like to try to grow? Look around the greenhouse to see which plants catch your eye!

Annuals & Perennials

Compare annuals and perennials. Place the two plants side by side. What differences can you see? Ask a gardener at the greenhouse to tell you more about the growth of annuals and perennials.

| | | |
|---------|------|------------|
| Annuals | Both | Perennials |
| | | |

Try Something New

At the greenhouse, select a new plant. This project focuses on fruit and vegetable gardening. Take this opportunity to select any plant you wish. You might choose something new or unique such as cacti, herbs, water garden plants, trees, succulents, perennials, or non-flowering plants such as ferns.

What did you select?

Why?



Larry Says...

Many plants can be started indoors and transplanted to an outdoor garden when the weather improves.



Dig it!

Why do people enjoy gardening?

Would you like to operate a greenhouse?

What will you purchase from a greenhouse on a future visit?

What's next?

Skill Builder 2 is all about preparing for planting a garden in the spring. There are lots of things you can do to prepare before the snow melts.

Skill Builder 2: Planning It Out

Skills Checklist

- Prepare to plant a garden
- Select seeds for a garden
- Compare the qualities of soil samples

DISCOVER

Dream it!

Background for Leaders

There are a variety of tasks that can be completed prior to planting the garden. Many gardeners are itching to begin preparations before the snow has melted. Members can begin these activities in the spring, before planting and caring for their garden during the summer.

First, gardeners need to know the hardiness zone that they will be planting in. Canada is divided into zones ranging from 0 to 9. There are also some subdivisions of zones. Zones near 0 are the harshest. These zones will correspond to values stated on seed packages. Relating to the hardiness zone, the growing season is the number of suitable growing days there are on average in a region. This refers to the number of days between the last spring frost and the first fall frost.

Other preparations include mapping out a garden, selecting seeds, gathering tools, making row markers, testing soil quality, and making seed tapes for easier planting. Members may complete all of these activities in advance. Additional notes on these topics are included with the activity descriptions.



This Skill Builder includes a number of activities that can be completed over the winter and spring months. It is not expected that all activities will be completed in a single project meeting.

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|------------------|--|
| Climate | General weather conditions in an area over a long period of time. |
| Zone | (or Hardiness Zone) the geographic area where a specific category of plant is capable of growing. Zones range from 0 (harsh) to 9 with some sub-areas. |
| Growing Season | The period of time in a given year that the climate permits plant growth. In Manitoba, the growing season generally spans from May or June to September. |
| Community Garden | A piece of land that is cared for by a group of people. |
| Acidic | Substances containing a lot of hydrogen atoms, having low pH, and tasting sour. |
| Alkaline | Substances containing very few hydrogen atoms, having a high pH, and tasting bitter. Also referred to as 'basic'. |

Age Considerations

- 12+

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- What can you do to prepare for the outdoor gardening season?
- How does the climate affect gardening in your region?

Do Your Research

1. Discuss the local hardiness zone. Zones range from 0 to 9. Refer to the map on page 11 of the Leader Guide or page 4 of the Member Manual for more information.
2. Ask members to research the average length of the growing season. In Manitoba, growing seasons typically range from approximately May 24 to September 11 or 110 days. Northern regions have shorter growing seasons, while southern regions have longer growing seasons. You can learn more about average last and first frost dates across Manitoba at this link to the Agricultural Climate of Manitoba document: <https://www.gov.mb.ca/agriculture/weather/agricultural-climate-of-mb.html>.

3. Ask members to name tasks relating to gardening that can be completed each month of the year. Here is an example:

| | |
|-----------|--|
| January | Receive seed catalogues, select seeds |
| February | Order seeds |
| March | Plant bedding plants indoors |
| April | Care for bedding plants |
| May | Till garden, prepare for planting, If frost danger has passed, plant garden |
| June | Plant garden, water regularly |
| July | Thin plants if needed, water regularly Check for insects, weed regularly |
| August | Harvest garden Enjoy vegetables |
| September | Harvest garden, store/preserve vegetables Clean waste off garden Till in preparation for spring planting |
| October | Check stored vegetables for spoilage Enjoy stored vegetables |
| November | Check stored vegetables for spoilage Enjoy stored vegetables |
| December | Check stored vegetables for spoilage Enjoy stored vegetables |



Do it!

Seed Selection

Time Required: 30 minutes

Supplies:

- Pre-ordered Seed Catalogue or Online Access to a Seed Catalogue
- Pencil

Directions:

Members will select a variety of plants for their garden. Seed catalogues include information about seed varieties, planting depth, seed spacing, plant spacing, row spacing, days to germination, and days to maturity. Seed catalogues can be accessed at the following websites:

McKenzie Seeds: <http://www.mckenzieseeds.com/>

Lindenberg Seeds: <http://www.lindenbergseeds.ca/>

T & T Seeds: <http://ttseeds.com/PHP/home.php>

Prairie Garden Seeds: <http://prseeds.ca/>

Dominion Seed House: <http://www.dominion-seed-house.com/en/>

Stokes Seeds: <http://www.stokeseeds.com/home.aspx>

Richters Herbs: <https://www.richters.com/>

Encourage members to grow a variety of plants. Include something new or challenging. Members should select plants from at least 5 of the following categories: (There will be some overlap between categories)

DISCOVER

- A plant that is started in early spring & transplanted (tomatoes, peppers, cabbage, broccoli)
- A plant that was purchased as a seedling (tomatoes, peppers, strawberries)
- A perennial vegetable or fruit (rhubarb, asparagus, strawberries, raspberries)
- A plant that grows below ground (carrots, onions, potatoes, beets, onions, turnips, parsnips)
- A leafy vegetable (Swiss chard, lettuce, spinach)
- A squash (zucchini, patty pan, butternut squash, acorn squash, pumpkin)
- A vine (cucumber, watermelon, peas, pole beans, tomato)
- A vegetable that is a flower (broccoli, cauliflower)
- An herb (basil, chives, cilantro, dill, mint, oregano, parsley, rosemary)
*herbs can also be grown in containers
- A fruit (even if you didn't know it was a fruit) (cucumber, tomato, squash, pepper, pumpkin, watermelon, zucchini, berries)
*a fruit is formed in the flower and contains the seeds of a plant
- A legume (beans, peas)

Garden Map

Time Required: 30 minutes

Supplies:

- Pencil
- Measuring Tape
- Ruler
- Seed Catalogue with seed and row spacing information

Directions:

Members will plan the layout of their garden. Measure the garden and make sure there is enough room for their plans as each vegetable needs enough growing space. Members should include a copy of their plan in their Member Manual. Provide these tips as members plan their garden:

- Cucumbers, squash, and melons often grow out for many meters in all directions.
- Corn, asparagus, and pole beans grow tall. Plant them where they won't shade other plants. The north side of the garden is best.
- Run rows across a slope to prevent water runoff and soil erosion.
- Fast maturing crops, such as lettuce and spinach, can be planted at intervals throughout the summer.
- Plant perennial vegetables along the edge. This arrangement makes it easier to till in the spring and fall.
- Rotate your layout so crops are not in the same part of the garden year after year. This is especially important for cabbages, turnips, and potatoes.
- Learn about companion gardening or plant association. Some plants benefit from growing near other plants, while some plants are discouraged by their neighbouring plants. Learn more at <http://www.vegetablegardeninglife.com/companion-planting-charts.html>
- An example of a garden layout is included on the following page.

Example Garden Layout

N

| | | | |
|---|--------------------------------------|--------------------------------------|---|
| Tall Plants i.e. Corn, Staked Tomatoes, Pole Beans, Potatoes | | | |
| Tall Plants i.e. Corn, Staked Tomatoes, Pole Beans, Potatoes | | | |
| Perennials, Vegetables & Bush Fruits i.e. Asparagus, Rhubarb, Dill, Rasp-berries | Perennials, Vegetables & Bush Fruits | Perennials, Vegetables & Bush Fruits | Main Crop Vegetables i.e. Beans, Onions, Beets, Carrots, etc. |
| | | | Early Vegetables i.e. Lettuce, Radish |
| | | | Vine Crops i.e. Peas, Cucumbers, etc. |
| | | | Early Vegetables i.e. Lettuce, Radish |
| | | | Main Crop Vegetables i.e. Beans, Onions, Beets, Carrots, etc. |
| | | | Strawberries |



Tools of the Trade

Time Required: 30 minutes

Supplies:

- Gardening Tools
- Pencil
- Calculator

Directions:

People have been gardening for many years. Gardening doesn't need to require a number of fancy tools. A rake, a hoe, a watering can, seeds or plants, and patience are all that are necessary to grow a great garden.

