

# “Green for Life” 4-H LANDSCAPE HORTICULTURE PROJECT

Activity Guide





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 and my country

### 4-H Grace

(Tune of Auld Lang Syne)

We thank thee Lord, for blessings great

On this, our own fair land.

Teach us to serve thee joyfully,

With head, heart, health and hands.

# CONTENTS

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<b>Introduction.....</b>	<b>4</b>
<b>“Lettuce Veg-out” in the Garden.....</b>	<b>6</b>
Garden Goodness.....	7
Mmm, Mmm, (Veggie) Good!.....	10
Location, Location, Location.....	15
Planting Plan.....	18
Planting Plan Extreme.....	21
Soil Prep.....	25
Sowin’ ‘n’ Transplantin’.....	28
Veggie T.L.C.....	32
Enjoying the “Veggies” of Your Labour.....	35
Share the Harvest.....	37
<b>Appendices</b>	
Appendix A: Companion Plants.....	39
Appendix B: Harvest Chart.....	41
<b>Resources.....</b>	<b>50</b>

## INTRODUCTION

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### **How to Use the 4-H Landscape Horticulture Project Activity Guide**

The 4-H Landscape Horticulture Project Activity Guide is divided into four themes. Each theme is identified with a box in the top left corner at the beginning of each activity. The activities are presented in a logical order of progression and should be presented in this order. You will find an alphabetical index of the activities at the end of the guide.

**The 4-H Landscape Horticulture Project Activity Guide was designed with two age groups in mind:**

- Junior: 8 to 10 years of age
- Intermediate: 11 to 14 years of age

Each activity has been designed for both age groups. These activities are meant for members to have an opportunity to help them learn, evaluate, make decisions, communicate and develop confidence.

**Each activity has the following format:**

Title

Topic

Learning Outcomes

Time

Materials / Resources

Instructions

Suggestions

Discussion / Comments

Processing Prompts

Each activity in the 4-H Landscape Horticulture Project has learning outcomes identified at the beginning of the activity, and processing prompts at the end. To gain a better understanding of why these were added to every activity, we have included the following section about experiential learning.

## **Experiential Learning**

Experiential learning is a model that, simply put, consists of action and reflection. Research shows that learning is often best achieved when it is fun, active, interesting and easy to understand. Participating in fun activities creates a sense of togetherness within a group and help members relate to one another, as well as allows the group to relax, to feel safe and at ease. Through guided reflection and discussion, activities with meaning often help individuals understand concepts and skills more than if the same meaning was presented in a lecture format.

A leader can help 4-H members and groups learn by leading activities with meaning. These activities can then be processed to help the group find the meaning. These lessons can then be applied to other areas of the members' lives - helping them to transfer the meaning from the activity to the real world and every day life.

The following 4-H Landscape Horticulture Activity Guide includes learning outcomes at the beginning of each activity. Members will discuss and explore the meaning behind the activities and transfer these insights, through the help of the 4-H leader, into their every day lives whether it be in sports teams, school groups, community groups or at home with family. The 4-H leader can facilitate this by using the processing prompts listed at the end of each activity.

### **What is Processing?**

Processing is when individuals reflect, describe, analyze and communicate what they have or will be experiencing in an activity.

Each activity has processing prompts. There will be a list of questions to ask regarding concept to focus on a group discussion. Some or all of the questions can be used to process the activity. Feel free to add your own processing prompts if you feel there is a specific topic that you would like to discuss.

When using the Activity Guide, processing is most easily done with the group when sitting or standing in a circle, and when the group is attentive and focused on the discussion.

When questions are designed properly and used thoughtfully, discussion questions can be an effective learning tool that promotes creativity, as well as generates meaningful interaction and understanding for the member. Processing can be fast or slow depending on the group and the activity.

# **“Lettuce Veg-out” in the Garden**

## Garden Goodness

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**TOPIC**            Discovering the Positive Aspects of Growing Vegetables

### LEARNING OUTCOMES

To learn about the value of growing your own vegetables and to create a Veggie Garden Record Book.

**TIME**            20 minutes

### MATERIALS/RESOURCES

- Fresh, frozen, and canned vegetables (e.g. peas or corn)
- Large poster paper
- Markers
- Coloured pencil crayons
- Copies of “My Veggie Garden Record Book”, one for each member
- Report covers, one for each member

### INSTRUCTIONS

Show members examples of 3 different preparations of a vegetable: fresh, frozen, and canned. Discuss the differences between the 3 states. Discuss the processing of each state and what happens to the nutritional value and taste of the vegetables. If desired, members can sample the different preparations of the vegetable and determine if there is a difference in taste. Discuss freshness and the carbon footprint required to prepare each type of preparation.

Ask members if their families grow their own vegetables and if they have ever been involved in vegetable gardening. Ask members the questions: “What do you like about having, or the idea of having, your own vegetable garden? What do you think are the benefits to growing your own vegetables?”. Encourage members to talk to each other and to share their knowledge. In the middle of a piece of chart paper write “Why Create A Vegetable Garden?” and record member responses in bullets surrounding the question.

Give each member a “My Veggie Garden Record Book” cover page. Explain that throughout this unit they will be recording different things about their gardening experience in their record book. The cover page should include pictures and words that inspire them to create a garden and what their vegetable gardening means to them.

While they are creating their record book cover pages, ask members what they think could go in a veggie garden record book. Ask them what kind of information could they keep track of and why is it important to write this information down. Give each member a report cover to place their cover page in. Members may want to talk about their finish cover pages and explain what the pictures and words mean to them.

### **DISCUSSION/COMMENTS**

To have a vegetable garden, all that you need are a few seeds, some outside space, and an interest in making it happen. There is nothing quite as rewarding as growing your own vegetables.

Veggies are an important part of a healthy, well-balanced diet. Fresh vegetables that are grown locally, especially in your own back yard, are the best option since they have not been processed in any way. Vegetables grown locally are best since many vegetables are shipped across the country or from distant locations around the world and have been harvested before they ripen, are not at their peak for nutritional value or taste, and have a higher carbon footprint. Frozen vegetables are picked at their peak of ripeness then blanched and flash-frozen to remove bacteria and lock in their essential vitamins and nutrients. The faster they are frozen after picking, the more nutrients they will retain. However, water-soluble vitamins like vitamin C and the B vitamins can leach out. Frozen vegetables often don't have the same fresh taste as fresh vegetables. Canned vegetables can lose some of their vitamin C during processing. Make sure to read the labels as sometimes other ingredients like salt can be added. The taste of canned vegetables is much different than fresh.