1. Members should take an inventory of the supplies they already own.
2. Members will make a list of tools and supplies they will need to purchase. Encourage members to look for tools at yard sales in the spring. Make sure the tools are good quality and will last.
3. Ask members to keep a record of the expenses they encounter as they purchase tools, seeds, and plants for their gardening project. The recordkeeping process may be ongoing.



Row Markers

This activity can be as simple as gathering rocks, sticks, or other items to mark the rows of the garden. Members can choose to add a creative touch to the garden with paint and a few wooden materials.

Time Required: 30 minutes

Supplies:

- Wooden Paint Sticks or Wooden Spoons
- Bright Coloured Acrylic Paint
- Acrylic Sealer
- Black Permanent Marker

Directions:

1. Paint one side of the paint sticks or spoons. Leave the bottoms unfinished. Let dry.
2. Turn and paint the other side of the paint sticks or spoons. Let dry.
3. If necessary, add a second coat of paint.
4. Carefully write the names of herbs, fruits, vegetables, and flowers with marker on each stick.
5. Coat each stick with a layer of acrylic sealer.
6. Use your new sticks to mark the rows of vegetables as they are planted in the spring.

Soil Quality Tests

Time Required: 30 minutes

Supplies:

- Garden Soil Samples (take samples from different areas of the garden, approximately 2 cups or 500 mL from each location)
- Water
- Vinegar
- Baking Soda
- Cups or Plates

Directions:

This is a two part activity. First, members will test the texture of the soil to determine the soil type. Then, members will perform a test to see whether their soil is acidic or alkaline. Notes on the meanings of each result are included following the directions.

Part 1: Soil Types

1. Take a sample of soil approximately equal to a tablespoon or 15 mL and place it in your hand.
2. Drip water onto the soil.
3. Squeeze and roll the soil until it just starts to stick in your hand.
4. Try shaping it into a ball or thread.
5. Use the diagrams and descriptions on the following page to identify the soil type.

Soil Types



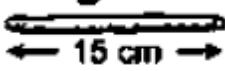
Sand: soil is loose, single grained, can be heaped but not formed



Sand Loam: can be shaped into a ball that easily falls apart.



Silt Loam: Can be rolled into a short, thick cylinder.



Loam: about equal sand, silt, and clay. Can be rolled into a thick thread that breaks when bent.



Clay Loam: soil can be rolled into a thick thread and can also be bent carefully into a U shape without breaking.



Light Clay: soil feels smooth and can be bent into a circle with some cracks.



Clay: like plasticine, can be bent into a circle without cracks.

The best soil for gardening is loam.

Discuss some ways that members can improve their soil quality based on the texture.

If soil is sandy, add more organic material.

If soil is clay based, add some sand.

All soil types will benefit from compost or fertilizer for additional nutrients.

Gardeners also purchase and add soil mix to rows for planting.

Part 2: Soil Acidity or Alkalinity

1. Take a small sample (approximately 1 cup or 250 mL).
2. In a separate container, mix 1/2 cup or 120 mL of baking soda and 1/2 cup or 120 mL of water.
3. Add the soda water mixture to the soil. If the soil bubbles or fizzes, the soil is acidic.
4. In a separate container, take another sample (approximately 1 cup or 250 mL).
5. Slowly add 1/2 cup (120 mL) of vinegar. If the soil bubbles or fizzes, the soil is alkaline.
6. Record whether the soil is acidic or alkaline.

Some plants grow better in slightly acidic soil, while others prefer alkaline soils. Potatoes, blueberries, strawberries, and tomatoes grow well in slightly acidic soil. Broccoli, cauliflower, cabbage, and asparagus grow well in alkaline soils. Soil that is less acidic (more alkaline) will produce sweeter tomatoes.

Soil acidity can be adjusted. Add wood ash or lime to acidic soil. Add sulfur or pine needles to basic soil. These practices help neutralize the soil.



Seed Tapes

Time Required: 30 + minutes (depending on the number of seed tapes prepared)

DISCOVER

Supplies:

- Newspaper
- Scissors
- Seeds (and packages or planting information, works well with lettuce, spinach, carrots, and parsnips)
- Permanent Markers
- Flour
- Water

Directions:

1. The seed package will include information on planting. Determine how far apart the seeds should be planted. Make sure this is the distance for **after** thinning. Also take note of how deep these seeds should be planted.
2. Create a paste using 5 parts flour to 1 part water. You will only need to use about 15 mL of flour.
3. Cut newspaper into 5 cm wide strips. Along each strip, measure and mark dots for the placement of each seed based on the spacing determined above.
4. Place a small drop of paste at each dot. Place one seed in each drop of paste.
5. Let dry overnight.
6. Roll up and secure with an elastic. Label each roll.
7. Store seed tapes in a dry, cool place until planting.

When members are ready to plant these seeds they can lay the seed tape across the ground in a straight line. Then, place soil on top of the tape until it reaches the depth stated on the seed package. Water regularly so the soil stays moist.



<http://premeditatedleftovers.com/gardening/how-to-make-seed-tape-with-newspaper/>

Dig it!

Ask members to reflect on their gardening preparations by answering these questions:

- Why did you select these seeds?
- Do you think your gardening project will be expensive or profitable?
- Did you make any improvements to your soil?

What's next?

Members will complete Skill Builder 3 when the weather has improved. Wait until the risk of frost has passed before planting the garden. Members may choose to begin planting and caring for some vegetables indoors and transplant them to their outdoor garden when conditions improve.



Leader's Notes

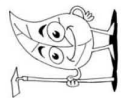


In the Member Manual

Skill Builder 2: Plan It Out

Larry Says...

Think about the weather patterns in your community. Some fruits and vegetables will grow well in your climate, while others will be unsuccessful. The climate plays a huge part in the decisions of a gardener. There are a lot of activities in this Skill Builder; spread them out over multiple project meetings.



DISCOVER

SKILLS CHECKLIST

- Prepare to plant a garden
- Select seeds for a garden
- Compare the qualities of soil samples



Important Words

Watch for these important words throughout this Skill Builder:
Climate, Zone, Growing Season, Community Garden, Acidic, Alkaline



Dream it!

Do Your Research

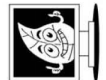
What zone will you be growing in?

What is the average length of the growing season in your area?

Name a task related to outdoor gardening for each month of the year.

| |
|-----------|
| January |
| February |
| March |
| April |
| May |
| June |
| July |
| August |
| September |
| October |
| November |
| December |

More Leaves...



These maps show information about the climate and growing season in Manitoba. Learn more about your region at <https://www.gov.mb.ca/agriculture/weather/agricultural-climate-of-mb.html#summary-of-all-maps>

Do it!

Seed Selection

What would you like to plant in your garden? Think about the favourite vegetables you listed in the What Do You Like? activity in Skill Builder 1. Look in a seed catalogue to select veggies. Try to plant a variety of plants. Select plants from at least 5 of the categories below.

DISCOVER

Larry Says...

Plant veggies that you and your family like to eat. Don't let your efforts go to waste.



- A plant that is started in early spring & transplanted
- A plant that was purchased as a seedling
- A perennial vegetable
- A plant that grows below ground
- A leafy vegetable
- A squash
- A vine
- A vegetable that is a flower
- An herb
- A fruit (even if you didn't know it was a fruit)
- A legume

Larry Says...

Finalize your seed selections and order the seeds. You can also purchase seeds at local stores in the spring.

Garden Map

Plan and draw a map of your garden. You will need to know how big your garden is. Refer to the seed catalogue for information on seed spacing and row width. You might need to revise your seed selection as you begin mapping. Include a copy of your map in the space below.

Larry Says...

You can also plan to use containers or a community garden if one is available.



More Leaves...

Learn more about companion gardening at <http://www.vegetablegardeninglife.com/companion-planting-charts.html>

In the Member Manual

Tools of the Trade

Think about the tools and supplies, including seeds, you will require for gardening. Organize and list the items you already have. Identify the items you will need to buy. As you purchase new items, keep a record of their costs in the chart below.

Tools & Supplies I Have:

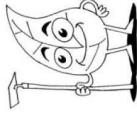
Tools & Supplies I Need:

| Date | Description | Cost |
|--------------|-------------|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| TOTAL | | |

DISCOVER

Larry Says...

Look for gardening tools at yard sales in the spring.