In the past decade, there has been a resurgence of interest in growing edible gardens. There are many benefits to growing your own vegetables. The idea of eating local food appeals to many people because the food is fresh, takes a much smaller carbon footprint to bring it to our table, it is very cost effective, and the vegetables are at their peak taste when freshly picked. Growing your own vegetables allows you to know exactly what does and does not go into your food and therefore into you. You will have a greater variety of your favourite vegetables and grow the things that you like to eat. Growing your own vegetables also allows you to share them with others.

### **PROCESSING PROMPTS**

What are the differences between fresh, frozen, and canned vegetables?

What are the benefits of growing your own vegetables?

What does eating "local" mean?

My  
Veggie Garden  
Record Book

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

## Mmm, Mmm, (Veggie) Good!

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**TOPIC**            Choosing Favourite Garden Vegetables

### LEARNING OUTCOMES

To choose favourite and easy to grow vegetables for the garden

**TIME**            30 minutes

### MATERIALS/RESOURCES

- Large poster paper
- Markers
- Several types of fresh vegetables (include some unusual ones)
- Blank paper
- Copies of “Choosing Garden Veggies”, one for each member
- Pens

### INSTRUCTIONS

Starting with the most common vegetables, hold up a fresh vegetable one at a time and ask members if they know what it is. Ask if they have ever eaten it. Repeat for every vegetable and save the more unusual ones (eg. brussel sprouts, artichokes, turnip) for last.

On a piece of paper, have each member write down their 5 favourite vegetables and describe how they like to eat them (eg. raw, roasted, in a casserole etc.). Using chart paper, take a survey of the most popular vegetables and make note of how they like to eat them.

Hand out “Choosing Garden Veggies”. Explain that these veggies are very resilient and good choices for a first-time garden. Ask members to read the list of veggies that are easy to grow and compare it to their list of favourite veggies to help them decide which ones they want to plant. If the area where the garden is to be planted is in the shade, have members look at the shade tolerant veggie list to help them choose wisely.

Hand out “My Veggie Garden List”. Here members can come up with the final list of veggies they want to plant based on what they like to eat, what is easy to grow, and what veggies tolerate shade. Members should add the sheets to their garden record book.

### DISCUSSION/COMMENTS

It is important to get members to think about what vegetables they like to eat and therefore would like plant in their garden. If gardeners are interested in what they are growing, the gardening will feel less like work and more like fun. Interest is gained by growers being involved in choosing what is grown in the garden.

Vegetables can be prepared a variety of ways from raw, to steamed, to broiled and can be eaten on their own, with sauces, added to dishes, and even in deserts like zucchini bread, carrot cake, and pumpkin pie.

### **PROCESSING PROMPTS**

1. What are the group's favourite vegetables?
2. Name 5 vegetables that can be grown in the shade.
3. What different ways can vegetables be eaten?
4. What desserts have vegetables as the main ingredient?

# CHOOSING GARDEN VEGGIES

## Easy to Grow Veggies

Veggie:	Check (✓) if you want to plant it:
Artichokes	
Basil	
Beans	
Carrots	
Dill	
Garlic	
Kale	
Lettuce	
Parsley	
Peas	
Potatoes	
Pumpkins	
Radishes	
Sunflowers	
Tomatoes	
Watermelon	
Zucchini	

## Shade Tolerant Veggies

Veggie:	Check (✓) if you want to plant it:
Arugula	
Beets	
Garlic	
Kale	
Lettuce	
Parsley	
Parsnips	
Peas	
Radishes	
Rhubarb	
Spinach	

## Great Container Veggies

Veggie:	Check (✓) if you want to plant it:
Artichokes	
Arugula	
Beans	
Beets	
Cabbage	
Carrots	
Dill	
Garlic	
Kale	
Lettuce	
Parsley	
Peas	
Peppers	
Potatoes	
Pumpkins	
Radishes	
Squash	

## MY VEGGIE GARDEN LIST

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.

## Location, Location, Location

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**TOPIC** Choosing the Vegetable Garden Location

### LEARNING OUTCOMES

To learn to choose an appropriate area for a vegetable garden.

**TIME** 45 minutes

### MATERIALS/RESOURCES

- Garden Location Questions
- Pencils and erasers

### INSTRUCTIONS

Discuss with members things to consider when choosing where to plant a vegetable garden whether it is in containers or in the ground. Discuss the importance of the amount of sun the plants receive, location of a water source, amount of space needed and available, and the quality of the soil.

If the garden will be planted in containers, choose a location that meets the needs of the plants and won't be in the way of pathways or doors etc. If the group is planting a group garden, choose a garden location together that everyone has access to. If the members are planting individual gardens, ask them to choose a location where they have permission to plant and have access to it.

At the proposed garden location, have members record their observations over the course of a few days to answer the following questions:

1. How much sun does this location receive each day? Measure the number of hours of sunlight the garden receives each day.
2. Where is the nearest water source? Record how far away the water source is and describe how you will transport water to the garden.
3. How much space is there? Using a tape measure, determine the area of the proposed garden (length x width).
4. What is the quality of the soil? Take a handful of soil and squeeze it. Does it crumble and not hold its shape? You have sandy soil. Does it form a compact lump and not break apart? You have clay soil. Does it form a ball but break apart easily? You have loamy soil which is the ideal soil for a garden. Sandy

and loamy soil will need more soil amending which will be done when you prepare the garden.

Members should put their Garden Location Questions into their garden record books. Members can share their findings during the next meeting.

### **DISCUSSION/COMMENTS**

There are some important things to consider when deciding on the location for your garden:

*Does the garden have enough sun?* Vegetables love the sun and need at least 6 hours of full sun every day.

*Where is the water source?* Vegetables need lots of water, at least 2.5 cm (1 inch) of water a week. Setting up your garden near a water source will make watering much easier.

*How much space do you need?*

Even the smallest area can be a garden. Growing in containers is a great option for people with limited space or living in apartments and condos. Using vertical space for growing climbing vegetables like peas and beans lets you have a lot of vegetables growing in a small footprint of real estate. If you are lucky enough to have an outside area for a garden, a good size for a beginner vegetable garden is 5 x 3 meters (16 x 10 feet). A plot this size can feed a family of 4 all summer.