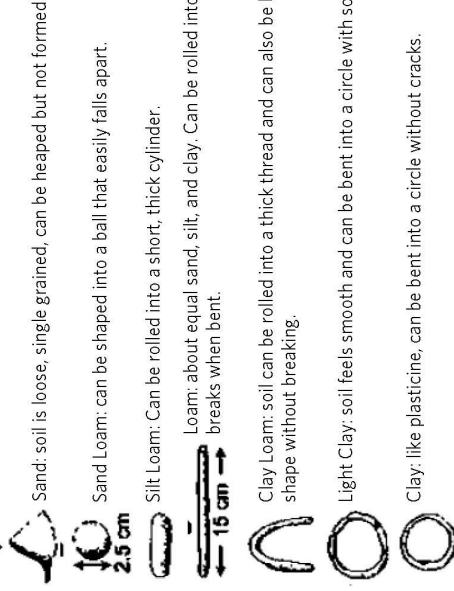


Soil Quality Tests

Soil is an important factor in gardening. Good soil includes a mixture of minerals, organic material, water, air, and living plants and microorganisms.

To determine your soil type, drip water onto a small amount of soil in your hand. Squeeze and roll the soil until it starts to stick to your hand. The extent to which it can be shaped gives a rough idea of the soil type. Compare your soil sample to the diagrams below. Which soil type do you have?

DISCOVER



How can you improve your soil for planting?

You can also complete a soil test to determine whether your soil is acidic or alkaline. This characteristic of soil is important in selecting what you will grow and where you will grow it. You should take samples from different areas of the garden.

Soil is Acidic if: Soil + Baking Soda --> Bubbles

Soil is Alkaline if: Soil + Vinegar --> Bubbles

What did you find out?

Acidic

Alkaline

Larry Says...

You can add compost (coffee grounds, tea bags, egg shells, orange peels, dried leaves, and potato tops) to your soil for additional nutrients.



Larry Says...

Berries, tomatoes, and potatoes grow best in slightly acidic soil. Broccoli, cauliflower, cabbage, and asparagus grow best in slightly alkaline soil.



Row Markers

You will want to label your rows or sections of plants so you remember where you have planted each vegetable. Row markers can be as simple as sticks, rocks, or other items around the yard. You can also use row markers for a decorative touch. Locate materials that can be used as row markers or create your own using paint sticks or wooden spoons and bright paint.



<http://twigandtoasttool.blogspot.ca/2012/05/wooden-spoon-garden-stakes.html>



<http://www.livingwellspendingless.com/2014/03/31/diy-rainbow-garden-markers/>

In the Member Manual

DISCOVER

Seed Tapes

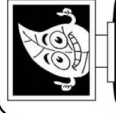
If you are going to plant some of your vegetables in rows, you can prepare seed tapes to speed up the planting process. Seed tapes are especially useful when you will be planting tiny seeds like lettuce, spinach, radishes, carrots, or parsnips. Using seed tapes will reduce the amount of wasted seed and you won't need to thin these veggies later.

- Gather some newspaper, scissors, markers, flour and water, and your seeds before getting started.
- Your seed package will include information on planting. Determine how far apart your seeds should be planted. Make sure this is the distance for **after** thinning. Also take note of how deep these seeds should be planted.
- Create a paste using 5 parts flour to 1 part water. You will only need to use about 15 mL of flour.
- Cut newspaper into 5 cm strips. Along each strip, measure and mark dots for the placement of each seed based on the spacing.
- Place a small drop of paste at each dot. Place one seed in each drop of paste.
- Let dry overnight.
- Roll up and secure with an elastic. Label each roll.
- Store seed tapes in a dry, cool place until planting.

When you are ready to plant, lay the seed tape across the ground in a straight line. Place soil on top of the tape to the depth indicated on the seed package. Keep the soil and the seed tape moist.



<http://premeditatedleftovers.com/gardening/how-to-make-seed-tape-with-newspaper/>



More Leaves...

Learn more about gardening from this resource: Basic Gardening Manual for Northern Manitoba: <http://www.gov.mb.ca/ana/pdf/pubs/mafri-gmmn.pdf>. Much of its information is relevant to gardening across Manitoba.



Dig it!

Why did you select these seeds?

Do you think your gardening project will be expensive or profitable?

Did you make any improvements to your soil?

What's next?

You will begin planting your garden in Skill Builder 3. Wait until the risk of frost has passed before planting outdoors. You might have some plants you can start indoors in early spring.

Skill Builder 3: Plant, Plant, Plant

Skills Checklist

- Plant & transplant plants
- Explain the process of planting seeds
- Prepare an experiment



Dream it!

Background for Leaders

Wait until outdoor conditions are suitable for plant growth to plant an outdoor garden. In Manitoba, planting outdoors can begin near mid to late May. There are many factors that affect the timing of planting. The soil needs to contain enough moisture and be warm enough for plant development. If seeds are planted in dry soil, they won't germinate. If the soil is too wet, the seeds might rot before they are able to grow. Watch the forecast for rain and frost to identify a good planting time. Plant when nature is ready. Also, remind members to till their garden again in the spring to loosen the soil so the roots have space to grow.

Due to a relatively short growing season in Manitoba, many vegetables can be started indoors in the spring. Plants, such as tomatoes, peppers, cabbage, cauliflower, broccoli, melons, and cucumbers, can be planted in containers and started in a sunny indoor window where the temperature is controlled. These plants can gain 4-6 weeks of growth over waiting for outdoor conditions to improve. When the weather outside is warm enough, it is time to transplant. For a few days leading up to the time of transplant, gardeners will harden off their plants by placing them outdoors to get them used to the unsheltered environment. When transplanting, do so on an overcast day or in the early morning. Make a hole at least double the width of the container and equal to the current depth. Tomatoes can be planted deeper than their current depth to encourage good root development. Plant into good, loose soil and avoid damaging the roots. Water these plants well until they become established and develop new growth. These seedlings can also be purchased at garden centres in the spring and transplanted into a home garden.

When it is time to plant seeds, create a straight line using two stakes and a string. Use a hoe or stick (depending on the size of the seeds) to make a furrow to the depth stated on the seed package. Sow the seeds and cover with soil to the appropriate depth. Members can also use the seed tapes they created in Skill Builder 2. Pack the soil. Plant one row at a time to retain as much moisture as possible. Leave space between rows so there is room to weed. If small seeds are sown thicker than stated on the package they can be thinned after they start to grow. Place labels or markers from Skill Builder 2 at the end of each row. Water often to keep the soil continuously moist, but not soggy.

Potatoes require a unique planting process. Work the soil well before planting potatoes. Cut seed potatoes into block-shaped pieces with at least one good eye per seed piece. Allow cut edges to dry overnight before planting. Plant seed potatoes about 30 cm apart in the row. Leave approximately 80 cm between rows. Don't plant potatoes in the same location year after year as diseases will build up in the soil. Once the potatoes begin growing, they will need to be hilled. Hilling is a gradual process of adding soil up into a hill around the potato plant. This is important as potatoes must not be exposed to light or they will turn green and bitter. Soil can be added repeatedly throughout the summer to build the hill.

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|------------|---|
| Moisture | The amount of water available in soil or air making it wet or moist. Plants require moisture to grow. |
| Forecast | A prediction of the weather in the coming days based on various models and calculations. |
| Till | The process of preparing and cultivating land for planting. |
| Transplant | To remove a plant from the ground or a pot and move it to another place. |
| Experiment | A scientific procedure to make a discovery, test a hypothesis, or study a known fact. |

Age Considerations

- 12 +

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.
- Members will need to count the number of seeds they plant in a single row of their garden in the Planting Time activity in this Skill Builder. Record this information. Refer to it when members are completing the Germination Rate activity in Skill Builder 4.

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- When will it be time to plant the garden? How will you know?
- What factors will impact the success of your garden?
- How can you design an experiment in your garden?

Ask members to think about when they will begin outdoor gardening by thinking about these ideas and tasks and by responding to the following.

- As the snow melts and the temperatures begin to warm up, recognize the changes in your garden. Is it moist?
- When it is dry enough, till the garden to loosen the soil before planting.
- Look at the forecast, when do you think the best date to plant your garden will be?

Do it!

An Early Start

Time Required: 45 minutes

Supplies:

- Seeds
- Soil (good quality mix)
- Planter or plastic container with drainage holes
- Water

Directions:

Members can begin growing plants indoors in mid April so that the plants have an early start and can be planted out when the weather improves.

1. Select a plant that benefits from an early start such as tomatoes, peppers, cabbage, cauliflower, broccoli, melons, or cucumbers.
2. Prepare a planter or plastic container with drainage holes. You can make your own drainage holes with a hammer and nail as a punch. Place small rocks over the drainage holes and fill with good quality soil.
3. Create a small hole and plant the seeds to the depth stated in the instructions.
4. Water the plant regularly and place it in a warm, sunny window.
5. When the weather improves and the outdoor garden has begun growing, members can transplant their seedling.

When transplanting, place the plant outdoors so it can adjust to the conditions. This is called hardening off. Carefully transfer the plant from the container to a hole in the ground of a suitable size. Water regularly until the plant becomes established in its new home and new growth is visible.

If time does not permit, members may also purchase a seedling from a greenhouse in the spring. This seedling can be transplanted from its container into the ground when the weather is nice.

Members should include a series of three drawings representing the growth of their seedling.

A Gardening Record

Time Required: 10 minutes + ongoing

Supplies:

- Pen or pencil
- Notebook

Directions:

Members will continue adding to this gardening record throughout the growing season.

Members should keep a record of growth and changes in their garden. Consider reporting germination, plant growth rates, rainfall and significant weather, weeds, pests, and anything else of interest. The gardening record will begin when seeds or seedlings are planted indoors. A sample gardening record is included on the following page.



| Date | Plant | Other Notes |
|--------|---------|---|
| May 20 | Peas | Planted peas, soil was moist |
| May 20 | Lettuce | Planted lettuce, soil was moist |
| May 28 | Peas | First signs of germination visible |
| June 3 | Lettuce | Planted a second (late) row |
| June 5 | | Heavy rain, 45 mm and some pea-sized hail |

Experimental Gardening

Time Required: 20 minutes planning + observation time

Supplies:

- Pencil

Directions:

Members will plan an experiment within their garden. There are many 'old wives tales' that are not always proven. Some ideas for experimentation include:

- Thinning vegetables (vs. not thinning)
- Planting at different times (ex. In dry conditions vs. after a rain)
- Tomato cages/stakes (for support)
- Shelters for pumpkins (from hot sunlight and wind)
- Place a board over the row of carrots (this holds the moisture) until they are visibly pushing above ground
- Place grass around bases of tomatoes (this method is supposed to prevent diseases)
- Plant marigolds near tomatoes (to keep aphids away)
- Under watering (drier soils can encourage deep root development)
- Grow peas along a fence or around cages

An experiment is a scientific procedure to make a discovery or to study a well-known fact.

Members will identify a topic of interest to study. When designing an experiment, members will need a control group and an experimental group. The 'control' plants will be grown as normally as possible, while the experimental group will receive some special treatment.

In their Member Manual, members should record how they will be experimenting, what their prediction is, and how they will be able to prove whether they are correct.

Planting Time

Time Required: 1-2 hours

Supplies:

- Hoe
- Seeds
- Watering Can
- 2 Wooden Stakes
- String
- Pencil
- Row Markers

Directions:

1. Gather the gardening supplies.
2. Tie a length of string between two wooden stakes. Make sure the string is long enough to stretch across the garden.
3. Stretch the string across the garden in a straight line. Using a hoe, create a furrow or trench along the string to the depth stated on the seed packet.
4. Plant the seeds with even spacing as stated on the seed packet.
5. Close the trenches with a layer of soil and pack firmly. Work on one row at a time to maintain the soil moisture.
6. Place labeled row markers at the end of each row. As you are planting, keep a record of the date and variety you have planted. A chart is included in the Member Manual.
7. Water often, keeping the soil moist, but not soggy.
8. Watch for germination. It can take an average of 4-12 days for plants to emerge depending on the seeds and the soil conditions.



Refer to the Background for Leaders section for more information on planting potatoes.

As members are planting a row of larger seeds (beans, peas, corn), record the exact number of seeds that are planted. This information will be used to determine a germination rate in the next Skill Builder.

Dig it!

Review the following questions with members:

- Why do you need to till a garden before planting?
- Why is starting plants indoors a good idea in Manitoba?
- What have you noticed in your garden observations so far?

What's next?

Skill Builder 3 focuses on the maintenance of a garden throughout the summer. Members will continue to keep a record of the progress of their garden and differences between plants in their experiment.

Leader's Notes



CANADA
4-H Manitoba

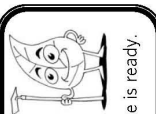
In the Member Manual

Skill Builder 3: Plant, Plant, Plant

DISCOVER

Larry Says...

Our Manitoba growing season is limited. Watch the forecast so you plant your garden at the best possible time. Wait until after the last frost, but make sure your vegetables will have enough time to produce veggies before the first fall frost. Plant when nature is ready.



SKILLS CHECKLIST

- Plant & transplant plants
- Explain the process of planting seeds
- Prepare an experiment



Important Words

Watch for these important words throughout this Skill Builder:
Moisture, Forecast, Till, Transplant, Experiment



Dream it!

As the snow melts and the temperatures warm, recognize the changes in your garden. Is it moist?

When it is dry enough, till your garden to loosen the soil before planting.

Look at the forecast. When do you think the best date to plant your garden will be?

Do it!

An Early Start

Give some of your plants an early start. Plant seeds and draw your plant at three different stages of its growth up to the time of transplanting. Follow your leader's instructions.

DISCOVER

A Gardening Record

In a separate notebook or scribbler, keep a record of your observations of your garden. Take note of germination, plant growth rates, rainfall and significant weather, weeds, pests, and anything else that interests you.

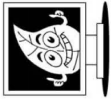


More Leaves...

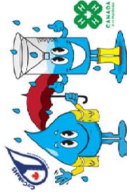
Refer to this guide to compare pictures as your garden grows. **The Basics of Vegetable Gardening in Manitoba.**
<http://www.gov.mb.ca/ana/pdf/pubs/mafri-vp.pdf>



More Leaves...



You can become a CoCoRaHS weather reporter. Join this citizen-science project at <http://www.cocorahs.org/Canada.aspx>. As a 4-H member, receive a rain gauge and report your rainfall totals to CoCoRaHS every morning.



Experimental Gardening

There are many gardening practices that have been tried and tested over the years. Some gardeners swear by a certain practice, while that technique may not work for others. Try something new in your garden with some of your plants. Some of these techniques are applied as soon as the seeds are planted, while others are tested later in the growing season.

Here are some ideas:

- Thinning vegetables
- Planting at different times
- Tomato cages/stakes
- Shelters for pumpkins
- Place a board over the row of carrots (this holds the moisture) until they are visibly pushing above ground
- Place grass around bases of tomatoes
- Plant marigolds near tomatoes (to keep aphids away)
- Under watering (this can encourage deep root development)
- Grow peas along a fence or around cages

Larry Says...

When you are experimenting, you need to be able to prove that your special treatment in the experiment is what caused a different result. Grow one set of plants normally (this is a control group) and one set of experimental plants.

I am going to experiment by _____

I predict _____

I will know this because _____

In the Member Manual

Planting Time

When the temperatures warm up and the risk of frost has passed, it is time to plant your garden. Watch the forecast so you can pick a good day. You might want to plant some crops, like lettuce, in part rows at a time at weekly intervals so you have a long lasting supply. As you are planting, keep a record of the date and the variety you are planting in each row. Follow your leader's instructions.

| Date | Plant | Variety | Other Notes |
|------|-------|---------|-------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |



Larry Says...
As you are planting one row with larger seeds (beans, peas, corn, etc), count and record the number of seeds you sow in that row. You will need this information in Skill Builder 4.

Dig it!



- Why do you need to till a garden before planting?
- Why is starting plants indoors a good idea in Manitoba?
- What have you noticed in your garden observations so far?

What's next?
You will need to spend time caring for your garden throughout the growing season. Keep recording any changes you notice and observe your experiment to see if your prediction is correct.

Skill Builder 4: Maintenance Matters



DISCOVER

Skills Checklist

- Care for a garden
- Record changes in garden plants
- Describe sustainable maintenance practices

Dream it!

Background for Leaders

Maintaining a garden involves watering, thinning, and caring for the soil so it remains healthy. Gardeners are also concerned about pests in their gardens. Pests will be the focus of the next Skill Builder (Skill Builder 5).

Garden vegetables require at least an inch (25 mm) of rain each week. Keeping a record of the rainfall helps determine whether the garden is in need of another soaking rain. Rainwater can be collected from downspouts and used on the garden as it dries. Watering in the morning is best as wet leaves at night are more susceptible to fungus. Vegetables contain a lot of water. Plants need water to produce vegetables. Just think about how much water is needed to grow a watermelon.