*What is the soil like?* Vegetables require loamy, well-drained soil. A simple way to figure out the type of soil you have is to scoop a handful of soil and squeeze it. Sandy soil will crumble and not hold its shape. Clay soil will form a lump. Loam is the ideal garden soil and it will form a ball when squeezed but break apart easily. Soil can be enriched with compost to provide a nutrient boost and improve its texture.

### **PROCESSING PROMPTS**

1. How much full sun do vegetables need?
2. How much water a week should a vegetable garden receive?
3. What is the best type of soil for a garden?

## GARDEN LOCATION QUESTIONS

1. How much sun does this location receive each day?

TIME FULL SUN HITS GARDEN: \_\_\_\_\_ am / pm

TIME FULL SUN LEAVES GARDEN: \_\_\_\_\_ am / pm

TOTAL FULL SUN ON GARDEN: \_\_\_\_\_ hours

2. Where is the nearest water source? Describe where the water is located.

3. How much space is there?

LENGTH: \_\_\_\_\_ m

WIDTH: \_\_\_\_\_ m

Length x width = \_\_\_\_\_ meters squared

4. What kind of soil is in the garden? Describe the “squeeze test” results.

## Planting Plan

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**TOPIC** Vegetable Garden Design

### LEARNING OUTCOMES

To learn how to create a basic vegetable garden planting design.

**TIME** 45 minutes

### MATERIALS/RESOURCES

- Graph paper
- Pencils, erasers, rulers
- Coloured pencil crayons
- “My Veggie Garden List”
- seed catalogues or vegetable garden resource books with spacing information

### INSTRUCTIONS

Ask members to review their “My Veggie Garden List” in their garden record books. These are the veggies that they will include in their plan. On the graph paper, have members draw with a pencil and ruler the outside shape of their garden. For an approximation, each row should be about 50 cm wide and 3 meters long. Have members figure out how many rows they can plant in their garden and have them draw the rows in.

Vegetables have different spacing requirements. Have members look at the spacing chart to see how far apart each individual vegetable should be. Then have them figure out how many plants of each type they can fit into a garden row. Have members draw in the plants for each row. The finished design should be added to their garden record books for future reference.

The following is an example of a garden plot design that is 5 x 3 meters (16 x 10 feet) in size. Each “X” represents a single plant. However they don’t represent the actual size of the plants. For example, radishes are much smaller than zucchinis, but both are represented by the same sized “X”.

My Veggie Garden Design									
Tomatoes	Zucchinis	Peppers	Cabbage	Beans	Lettuce	Beets	Carrots	Garlic	Radishes
X		X	X	X	X	X	X	X	X
	X			X	X	X	X	X	X
		X	X	X	X	X	X	X	X
X			X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X
			X	X	X	X	X	X	X
		X		X	X	X	X	X	X
X	X		X	X	X	X	X	X	X
		X	X	X	X	X	X	X	X
			X	X	X	X	X	X	X
X		X		X	X	X	X	X	X
	X			X	X	X	X	X	X

**DISCUSSION/COMMENTS**

Now that members have decided what vegetables they want to grow and where they want to grow them, they can create a garden plan. They should refer back to the list they created “My Veggie Garden List” to remember which vegetables they would like to grow.

Check that the plants they have chosen will grow in the location of the garden. Make sure there is enough sun to support the chosen crops and that there is enough space. Some vegetable choices might have to be left out of the plan if the garden isn’t large enough. Members will figure out how many rows their garden will be divided into and by looking at the spacing chart, members can figure out how many plants of each type can be grown in a row.

This lesson teaches about planning a traditional style of vegetable gardening with equally spaced rows and one type of vegetable in each row. There are many alternative vegetable garden design plans and the next activity will take garden design to the next level. Determine if your members are ready for learning advanced

alternative planting design skills. If they are, continue to the next activity “Planting Plan Extreme”. If not, skip to the following activity “Soil Prep”.

### **PROCESSING PROMPTS**

1. Which vegetables require the most spacing?
2. Which vegetables require little spacing?
3. How wide should the spaces be between the rows?

## Planting Plan Extreme

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**TOPIC**           Advanced Vegetable Garden Design

### LEARNING OUTCOMES

To further develop a vegetable garden planting design to include intensive gardening components: vertical gardening, interplanting, succession planting, and companion planting designs.

**TIME**            45 minutes

### MATERIALS/RESOURCES

- Graph paper
- Pencils, erasers, rulers
- Coloured pencil crayons
- “My Veggie Garden List”
- “My Veggie Garden Plan”
- Companion Planting Chart in Appendix A

### INSTRUCTIONS

Discuss traditional vegetable garden design. Ask members if they know of any other ways that a vegetable garden can be planted. Introduce the concept of **Intensive Gardening** and discuss some of the methods of garden planting that achieve some intensive gardening including: vertical gardening, interplanting, succession planting, and companion planting.

Ask members to review their “My Veggie Garden Plan” in their garden record book which is a traditional vegetable garden design. Have members think about how they could re-design their garden plant to include some or all of the examples of intensive gardening. On the graph paper, have members draw a new garden design including some intensive gardening design. Have members include some succession, interplanting, and companion planting ideas. They can refer to the Companion Planting Chart in Appendix A for ideas.

Their finished garden design should be added to their veggie garden record book for future reference.

### DISCUSSION/COMMENTS

Traditional vegetable gardens consist of long, single rows with spaces between each row. **Intensive Gardening** methods focus on conservation of space and concentrating work efforts into creating an ideal plant environment which result in better yields

with less labour. In an intensive garden, the idea is to have something growing in every space of the garden at all times of the growing season. While the garden design produced in the previous exercise is a great start, a more comprehensive garden design will take into account several other factors that will enhance the overall productivity, pest control, and design appeal of the garden. Consider the following intensive gardening designs:

### **Vertical Gardening:**

Vertical gardening uses the vertical space above the ground to grow plants in. The use of trellises, nets, strings, cages, or poles to support growing plants is vertical gardening. This technique is great in small spaces and when growing sprawling plants like cucumbers, tomatoes, melons, and pole beans. When planning for vertical planting remember that it will cast a shadow on other parts of the garden so shade-tolerant plants should be planted beside vertically grown ones.

### **Interplanting:**

Interplanting is the practice of growing two or more types of vegetables in the same place at the same time. To plan an interplanted garden you must consider the length of the plant's growing period, its growth pattern, allelopathic properties (effects of plants on other plants), and the preferred season, light, nutrient requirements, and moisture needs. Interplanting can be done by alternating rows in a bed, by mixing plants within a row, or by spreading various species throughout the bed. For example, slow to mature plants like carrots and quick to mature plants like radishes can be planted at the same time since the radishes will be harvested before they crowd out the carrots. Shade tolerant lettuce can be planted in the shadow of taller crops. Examples of common interplanting combinations include, but are not limited to: lettuce (or any leafy green like mesclun mix) spring onions, radishes, beets and garlic between tomato, eggplant, pepper, beans and cabbage plants. Examples of allelopathic partners include, but are not limited to: carrots and tomatoes, basil and tomatoes - both these combinations are reputed to providing tastier tomatoes.

(Advanced Learning: Members who express interest in learning more can conduct additional research on their own to discover other planting partners and report their findings to the group).

### **Succession Planting:**

Succession planting is planting one crop followed by another to maximize a garden's yield. To simplify planning, draw a spring and summer design of the garden. For the spring design, include early and quick crops like radishes and cress followed by long-season ones. Vegetables that belong to the same family (eg. cabbage and kale) share the same pests and diseases and therefore should not be planted in succession in the same garden space year after year. The same applies to these two groups of vegetables: tomatoes, peppers and eggplant, all of which belong to the same family of vegetables and cucumbers, squash, watermelon and zucchini, which belong to the cucumber family. Same-crop successions work well if you sow a small number of

seeds at regular intervals during the same season in different locations in the garden to ensure a constant supply all season long. Succession planting can also be facilitated by planting different varieties of the same crop using early, mid-season, and late harvest varieties; stagger the planting dates of the same crop to lengthen the harvest time, and for vegetables that can be grown as transplants and directly seeded (like lettuce), sow the seeds at the same time as transplanting. The transplanted lettuce will be harvested first, and the seed-sown lettuce will be a few weeks later. For example, plant radishes every week for four weeks; lettuce, or short season leafy greens, every 10-14 days. Any short season (short days to harvest) vegetables are good candidates for succession planting.

(Advanced Learning: Members who express interest in learning more can conduct additional research on their own to discover other succession planting recommendations and report their findings to the group).

### **Companion Planting:**

Companion planting is the practice of planting complimentary plants that help each other to grow or to resist pests and diseases. Many plants produce chemicals that naturally repel insect pests or attract beneficial insects. These chemicals can also enhance the growth rate and flavour of nearby plants. The practice of companion planting is hundreds of years old, and through trial and error, many companion plant combinations have proven to be effective at controlling insect pests and improving plant growth. See “Appendix A” for the Companion Planting Chart that gives suggestions for companion plantings.

### **Design Elements:**

For added interest in the garden, add structures such as a trellis, pergola, or arbour, or plant the vegetables next to these elements for added supported. They will add a vertical design element to the garden and doubles for space efficiency. Indeterminate (keeps growing all season until frost compared to determinate or bush type crops which stop growing when fruit has set, and are more compact in habit. Seed catalogues will indicate the respective type of growth habit) tomatoes or peas on a trellis, or runner or pole beans on a trellis to act as a screen. Train vines like squash up arbours. Use a variety of containers such as barrels, bushels, hanging baskets, and window boxes. Use different types of materials such as wood, metal, fishing line, and natural stakes such as branched twigs to vertically support vining or climbing type vegetables.

### **Fun Things to Do:**

- Add fun to the garden by creating a teepee frame using long branches secured into the ground. Gather the branches at the top and tie the top together securely with garden twine or wire. Plant runner or pole beans around the perimeter of the teepee...leaving a space as a ‘doorway’. The beans will grow up the teepee, creating a natural hide out.

- Scratch your name into a pumpkin while it is still in its early stage. As the pumpkin grows, so will your name.
- Work large pebbles into the soil where you are planting carrot seeds. The carrots will grow into crazy shapes.
- Plant sunflowers in a square to create a natural play house.
- Add flat stepping stones between rows of plant in the garden.
- Make a potato growing pillar! Use several old tires piled on each other or make a wire mesh cylinder with chicken wire, supported by bamboo or long branches to support and tie the wire to; layer with soil and straw, adding potatoes around the inside perimeter with each layer. Keep layering to the top of the cylinder (you can make it as high as you want, but no more than 3 feet high). The potatoes will grow through the holes of the wire or out between the tires.
- Plant indeterminate tomatoes in a hanging basket.
- Plant a herb garden in the 'planting bag' style of planters. Plant a different herb in each slot in the bag.
- Plant a salad quilt! Plant different types and colours of lettuce in a quilt or tapestry pattern.
- Cut and come again! Use a mesclun mix and broadcast sow it in a small square. When the greens are 8-10 cm, harvest by snipping them just above the ground, leaving a short 2 stub. Watch the greens start grow new shots a few days. Let them mature to 8-10 cm or less and harvest again two or more times!
- Grow colourful types of Swiss Chard (check out the garden centres in the spring for selections) in a window box for a pleasing annual display that you can eat! You can also experiment with beets the same way.
- 

### **PROCESSING PROMPTS**

1. What are the benefits of vertical gardening?
2. What other supports can you think of that would work well for vertical gardening?
3. What are the benefits of succession planting?
4. Give 3 examples of companion plantings that would work in your garden plan.

## Soil Prep

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**TOPIC** Preparing Container and Garden Soil for Planting

### LEARNING OUTCOMES

To prepare container and garden soil for planting

**TIME** 45 minutes - 2 hours

### MATERIALS/RESOURCES

#### Container Garden:

- Garden pots or planters
- Soap and scrub brush
- Soil-less planting medium (potting mix)
- Water (watering can or hose)
- Trowel
- Compost
- Camera

#### Outdoor Garden:

- Spade
- Rake
- Hoe
- Rotary tiller (optional)
- Wheelbarrow
- Compost
- Short stakes
- Twine or jute
- Measuring tape
- Camera

### INSTRUCTIONS

#### **Container Gardening:**

Have members choose a container for their vegetable garden. The containers should be at least 8 cm tall, have a wide area at the top for planting, and have a drain hole in the bottom. The larger the container is, the better, as more it can hold more vegetable plants. To prepare the container for planting, have members use hot water, soap, and a scrub brush to clean and then dry the containers. Have members place a broken piece of a pot over the drainage hole. Have members mix the soil-less

medium with compost at a 3:1 ratio and add it to the container. Lightly water the mix to dampen but not soak it. Have members take a picture that they can add to their garden record book.