As seeds begin germinating, rows will become visible. Some plants will be crowded and will need to be thinned. By thinning, plants that remain will have more space to grow and more access to water. These plants are less likely to be damaged. Beets, radishes, lettuce, and carrots should be thinned when they are about 5 cm high. Thin plants gradually. Sometimes, more than one thinning is required. Pull plants carefully so the roots of neighbouring plants are not disturbed.

Soil health can be improved with the use of fertilizer. Nutrients can be added as a mixture of nitrogen, phosphorus, and potassium in an organic or chemical medium. The addition of compost from food and yard scraps is also beneficial to soil health.

Throughout this Skill Builder, members will continue keeping a record of plant germination and plant growth. Some members may be familiar with some plant growth benchmarks. These expected growth rates have not been proven. For example, some farmers and gardeners believe that corn that is 'knee-high by the 1st of July' will produce a good crop.

Sustainability is a growing focus in agriculture. Sustainability refers to practices that are not harmful to the environment. These methods do not overuse the Earth's natural resources and they keep the Earth in balance. Some sustainable practices relating to gardening include:

- Collecting rain water in a rain barrel for watering
- Reducing the amount of food waste from each household
- Composting food scraps and yard waste
- Using recyclable containers
- Planting flowers to attract bees and other insects
- Getting exercise in the garden instead of driving to the gym

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|----------------|--|
| Sustainability | The quality of not being harmful to the environment or using too many natural resources. It helps keep the Earth in balance. |
| Thinning | The removal of some plants to make room for the growth of others. |
| Fertilizer | A chemical or natural substance added to soil to improve plant growth. |
| Germination | The development of a plant from a seed or spore. |

Age Considerations

- 12 +

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- What do you need to do to care for your garden?
- What does a healthy garden look like?

Ask members to provide 5 reasons why gardening is good for people.

Some of their ideas may include:

- Stress relief
- Improved brain health
- Improved mood
- Breathing fresh air
- Sunshine and Vitamin D strengthen the immune system
- Exercise gets blood flowing and improves flexibility
- Provides a source of fresh, healthy food
- Can be enjoyed at any age



Sustainable Practices

Time Required: 10 minutes

Supplies:

- Pencil

Directions:

Discuss the importance of sustainable practices in farming and gardening. Then, ask members to list some sustainable practices they could use as they are gardening. A list of sustainable practices is included in the Background for Leaders section of this Skill Builder.

Do it!

A Gardening Record (continued)

Time Required: 10 minutes + ongoing

Supplies:

- Pencil
- Gardening Record Notebook (continued)

Directions:

Members should continue recording observations relating to their garden. This Skill Builder focuses on maintenance of a garden. Members should report on rainfall, watering, thinning, and fertilizing.

Germination Rate

Time Required: 15 minutes

Supplies:

- Pencil
- Record of number of seeds planted in a row (from Planting Time activity in Skill Builder 3)
- Calculator

Directions:

1. Members will identify the information stating the number of seeds that were planted in a specific row.
2. Members will count the number of plants that grew in the same row.
3. Members will perform the following calculation to determine the germination rate. This is the percentage of planted seeds that grew.
4. Discuss reasons why seeds did not grow. For example, dry conditions, rotting, attacked by insects, etc.

$$\frac{\text{Number of Seeds that Grew}}{\text{Number of Seeds that were Planted}} \times 100 =$$

For example, if 65 seeds were planted and 41 seeds grew:

$$\frac{41}{65} \times 100 = 63\%$$

A high germination rate means few seeds went to waste.

Experimental Gardening

Time Required: 10 minutes + ongoing

Supplies:

- Pencil
- Experimental Plants
- Notes on the design of the experiment (in Skill Builder 3)



Directions:

Members will need to analyze their plants further. Members should record a report on their experiment explaining what they have discovered. At this point, members may or may not have enough evidence to confirm whether their prediction was correct. Some experiments will need to proceed to the production of fruits or vegetables for visible results.

Dig it!

Discuss the following questions:

- What is the most difficult part of maintaining a garden?
- How could you improve the germination rate?
- How are you gardening sustainably?

What's next?

Skill Builder 5 focuses on pests that can reduce the yield of garden produce. Members will learn about ways to control the impacts of pests on the plants they are caring for.

Leader's Notes

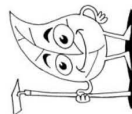


In the Member Manual

Skill Builder 4: Maintenance Matters

Larry Says...

Looking after a garden takes time and plants require patience. Plants have many needs for good growth. Stay safe while working in your garden. Protect yourself from sunburns and mosquitoes.



DISCOVER

SKILLS CHECKLIST

- Describe sustainable maintenance practices
- Care for a garden
- Record changes in garden plants



Important Words

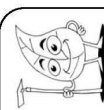
Watch for these important words throughout this Skill Builder:

Sustainability, Thinning, Fertilizer, Germination



Larry Says...

Gardening requires muscle power and it keeps you physically fit.



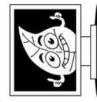
Dream it!

You will be spending a lot of time outdoors while you care for your garden. List 5 reasons why gardening is good for you.

- 1.
- 2.
- 3.
- 4.
- 5.

Sustainable Practices

Sustainable practices are farming and gardening methods that are less harmful to the environment. They don't use too many resources from the Earth and they keep the Earth in balance. Think of some ways that you can be a sustainable gardener.



More Leaves...

Consider these sustainable gardening tips. <http://www.motheearthnews.com/organic-gardening/gardening-techniques/sustainable-gardening-zm0z1tzsto.aspx>

Do it!

A Gardening Record (Continued)

Continue recording your observations in your gardening record book. As you are caring for your garden, record rainfall amounts. Record when you are thinning your vegetables and any fertilizers you apply to your garden.

DISCOVER

Larry Says...

Consider getting a rain barrel to collect the water that runs off of your home. Use this water to keep your garden moist.



Germination Rate

Do you remember the row that you counted the number of seeds that were planted? Refer back to that information. Count the number of plants that are growing in that row. To determine the rate of germination, calculate:

$$\frac{\text{Number of Seeds that Grew}}{\text{Number of Seeds that were Planted}} \times 100 =$$

Experimental Gardening

Provide a report on your experiment in Skill Builder 3. What have you discovered so far?



Dig it!

What is the most difficult part of maintaining a garden?

How could you improve the germination rate?

How are you gardening sustainably?

What's next?

Skill Builder 5 introduces a variety of pests that will affect the productivity of your garden.

Skill Builder 5: The Power of Pests

Skills Checklist

- Describe good & bad influences on the garden
- Identify various pests
- Respond to pests to protect the garden



Dream it!

Background for Leaders

Gardeners cope with a variety of pests throughout the growing season. Pests can include insects and other bugs, weeds, and diseases. Even larger animals can disturb growing plants. A variety of responses are used to counteract the negative effects of these pests.

Insects attack plants by eating leaves or sucking juices from plants. Aphids, army worms, asparagus beetles, potato beetles, cabbage worms, and grasshoppers will chew leaves. Cutworms will completely sever stems of new plants. Corn borers damage ears and stalks of corn by chewing tunnels that can cause the plant to fall over. Root maggots will eat through roots of onions, turnips, and radishes. Insect damage can be reduced with powders or natural insect sprays.

Weeds are additional plants growing in the garden that will not be harvested. Weeds take moisture away from other plants and can contribute to overcrowding. Gardeners remove weeds regularly to improve the health of the environment for their own plants. Common weeds include dandelions, crabgrass, pigweed, thistles, chickweed, and ragweed. Weeds should be pulled before they go to seed to reduce the number of future weeds. Pulling weeds is more environmentally friendly than the use of commercial sprays or pesticides. Some herbicides will also kill garden plants.

Other diseases that affect plants include blights, rots, rusts, wilts, downy mildew, molds, and smuts. These diseases can be reduced by ensuring that leaves do not remain wet for long periods of time. Diseases can be reduced by pruning or by placing grass clippings beneath plants to reduce the amount of soil borne blights that are transferred. Safely dispose of diseased plants; don't apply them as compost in the future.

It is important for young gardeners to remember that there are also good bugs in the garden. These bugs include ladybugs, lacewings, and hoverflies that will eat aphids from leaves. Ground beetles will feed on slugs, cutworms, and maggots. Dragonflies are important insects as they consume mosquitoes and aphids. Honeybees are crucial to pollination. While other insects can participate in pollination, bees play the largest role. Ants help aerate the soil to incorporate more air for plant roots.