### **Outdoor Garden:**

At the proposed and approved garden site, have members remove the turf area, or dig up all plant material (and replant elsewhere) within the area of the garden using a spade, hoe, and hard rake leaving just the exposed soil. Have members add compost to the garden by spreading 5 cm across the entire garden area. Using spades or a rotary tiller, have members mix in the compost into the soil to a depth of 15 - 20 cm. Once the soil is worked, have members rake the surface level and remove any hard clumps of soil and rocks. Ideally, the prepared soil should be the same crumbly consistency as cake mix. Firm in prepared soil by tamping it down gently with the flat edge of a hard rake.

Using their garden plans, have members measure and mark out the rows where they will be planting their vegetables. Members should accurately measure using the tape measure, twine, and stakes to mark out evenly spaced rows that are parallel and straight. Have members take a picture that they can add to their garden record book.

## **DISCUSSION/COMMENTS**

### **Container Gardening:**

Container Gardening is a great option if there is no room for a traditional outdoor garden. Many types of vegetables thrive in containers. However the container needs to meet certain specifications. The container needs to be deep enough to allow for roots to develop. The minimum depth for a container is 8 cm deep and deeper for root vegetables like carrots and beets. The container must have a drainage hole to allow water to drain so that the roots don't rot and air spaces are maintained in the soil for the water to bring nutrients to the roots. Placing a broken piece of a clay pot will allow the water to escape while holding in the soil in the pot. Pots that are reused each year must be cleaned and scrubbed out thoroughly with hot water and soap, then rinsed and dried. This ensures that last year's diseases and pests won't be this year's problem.

Containers should be potted up with a soil-less planting mix (potting mix) preferably designed for vegetables. Compost can be added to the mix in ratio of 3 parts mix to 1 part compost. Before putting the mix into the pot, water it so that it is moist, but not too wet. This will ensure that the air gaps are removed without compacting the mix. You may wish to add a slow release fertilizer to the potting mix, or you may decide to apply liquid fertilizer throughout the growing season instead.

### **Outdoor Garden:**

The location chosen for the outdoor vegetable garden may be covered with grass and other plants. If this is the case, all of the plant material must be removed. Use the

spade, rake, and hoe to break up and remove the plant material. Place it in the wheelbarrow for delivery to the compost pile, or repurposed and planted elsewhere. The vegetable garden should be free of all plants and have bare soil exposed.

The most important thing needed for a successful garden is quality soil. Organic matter contained in the soil will be food for the plants. To add nutrients to the soil, compost should be added to the soil. The amendments should be spread 5 cm deep over the entire garden. The amendments should be tilled into the soil (either by hand or with a rotary tiller) to a depth of 15 - 20 cm. Adding organic matter improves soil condition and structure which provides better aeration and temperature moderation. Once the compost is integrated into the soil, the surface can be raked flat, removing any clumps of soil or rocks while doing so.

### **PROCESSING PROMPTS**

1. Why is it important to have a drainage hole in planted containers?
2. What is the purpose of adding compost to the garden?
3. Why is soil preparation important?
4. What is the purpose of lining out the planting plan before planting?
5. What is the purpose of labeling plant rows?

## Sowin' 'n' Transplantin'

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**TOPIC**        Sowing Seeds and Transplanting Seedlings

### **LEARNING OUTCOMES**

To learn how to plant seeds and transplant seedlings

**TIME**         90 minutes

### **MATERIALS/RESOURCES**

- Copies of “Seed Sowing Chart” (one for each member)

#### **Starting Seeds Indoors:**

- Seed starter potting mix
- Containers (pots or seed starting containers)
- Seeds (for starting indoors; read packet labels)
- Water
- Plant tags and permanent markers
- Digital camera

#### **Sowing Seeds into Outdoor Containers or in the Garden:**

- Trowel or spade
- Seeds (for starting outdoors)
- Water
- Plant tags and permanent markers
- Digital camera

#### **Transplanting Seedlings:**

- Trowel
- Seedlings (grown from seed or purchased)
- Water
- Plant tags and permanent markers
- Digital camera

## **INSTRUCTIONS**

### **Starting Seeds Indoors:**

Hand out different seed packets to the members and ask them to read the information on the packets. Discuss the differences between the seeds regarding starting them indoors, planting them outdoors, whether they need to be soaked overnight, or any other differences they find. Have them choose a few different types of seeds that can be started indoors. Ask them to read the instructions on all of the seed packets that they want to plant from their garden plan and complete the “Seed Sowing Chart” planting instructions column and add it to their journal. Have members get the containers and potting mix that they need for their seeds and following the instructions, have them plant their seeds. Members should carefully water their seeds and cover them. Have members make plant tag labels and place them on the edge of their trays or pots. Tell members that they need to place the seeds in a warm location (on top of a fridge is ideal, remembering to ensure there is a collection pan underneath to catch any excess water) and to check on them daily and water only when the soil starts to dry out. Have members take a photo of their seedlings every day and add the photos to their garden record books.

### **Sowing Seeds Outdoors:**

Hand out different seed packets to the members and ask them to read the information on the packets. Have them choose a few different types of seeds that can be started outdoors. Ask them to read the instructions very carefully regarding how they should plant their seeds. Following the instructions, have members plant the seeds. Members should carefully water their seeds and cover them. Have members make plant tag labels and place them on the edge of the rows. Have members take a photo of the seedlings every day and add the photos to their garden record books.

### **Planting Seedlings:**

Have members look closely at the seedlings. They should look to see that the leaves and stem look healthy and are disease and insect free. Using their trowels, have members dig holes in their garden the same size as the seedling container according to their garden designs. Show members how to gently remove seedlings from their containers by tipping them on their side and removing the plant and the roots in one piece. Members will place the seedling in the hole and fill in any gaps around the seedling with more soil. Have members firmly press around the edge of the hole and then water gently the soil around the seedlings. Have members make plant tag labels and place them at the end of each row to identify the crop. Have members take a photo of the seedlings every day and add the photos to their garden record books.

## **DISCUSSION/COMMENTS**

Seeds can be purchased from various retail shops. As long as seeds stay cool and dry, they can last for several years. To “wake up” the seeds to begin germinating, they

need to be put into the right environment. Seeds will begin to germinate when they are placed into a moist and warm environment. Seed packets will give you all the information that you need about where, when, and how to plant the seeds. Some seeds can be started indoors and then the seedlings can be transplanted outdoors into containers or into the garden. Other seeds can be planted directly into the garden or into containers after there is no more risk of frost.

### **Starting Seeds Indoors:**

Find out when the last frost in your area is predicted to be. Then count backwards the number of weeks needed for your seeds to grow into seedlings and that will determine when you should start your seeds indoors. Depending on the instructions, some seeds need to be soaked in water before being planted. Others need to be lightly scratched before being planted. The instructions on the packet will also tell you how deep to plant the seeds and how close to space them apart. There are kits that you can purchase for starting your seeds, or you can plant them into your own containers with a soil-less mix. Be sure to water your seeds with warm water gently after you plant them.

Place the container in a warm place, like the top of a fridge, where they can also get light and keep the cover over the trays until the seeds sprout. Once the seedlings sprout, take the cover off of the container and move them to a sunny window. Water your seedlings every day to moisten the soil. Once the seedlings show the first two leaves, transplant them to separate containers. Gently dig up the individual seedlings and plant them into individual containers. Two weeks before the seedling are to be planted, move them to the outdoors in the sun for a few hours each day, increasing it each day up to a full 8 hours before they are transplanted into the garden.

### **Sowing Seeds Outdoors**

There are many types of seeds that don't need to be started indoors but can be planted directly into an outside container (planter) or into the garden once all danger of frost is gone. Refer to the seed packets for specific planting instructions. Once planted, cover the seeds with a thin layer of loose soil and water gently and lightly.

### **Transplanting Seedlings**

When there is no further risk of frost, you can transplant your seedlings, the ones that you started from seed and ones that you purchase from the garden centre, into the garden. If you purchase seedlings ensure the plants are healthy and free of diseases. Check that the plants have healthy whitish roots that are not pushing through the bottoms of the container. The stem should be sturdy and the leaves are well developed. To plant the seedlings, gently remove the seedling and all the soil surrounding its roots. This can be done with a spoon. Plant it in a hole that is the same size as the container it came from. Fill in any gaps with soil, firmly press around the edge of the hole and water. Remember to space the seedlings according to the recommendations from the garden design.

### PROCESSING PROMPTS

1. When should you start seeds indoors?
2. What is “hardening off” and why is it important
3. Name 5 different vegetables that you can sow directly into the garden.
4. Name 5 different vegetables that should be grown indoors first and transplanted out in the garden.

### SEED SOWING CHART

VEGETABLE:	START SEEDS INDOORS:	SOW SEEDS OUTDOORS:	PLANTING INSTRUCTIONS:
Arugula		√	
Artichokes	√		
Basil	√		
Beans		√	
Beets		√	
Carrots		√	
Cucumbers	√	√	
Dill		√	
Garlic		√ (cloves)	
Kale	√	√	
Lettuce	√	√	
Parsley	√		
Parsnips		√	
Peas		√	
Peppers	√		
Potatoes		√	
Pumpkins	√	√	
Radishes		√	
Rhubarb		√ (crowns)	
Spinach		√	
Squash	√	√	
Sunflowers		√	
Tomatoes	√		
Watermelon	√	√	
Zucchini	√	√	

## Veggie T.L.C.

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**TOPIC** Maintenance of a Vegetable Garden

### LEARNING OUTCOMES

To learn how to care for plants growing in the garden

**TIME** 45 minutes

### MATERIALS/RESOURCES

- Watering can and/or hose with nozzle, water
- Small clear container
- Hoe
- Rake
- Mulch
- Compost
- Digital camera

### INSTRUCTIONS

#### Watering:

Ask members what they think is the most important thing they need to do for their garden once it is planted. Ask members why watering is so important for good plant health. Have members guess how much water they think their garden needs each week. Pour 2.5 cm of water into the clear container to demonstrate how much water the garden needs each week. Discuss when watering should be done.

In the garden, demonstrate proper watering technique. Have members use the watering can or hose to water their garden. Ensure they are watering the soil and avoiding getting water on the leaves. Water the roots, however if watering by a sprinkler system the foliage will get wet! Members should be adding enough water so that it absorbs into the soil without flooding the plants and seeds, and soaks in well.

#### Weeding:

Ask members what they think most of their time in the garden will be spent doing. Discuss why weeding is such an important part of maintaining a healthy vegetable garden. Show members how to tell the difference between weeds and vegetable plants to make sure they pull out only the weeds. Have members weed their gardens using a hoe and by hand and dispose of all the pulled weeds into the compost pile. Have members take “before” and “after” pictures of their gardens to show the difference between a weedy and weed-free garden and add the photos to their

garden record books. Have members bring in weeds to be identified, if the group leader is well versed in weed identification.

### **Compost Mulch:**

Ask members what the benefits are of adding compost to their gardens. Discuss with members the ways that compost can be added (tilled into soil or as topdressing). Discuss the benefits of topdressing with compost and the mulching benefits.

Demonstrate how to add compost as topdressing mulch by using a rake to spread the mulch. Have members complete the topdressing of their vegetable gardens and take a photo when completed to add to their garden record books.

## **DISCUSSION/COMMENTS**

### **Watering:**

Vegetables require a great deal of water when they are growing. Water helps the plants to absorb nutrients, makes the plant cells strong, and allows plants to breathe. As stressful as under-watering can be to plants resulting in stunted growth and wilting, overwatering can be equally stressful since it drowns the plant roots. Over-watering can also flood out newly planted seeds and wash them away.

Ideally, watering should be done early in the day to allow the water to be absorbed by the plant before the sun comes out and dries out the soil. The soil should not be allowed to completely dry out. The garden should receive 2.5 cm of water each week - either by direct rainfall or by purposeful watering. Plants should be watered at the soil level and not directly on their leaves. Simple rain gauges can be purchased from garden centres, should members wish to track natural rainfall on their garden.

### **Weeding:**

Weeds in the vegetable garden will compete with your vegetables for valuable resources including soil nutrients, water, and sunlight. Unfortunately a great deal of time caring for your vegetables involves weeding out the undesirable plants from the garden. Weeding should be started early in the season when the weeds are small and easily removed. Be sure not to weed out desirable vegetable seedlings! Inspect the area carefully before weeding to determine what stays (the vegetable seedlings) and what goes (the weeds!). Weeding is easiest when the ground is wet, particularly after a rain. Weeding is also a fast and easy task if done regularly when the weeds are small. Soon the vegetables will take over and the space available for the weeds will be reduced.