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|---------|--|
| Weed | A wild plant growing where it is not wanted and is in competition with other plants. |
| Disease | A disorder that affects the structure or function of the plant. |
| Enemy | Something that is destructive in its effects. |

DISCOVER

Age Considerations

- 12 +

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- What insects have you seen in your garden?
- How will you react if bugs or diseases attack your plants?

Good vs. Bad Bugs

Time Required: 15 minutes

Supplies:

- Pencil

Directions:

Ask members to think about which bugs help the garden and which bugs harm garden plants. Members should circle the insects that are good for the garden.



Aphid



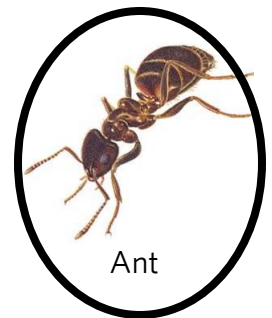
Cutworm



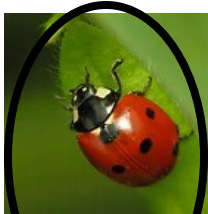
Bee



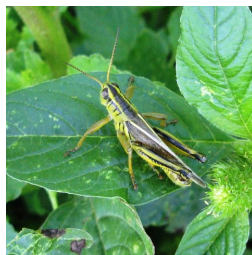
Potato Beetle



Ant



Ladybug



Grasshopper



Armyworms



Dragonfly

Do it!

A Gardening Record (continued)

Time Required: 10 minutes + ongoing

Supplies:

- Pencil
- Gardening Record Notebook (continued)

Directions:

Members should continue recording observations relating to their garden. This Skill Builder focuses on pests in the garden. Encourage members to take notes on the pests (insects, weeds, or diseases) they are encountering in their garden.

Fight Back

Time Required: 30 minutes

Supplies:

- Pencil
- Internet Access or a Book on Garden Insects and Diseases
- Samples of 3 Insects, Weeds, or Diseases

Directions:

1. Locate 3 garden pests.
2. Draw or describe the pest in the Member Manual.
3. Research the 3 pests to identify their names and to learn about how to respond to the pests to minimize damage in the garden.

These websites are helpful in identifying pests:

Weeds: <http://www.weedinfo.ca/>

<http://www.gov.mb.ca/agriculture/crops/weeds/index.html>

Diseases: <http://vegetablemdonline.ppath.cornell.edu/PhotoPages/PhotoGallery.htm>

Insects: http://www.chiff.com/home_life/garden/garden-insect-identification.htm

Example:



Canada Thistle

Response: Remove tops before going to seed. Attempt to remove roots by pulling as roots will continue shooting leaves.

DISCOVER

Garden Inspection

Time Required: 30 minutes



DISCOVER

Supplies:

- Pencil
- Checklist (in Member Manual)
- Visitor (leader, 4-H member, friend, or neighbour)

Directions:

Members should take excellent care of their garden leading up to the inspection.

1. Invite a visitor to the garden.
 2. Provide the visitor with the checklist.
 3. Give a tour of the garden explaining what is being grown, how it will be used, etc.
 4. Explain the experiment. Include the results if they are visible at this time.
 5. Ask the visitor to provide feedback based on the checklist. Encourage the visitor to offer additional comments.
- Planted with care (straight rows with spacing, well thought-out layout)
 - Safe storage of tools
 - Moisture and drainage, water conservation methods
 - Weeds & pests visible
 - Ability to answer questions about the gardening process and observations
 - Able to explain experiment procedure and results (if visible at this time)

Dig it!

Discuss the following questions.

- What good bugs did you observe in your garden?
- How did you respond to pests?
- How could you be more proactive in responding to pests?

Some suggestions include:

- Reduce weeds early, before they go to seed
- Remove entire weeds (including roots)
- Reduce weeds in surrounding areas
- Place wood ashes in soil to prevent root maggots
- Use natural insect sprays in advance
- Put up fences to keep other animals out so they can't dig or snack in the garden
- Choose disease resistant seeds
- Rotate crops
- Place grass clippings beneath plants to reduce splashing of soil that can carry disease & blights

What's next?

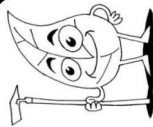
Skill Builder 6 focuses on the harvest of the garden. Members have worked hard to care for their garden throughout the growing season. The tasty fruits and veggies are their reward.

Leader's Notes



CANADA
4-H Manitoba

Skill Builder 5: The Power of Pests



Larry Says...

There are numerous pests and enemies that will attempt to limit the success of your garden. Be prepared to fight back. Approach pest management in an environmentally friendly and sustainable way.

DISCOVER

SKILLS CHECKLIST

- Describe good & bad influences on the garden
- Identify various pests
- Respond to pests to protect the garden



Important Words

Watch for these important words throughout this Skill Builder:
Weed, Disease, Enemy

Dream it!

Good vs. Bad Bugs

Some bugs and diseases will attack the plants in your garden. Weeds will gather moisture and can starve your plants. But, there are some good, helpful bugs in your garden too. Circle the good bugs in the collection below.

Larry Says...

Birds and bats help pollinate flowers, too.



Aphid



Cutworm



Bee



Potato Beetle



Ant



Ladybug



Grasshopper



Armyworm



Dragonfly

Fight Back

Locate three different pests in your garden. Try to find different weeds, insects, and diseases. Provide a description or drawing of each pest. If you don't know what the pest is, do some research to find out. What is it called? How will you respond to it?

| | | |
|--|--|--|
| | | |
|--|--|--|

Garden Inspection

Hopefully you've been taking really good care of your garden. Ask a leader, 4-H member, friend, or neighbour to visit your garden. Your visitor can provide feedback in the following areas:

- Planted with care (straight rows with spacing, well thought-out layout)
- Safe storage of tools
- Moisture and drainage, water conservation methods
- Weeds & pests visible
- Ability to answer questions about the gardening process and observations
- Able to explain experiment procedure and results (if visible at this time)

Comments:



Dig it!

What good bugs did you observe in your garden?

How did you respond to pests?

How could you be more proactive in responding to pests?

What's next?

In Skill Builder 6, you will be rewarded for your efforts. Your hard work and patience will result in delicious fruits and veggies. Eat some now and save some for later!

Do it!

A Gardening Record (continued)

Continue recording your garden observations. As you work through this Skill Builder, take note of any pests (insects, weeds, or diseases) you are encountering in your garden.

Skill Builder 6: Harvest Time

Skills Checklist

- Collect produce as it ripens
- Use fresh produce in a meal
- Explain how local food can feed a community



Dream it!

Background for Leaders

Harvest time is a very exciting time of the year. The efforts of gardeners pay off at this time of year as they enjoy and share the produce from their garden. Harvest season can last for an extended period of time from gathering of the first fresh leaves of lettuce in early July to the digging of the final potatoes in October.

The appropriate time to harvest varies by each plant. Lettuce harvest can be long-lasting if leaves are used before the plant goes to seed. Harvest beans (snap) while the pods are still smooth, before they bulge. Pick tomatoes when they are fully red and soft to the touch. If frost is likely, pick green tomatoes and let them ripen indoors. Harvest new, young potatoes when the tops are starting to blossom by carefully digging at the outer edges of the hills. Later in the summer or fall, harvest the hill and enjoy the larger potatoes. Corn will be ready about 3 weeks after the silks appear. Carrots can be difficult to judge. Try pulling one when you can see the top of the orange carrot and the diameter of the top of the carrot looks large enough. Cucumbers and zucchini produce multiple fruits at once. It can be a race to keep up to them. Pick them when they are small as they swell very quickly if left in the garden. Learn more about when to harvest fruits and vegetables by visiting http://gardening.about.com/od/vegetablepatch/a/HarvestTimes_2.htm.

Farmers' Markets are gatherings of local vendors to sell their products. Many Farmers' Markets run seasonally. Gardeners will sell their vegetables as they are in season. Other vendors often sell baking, woodworking, ethnic foods, jewelry, meats, soaps and lotions, etc. Read more about Manitoba's Local Produce producers at <http://www.gov.mb.ca/agriculture/local-food/local-produce-guide.html>. Community Supported Agriculture programs are another way farmers share their produce with the community. People can buy a share in a garden at the beginning of the season. The farm grows a variety of produce and delivers it each week. The programs typically run for 12 to 18 weeks starting in mid June. Members enjoy a supply of fresh, local produce and farmers have secured sales for the season. Learn more at <http://csamanitoba.org/>.

It is estimated that the food we eat travels 1500 to 2000 miles from farm to table (FoodMattersManitoba). The 100 Mile Meal is a movement to consume locally grown and produced foods. It encourages individuals to eat foods from within a 100 mile (160 km) radius of their homes. It encourages people to experience new foods and to enjoy the taste of locally produced food options. Preservation of foods helps keep meals local as the seasons change.

Sometimes, gardens produce too much food at one time. Some foods can be saved for later, while others are perishable. Garden produce can be donated to local food banks and food cupboards. These donations help improve food security in the community. Many gardeners spend many hours preserving their produce through canning and freezing. Jams, jellies, salsa, relishes, sauces, and pickles are delicious year round.



DISCOVER

Lastly, an interest in gardening can be shared with others through exhibitions. Many local fairs and horticultural shows host exhibits. Gardeners enter and display their fruits and vegetables and often win prize money. Eligible entries vary seasonally from fair to fair. Common entries include berries, apples, herbs, onions, garlic, lettuce, potatoes, turnips, carrots, melons, squash, cabbage, parsnips, tomatoes, beans, peppers, etc. There are also classes for hortisculptures, fruit or vegetable baskets, and prepared platters. Refer to the local fair guide <http://www.gov.mb.ca/agriculture/rural-communities/pubs/mb-fair-guide.pdf> and the Manitoba Horticultural Association's Judging Standards <http://www.mbagsocieties.ca/wp-content/uploads/2015/02/Judging-Standards-Horticulture.pdf> to learn more.

Important Words

Help members define the following words and listen for them using these words in their discussions. To increase the members' understanding, try providing a synonym members know or provide examples. The more personalized the examples, the better.

| | |
|-----------------|--|
| Farmer's Market | A venue where local farmers sell fruits, vegetables, meats, cheeses, and breads directly to consumers. |
| Food Security | Having reliable access to sufficient amounts of affordable, nutritious food. |
| Preserving | The process of preparing and storing food safely for an extended period of time. |
| Exhibit | A public display of work. |

Age Considerations

- 12 +

Thinking Ahead

- What will you discuss with members? Gather observations and think of examples that will help support your decision.

Preparing for Success

- Linking back to the Skills Checklist, help members identify how they will know they have been successful in learning from this Skill Builder. Discuss what success in these activities might look like, sound like, or feel like.

Activating Strategies

To get members thinking about this topic, ask them the following questions:

- When will your garden be ready to harvest?
- How will you know your fruits and vegetables are ready?
- What will you do with all of your produce?

Taste Test

Time Required: 20 minutes

Supplies:

- Pencil
- 2 Fruits or Vegetables (one of each: garden and store-bought) (4 items total)

Think about what is in season in the garden (tomatoes, carrots, berries, beans, peas, lettuce, etc. will all work well)



DISCOVER

Directions:

1. Ask members to record the produce items they chose to compare.
2. Place the two items in front of members. Don't identify which plate is store-bought and which is fresh from the garden.
3. Ask members to carefully taste each item.
4. Members can record their preference and state why they selected that item.
5. Repeat for a second produce item.

Do it!

A Gardening Record (continued)

Time Required: 10 minutes + ongoing

Supplies:

- Pencil
- Gardening Record Notebook (continued)

Directions:

Members should continue recording observations relating to their garden. This Skill Builder focuses on the harvest. Encourage members to record which plants produced well and which plants did not. Members should consider the plants they would like to grow next year. Members should also record year end maintenance they complete such as clearing the remaining vegetation and tilling the garden.

Visit a Farmers' Market

Time Required: 1 hour

Supplies:

- Pencil
- Transportation to a local Farmers' Market (or road-side stand)

Directions:

Plan to visit a local Farmers' Market. Members should observe the various activities around them. Ask members to answer the following questions and record their answers in their Member Manuals:

- Is there a local Farmers' Market?
- What garden produce are vendors selling?
- What else do people sell at Farmers' Markets?
- What is a Community Supported Agriculture program? Is there a Community Supported Agriculture program near you? (See the Background for Leaders section for more info)
- What would you need to do to make your garden a business?

100 Mile Meal

Time Required: 45 minutes

Supplies:

- Various supplies depending on the meal that is selected

Directions:

Members will produce a meal using as many ingredients as possible from within a 100 mile (160km) radius of their home. Here are some suggestions:

- Salad (with all of the veggies from the garden)
- Berries (you can pick your own, make sure you know what you are picking)
- Fish (from a local lake)
- Milk (from a nearby dairy farm)
- Eggs (from a local farmer)
- Meat (you can get a variety of local meats: beef, pork, lamb, chicken, etc.)

Members will see that it is possible to produce a meal using all local ingredients, but we have become reliant on long distance transportation of our foods.

Members should include a list of the dishes they served and a picture of their meal in their Member Manuals.

Too Much Food

What can you do if you have too much fresh food to eat all at once? Discuss the possibilities with members. Members may choose to share their produce with friends or neighbours, donate to a local food bank, or preserve it so it can be enjoyed in the winter.

Time Required: varies by preserving method selected

Supplies:

- Vary by preserving method

Directions:

Preserving can be easy. Try the following depending on what type of produce is most available:

- Freezing:
 - Berries
 - Rhubarb
 - Beans
 - Peas
- Canning
 - Jam
 - Salsa
 - Relish
 - Pickles
- Members can even choose to collect and store potatoes in a cool, dark, damp place for use over the winter.

Find recipes at <http://allrecipes.com/recipes/15930/side-dish/sauces-and-condiments/canning-and-preserving/> and <http://www.bernardin.ca/recipes/default.htm>.



DISCOVER

Exhibiting

Time Required: 30 minutes preparation + time at the fair

Supplies:

- Fresh, clean vegetables
- Display tray (optional)
- Entry fee



Directions:

1. Research a local fair or horticultural show. Locate the fair guide or listing of classes accepting garden vegetable entries.
2. Select a class to enter.
3. Prepare vegetables for the class. Depending on the class, vegetables may be displayed as a bunch, as an individual vegetable, on a tray, or in a creative horticulture arrangement.
4. Pay the entry fee and record any winnings that were earned at the fair.
5. Enjoy the fair!

Dig it!

Reflect on the gardening experience by asking these questions:

- Did you eat more nutritious foods during harvest time?
- What plant produced the most?
- What did you learn from your experiment?
- What will you change in your garden next year?

What's next?

Congratulations! You have completed all of the Skill Builders in Discovering Outdoor Gardening. Members will now begin working on the Showcase Challenge. Have a great Achievement. The members could not have done it without you!

Leader's Notes

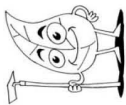


In the Member Manual

Skill Builder 6: Harvest Time

Larry Says...

Your hard work has paid off. As your plants produce fresh veggies and fruit, enjoy the products of your labour. The harvest is your reward.



DISCOVER

SKILLS CHECKLIST



- Collect produce as it ripens
- Use fresh produce in a meal
- Explain how local food can feed a community

Important Words

Watch for these important words throughout this Skill Builder:
Farmer's Market, Food Security, Preserving, Exhibit



Dream it!

Taste Test

Which tastes better? Fresh from your garden or store-bought?

Find out in this activity. Test two different foods.

Circle the winner and state why you think it tasted better.

_____ vs _____
 Why?

_____ vs _____
 Why?

Do it!

A Gardening Record (continued)

Continue recording your garden observations. As you work through this Skill Builder and harvest your crops, take note of the fruits or vegetables each plant is producing. Record which plants produced a lot and which plants did not. Think about what you would like to grow next year.

Larry Says...

Harvest veggies when they are fully-grown, but before they get tough and woody. Make sure you harvest most of your veggies before the first frost. Potatoes and parsnips can stay in the ground even after frost has touched the leaves.



More Leaves...

Learn more about when your veggies will be ready to be harvested by visiting http://gardening.about.com/od/vegetablepatch/a/HarvestTimes_2.htm

Visit a Farmers' Market

Is there a Farmers' Market in your area?

Plan to visit a Farmers' Market or a road-side vegetable stand. What garden produce are vendors selling?

What else do people sell at a Farmers' Market?

What is a Community Supported Agriculture Program? Is there a Community Supported Agriculture program near you?

Consider selling some of your produce at the Farmers' Market. What would you need to do to make you garden a business?