### **Compost Mulch:**

Organic matter is the soils and therefore plants food source. Compost is decomposed organic matter which can come from vegetable and food scraps, garden trimmings, and manure. Compost that has broken down can be applied to the garden soil as a topdressing or mulch. Feed the plants in the vegetable garden much needed vitamins and minerals by placing compost around the plants. The compost will release

nutrients into the soil which will be absorbed by the plants. Additionally, the compost placed in the garden as topdressing will act as mulch and will deter weeds from growing and help to keep water in the soil. The compost mulch should be added at a thickness of 5 - 8 cm around plants and between rows.

Compost tea makes a good nutrient supplement for the vegetables. Add a shovel full of compost to a bucket, add water and stir for a few minutes. Let it steep and the particles settle. Carefully pour the compost tea into a watering can and water your vegetables. The wet solid compost can be spread in the garden or recycled back into the compost pile or bin.

### **PROCESSING PROMPTS**

1. How much water should a vegetable garden receive each week?
2. Why is weeding a garden important?
3. Why is adding compost to the garden beneficial?
4. What role does mulch play in a garden?

## Enjoying the “Veggies” of Your Labour!

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**TOPIC** Harvesting Vegetables at their Peak

### LEARNING OUTCOMES

To learn when and how to harvest vegetables at their peak.

**TIME** 60 minutes

### MATERIALS/RESOURCES

- Trowel
- Sharp, clean utility knife
- Clean basket or other container

### INSTRUCTIONS

Discuss with members why it is important to harvest their vegetables at their peak. Discuss some of the ways that you can tell when vegetables are ready to be picked. In the garden, show members examples of different vegetables that are at their peak and the qualities that they are showing that help determine they are ready for harvest. Explain that harvesting is a continual process once it starts so they should be coming out to their gardens every day and decide which vegetables are at their peak.

Have members go through all the groups of vegetables in their garden and determine if any of the vegetables are ready for harvest. If any are ready, show them the correct method to pick each vegetable type. Have members continue to harvest the vegetables that are ready and to carefully place the vegetables into a basket or container.

In their garden record books, have members record the dates that they start to harvest each type of vegetable. Take lots of pictures.

### DISCUSSION/COMMENTS

Knowing the right time to harvest your vegetables is as important as the care you take when growing them. Each vegetable is at its peak for a determined period of time. Young vegetables tend to be more tender and flavourful so it is best to harvest early and often.

The best way to decide if a vegetable is ready for picking is from the characteristics of the plant itself. Some vegetables need to be harvested before any frost occurs while others need freezing temperatures to complete their ripening.

When harvesting, it is important to handle the vegetables with care to avoid bruising or nicking them. Some vegetables can be picked by twisting or pulling at the stem while others, such as eggplant and peppers, can be more easily harvested by using a sharp knife to cut them off the plant. Wait until the vegetables are dry to pick them to discourage post harvest diseases.

**Fun things to do:**

- Vegetable Exchange: Have members harvest their vegetables and bring them to the next meeting and exchange with their peers.

See “Appendix B” Harvest Chart for determining vegetable readiness for harvest.

**PROCESSING PROMPTS**

1. Why is it important to harvest vegetables at certain times?
2. Why should the vegetables be dry when you harvest them?
3. Why should you harvest a small amount every day instead of picking all of the vegetables at once?
4. If the vegetables are all ready all at once, what can you do?

## Share the Harvest

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**TOPIC**            Sharing the Harvest with Those Less Fortunate

### LEARNING OUTCOMES

To recognize the groups in your community in need and to share the garden bounty with them

To engage the members in 4-H objectives of public outreach and community betterment

**TIME**            (as required)

### MATERIALS/RESOURCES

- Surplus vegetables harvested from the garden
- Internet sources or telephone

### INSTRUCTIONS

Ask members if they are aware of the program “Plant a Row - Grow a Row”. Discuss with them the objectives of the program and the benefits the program provides on people who are less fortunate across Canada. Decide if this is a project that the members want to be a part of.

Have members use the internet to investigate if there is a local “Plant a Row - Grow a Row” program in their area by connecting to [www.growarow.org](http://www.growarow.org) . If there is a local program, contact them to determine where to drop off the donated vegetables. If there isn't a program, determine if the members would like to start one and use the resources on the web site to register.

Once the group knows where and when to drop off the donations, plan on harvesting a quantity of vegetables to take to the local food bank or soup kitchen. Take a field trip to drop off the donations. Have members write a summary of their experience in donating their vegetables and add it to their vegetable garden record books.

### DISCUSSION/COMMENTS

“Plant a Row - Grow a Row” is a program that runs in many communities in Canada and all across North America where gardeners share their harvest with those less fortunate. It is a people-helping-people program that assists in feeding the hungry in their local community.

Plant a Row - Grow a Row has a number of objectives;

- To support the development of positive and lasting relationships between community and its food banks and soup kitchens
- To encourage our communities to plant, grow, and harvest an extra row of vegetables for local food banks and soup kitchens
- To ensure that the produce is delivered to the food banks at specified local drop-off locations and times
- To have the food distribution agencies weigh and record the weights of donations
- To enlist the participation and/or support of Master Gardeners, home gardeners, garden clubs, youth groups, seniors, schools, churches, local growers, community gardens and the media.

Check if there is a Plant a Row - Grow a Row programs already established in your community by visiting [www.growarow.org](http://www.growarow.org) which will also tell you which of your local food banks will accept fresh vegetable donations.

If there is not a program established in your area, consider creating one by first calling the national coordinators at 1-877-571-GROW(4769).

#### **PROCESSING PROMPTS**

1. What are the objectives of the “Plant a Row - Grow a Row” program?
2. Who can become involved with the program?
3. Who benefits from the program?