100 Mile Meal

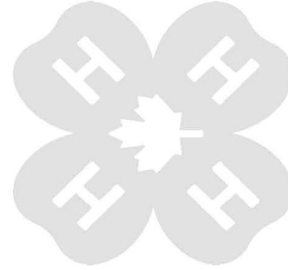
Grow local, eat local! Food production and transportation can be very unfriendly to our environment. The 100 Mile Meal movement has gained substantial recognition in recent years. Plan and prepare a meal that uses only ingredients that can be sourced from within 100 miles of your home.

List the dishes you served and include a picture of your meal.



Larry Says...

It is estimated that the food we eat travels 1500 to 2000 miles from farm to table. Longer transportation means local food is a fresher choice.
 (FoodMattersManitoba)



CANADA
 4-H Manitoba

In the Member Manual

Larry Says...



Food security means that everyone can get enough healthy food to be well and active.

Too Much Food

What can you do with your fruits and vegetables if you have too much to eat during harvest time?

Consider giving some produce to a friend or neighbour, donating it to a local food bank, or preserving it so you can enjoy it all winter. What is one item you could donate to a food bank?

Think about a fruit or vegetable you would like to preserve. You could make jelly or freeze peas, beans, or corn. Potatoes can be stored in a cool, dark, damp place. Prepare at least one fruit or vegetable for storage and include the recipe or explain the storage process.

Exhibiting

Research a local fair or horticultural show. Learn about the expectations and proper practices of exhibiting and enter some of your produce. The fruits and vegetables to be displayed will vary by the timing of the fair. What produce can you exhibit? Record your entries and results.



More Leaves...



Review the Manitoba Horticultural Association's Judging Guide: <http://www.mbagsocieties.ca/wp-content/uploads/2015/02/Judging-Standards-Horticulture.pdf>

Dig it!



Did you eat more nutritious foods during harvest time?

What plant produced the most?

What did you learn from you experiment?

What will you change in your garden next year?

What's next?

Remember to clean up your garden and till it in the fall! Now that you have finished all the Skill Builders in this project, it is time to think about and plan for the Showcase Challenge. The Portfolio Page is for you to make sure your Discovering Outdoor Gardening Project Skills Chart is complete. There is a space for you to write down reflections on the project (what you liked and didn't like, etc.).

In the Member Manual



Showcase Challenge

Have members use their Member Manual to help them organize what they have learned in this project. The form of the Showcase Challenge can vary according to the wishes of the leaders and the members' abilities. Information could be presented in many forms, some of which are: posters, pamphlets, written reports, speeches, computer presentations, displays, etc. Suggestions are listed on the Showcase Challenge page at the back of the Member Manual. The best results are almost always obtained when members are allowed to present their information in the style of their choice.

Showcase Challenge *Bringing it all together!*





Now that you have finished this project, it is time to think about how you will share your experiences and knowledge with others. You may put your new skills to work by helping at a community event or at your club. Achievement or teaching others about your topic. The goal of the Showcase Challenge is to help highlight your new skills and help you understand how you can use them. It can be an opportunity to receive feedback from others on your project. So go back through your manual and find some highlights of your learning (what you are proud of) and think about how you will "showcase" it.

Dream It!

Here are some Showcase Challenge Suggestions:

- Demonstrate something you made or learned about
- Act out a play
- Create a game
- Use your new skills to help with the Club Achievement plans
- Make a poster or display
- Make a video or slideshow
- Compose a song
- Or come up with your own idea. It is up to you and your leader!

 **My Showcase Challenge Plan** 

My showcase idea: _____

What materials and resources do I need? _____

Who do I need to help me? _____

When do I need to have things done by? _____

In the Member Manual

Do It!

Insert or attach your finished product or a photo of you sharing your skills in your Showcase Challenge.

DISCOVER

Dig It!

Now that you have showcased your project skills;

- How did your Showcase Challenge go?
- What would you do differently next time?
- How will you use your new skills in the future? *(in different situations?)*



DISCOVER

Once members have completed all the Builders they will have a lot of information recorded in their manuals. These are products of their learning. As a final exercise in the project, members and leaders will pull together all this learning in completing the Portfolio Page in the Member Manual. There is a skills chart that lists the skills members are expected to complete by the end of the project. Members and leaders must indicate how they know the member was successful at a particular skill. Leaders will find evidence if they think about what they have observed members doing, what discussions they have had with members, and what members have produced. If leaders think that members need to go back and improve on any skill, this chart helps them clarify what needs to be done.



My 4-H Portfolio Page



Name: _____ Date: _____ Year in 4-H: _____
 Club: _____ Hours Spent on 4-H: _____ (Project and Other 4-H Activities)

| Discovering Outdoor Gardening | | We know this because... |
|--|---|--|
| Skill Builder | Members will be able to... Each skill Builder had a skills Checklist which identified the skill you will learn. | Identify activities completed and record observations and information from discussions about activities. |
| 1 | <ul style="list-style-type: none"> • Explain the purpose of a greenhouse • Understand the similarities & differences between annuals & perennials • Identify the main parts of the plant | |
| 2 | <ul style="list-style-type: none"> • Prepare to plant a garden • Select seeds for a garden • Compare the qualities of soil samples | |
| 3 | <ul style="list-style-type: none"> • Plant & transplant plants • Explain the process of planting seeds • Prepare an experiment | |
| 4 | <ul style="list-style-type: none"> • Care for a garden • Record changes in garden plants • Describe sustainable maintenance practices | |
| 5 | <ul style="list-style-type: none"> • Describe good & bad influences on the garden • Identify various pests • Respond to pests to protect the garden | |
| 6 | <ul style="list-style-type: none"> • Collect produce as it ripens • Use fresh produce in a meal • Explain how local food can feed a community | |
| Additional Comments/Activities: | | |
| <p style="text-align: center;">Leader Point of Praise!</p> <p>I am most impressed by...</p> <p>I acknowledge that the member has completed the 4-H project requirements.</p> <p>Leader's Signature: _____</p> | | |



In the Member Manual

Above and Beyond!

In addition to project skills, 4-H also increases skills in meeting management, communications, leadership, community involvement through participation in club, area, or provincial 4-H events or activities. List below any activities you participated in this year in 4-H.

(Some examples include Executive Positions Held, Workshops, Communication, Community Service, Rally, Bonspiels, Conferences, Judging, Camps, Trips, Awards, Representation to Area or Provincial Councils, etc)

**Feel Free to add additional pages that include awards, certificates, new clippings, photos or other items that describe your 4-H involvement.

Member Point of Pride!

What I learned...

What I need to improve on...

What I want others to notice...

Member's Signature: _____



Point of Praise! Another's perspective on your achievements in 4-H.

(community professionals, 4-H club head leaders, friends of 4-H)

I am most impressed by...

I believe that you have learned...

In the future I encourage you to...

Signature: _____





4-H Achievement

4-H Achievement is... a 4-H club celebration when members have completed their projects. Achievements are planned by the club to give recognition to members and leaders for their accomplishments in their 4-H projects and club activities.

A 4-H Achievement can take many different formats: from choosing a theme, to member project displays, to members using their new skills for the event (entertainment, food, decorating, photographer, etc.), to members presenting their project to the whole group, the options are endless and open to the creativity of the members and leaders in each club!

Clubs may also plan their Achievement to promote 4-H to the community or to recognize sponsors and others who have helped the club.

Members and leaders - be sure to check your project books for the project completion requirements, so you will be ready for your club's Achievement celebration!

If you have any questions, comments or suggestions
for this or other 4-H projects contact:

Manitoba 4-H Council
Phone: 204-726-6136
Fax: 204-728-9040
Email: learns@4h.mb.ca
www.4h.mb.ca

This manual is for educational use only and is not intended as professional advice.

CANADA
4-H Manitoba

For more information about 4-H and the many
4-H opportunities available please visit

www.4h.mb.ca



What is 4-H?

4-H is an international youth organization involving more than 7 million members in 80 countries around the world.

In Canada, 4-H began in 1913 in Roland, Manitoba as a community-based organization dedicated to growth and development of rural youth. Today's 4-H program reaches both farm and non-farm youth across Canada. The motto of "Learn To Do By Doing" is embodied in the program, as 4-H focuses on skill development as well as personal development of life skills such as communications, leadership and citizenship.



CANADA
4-H Manitoba

4-H Motto

"Learn To Do By Doing"

4-H Pledge

I pledge,
My HEAD to clearer thinking,
My HEART to greater loyalty,
My HANDS to larger service,
My HEALTH to better living,
For my club, my community, my country, and my world.

All project materials are available in
alternate format upon request.

4-H Manitoba project material is developed by
Manitoba Agriculture