## Appendices

### Appendix A:

#### Companion Plants

Main Plant	Companion Plant #1	Companion Plant #2
BEANS	Celery	Potato
BRUSSELS SPROUTS	Cucumber	
BRUSSELS SPROUTS	Cucumber	
CABBAGE	Celery	Beets
CABBAGE	Celery	Beets
CAULIFLOWER		
CELERY	Cabbage	Beets
CUCUMBER	Tomatoes	
EGGPLANT	Beans	Peas
GROUND CHERRIES	Beans	
KALE	Onions/	
LEEK	Lettuce	
LETTUCE	Lettuce	
ONION	Cabbage	
ONION	Spinach	
ONION	Spinach	
PARSLEY	Pepper	Tomato
PARSLEY	Pepper	Tomato
PEPPER	Peas	Carrots
PEPPER	Peas	Carrots
PEPPER	Peas	Carrots
SWISS CHARD	Cabbage	Beans/ Peas
TOMATO	Cucumber	Parsley
ZUCCHINI	Onions	Celery
BEAN	Celery	Potato
BEAN	Celery	Potato

BEAN	Celery	Potato
BEAN	Celery	Potato
BEET	Cabbage	
BEET	Cabbage	
CARROT	Pea	Beans
PEA	Peppers	
PEA	Peppers	
PEA	Peppers	
PARSNIP	Beans	
RADISH	Lettuce	Spinach
RADISH	Lettuce	Spinach
SPINACH	Radish	
SPINACH	Radish	
SPINACH	Radish	
SUNFLOWER	Melons	
TURNIP	Peas	Onions
Squash	Onions	
Pumpkin	Onions	
Pumpkin	Onions	
MELON - WATERMELON	Sunflower	
MELON - CANTALOUPE	Sunflower	
MELON - HONEYDEW	Sunflower	

**Appendix B:**

**Harvest Chart**

Description	Crops	Harvesting
<p><b>Allium Crops</b></p>	<p>Garlic - Stiffneck, Softneck, Elephant</p>	<p>Stiffneck - single ring of cloves around stiff stem, long term storage            Softneck - multiple rings of cloves around stem, does not store well            Elephant - very large cloves, mild in flavour, less hardy</p> <p><b>The cloves within the papery sheath of the bulb is the edible part</b></p> <p><b>Harvest late summer when leaves bottom 2 or 3 leaves begin to turn yellow (about 1/3 to 2/3 down the leaf)</b></p> <p>cure for up to 2 weeks in dry location; once the skins are dry and necks are tight hang in mesh bag in dry well ventilated location. (Panty hose work well too - drop the bulb into the toe, knot and repeat. When a clove is required, cut just blow the bottom knot!)</p> <p><b>Scape</b> (pigtail like flower) clip off to promote larger bulbs, also good for fresh eating, sautéed or cut up in food dishes.</p>
	<p>Leek</p>	<p><b>White fleshy stalk is the edible part.</b></p> <p><b>Harvest when 3/4" - 1 1/2" diameter</b> (large diameter, sweeter flavour)</p> <p><b>Dig out</b> (pulling may cause breakage)</p> <p><b>Trim off</b> roots leaving the basal plate (hard fleshy disc from where the roots emerge) intact and all but 2" of the green leaf blades.</p> <p>***can also be harvested early next spring before growth starts, if not fully mature; if overwintering cover with mulch for winter protection</p>

	Onion - Bulb, Bunching, Shallots	<p><b>Bulb within the papery sheath is the edible part</b></p> <p><b>Dry Onions - when 50% of foliage is lodged over, pull and cure @ 25°C in the garden or dry well ventilated location laying out onions in a single layer for 2 weeks, then store in mesh bags in same environment</b>  <b>***by late August if foliage has not lodged, then bend over stalk at the neck to stop fall rains from entering the bulb and to promote the curing process</b>  <b>***onions with thick necks do not store very long, use fresh</b></p> <p><b>Spanish Onions - bulb size of coffee cup, lodge over foliage at neck</b></p> <p><b>Bunching/Green/Scallions: The white and tender green leaves are the edible parts</b></p> <p><b>Harvest from anytime when they reach pencil size up until bulbing begins</b></p>
Cole Crops	Broccoli - 70-120 days	<p><b>Immature Flower stage is the edible part</b>  - 60-80 days after transplant,</p> <p><b>Cut heads (6-9" diameter) when the flower buds are still closed, about the size of match heads, (yellow flowers indicate it is past its prime)</b>  Cut head with a stem, at an angle to prevent rot</p> <p><b>Apical dominance-</b> once the head is cut, side shoots are produced, smaller florets can be harvested again and again for 8 weeks</p>
	Brussels Sprouts - 70-120 days	<p><b>Leaf Bud is the edible part</b></p> <p><b>Break off lower leaves as buds form to allow room for development (August)</b>  <b>Harvest from the bottom of plant first when sprouts are firm and solid (1-1 1/2" diameter)</b>  <b>Allow for a light frost to improve flavour</b></p>
	Cabbage -	<p><b>Head of leaves is the edible part</b></p> <p><b>Cut at stem leaving 2-3 wrapper leaves covering firm</b></p>

	70-120 days	<p>head, leaves should be tight to head, harvesting as per date of maturity or earlier if heads begin to split</p> <p><b>Harvest in morning</b> as cabbage absorb a lot of heat</p> <p><b>Smaller heads</b> will form from the stem that remains once initial head has been cut, these will be looser and smaller multiple heads</p>
	Cauliflower - 70-120 days	<p><b>Immature Flower (Curd) is the edible part</b>- which is the terminal end of shoots 50-90 days to maturity, leaving a circle of petioles around head to protect curd.</p> <p><b>Tie up leaves over head to blanch</b> (keep it white and from yellowing in the sun) when size of baseball (2 1/2 - 3") checking frequently and harvest within days when it reaches mature size</p> <p><b>Cut when head is white</b> and curds are tight ***if curds too long and loose "ricing" begins as well as yellowing and bitter flavour</p>
	Chinese Cabbage - 70-120 days	<p><b>Leaves are the edible part</b></p> <p><b>Harvest</b> outer leaves when mature or remove entire plant</p>
	Kohlrabi	<p><b>Bulbous stem (tennis ball sized enlargement at base of stem)</b>, 25-35 days to maturity</p> <p><b>Harvest when head (bulb) is size of tennis ball (2-3" in diameter)</b>, if left to grow too large, it become woody and dry.</p> <p><b>Easily marked with finger nail = tender</b> ***cutting tops off will prolong storage</p>

Corn	Sweet	<p><b>What to Look For:</b></p> <ol style="list-style-type: none"> <li>1. <b>Early milk</b> - when 68-70% milky or when juice just starting to milk which occurs 18-21 days after silking</li> <li>2. <b>Ear feels full &amp; miniature kernel appears 1/2"</b> from ear tip</li> <li>3. <b>Kernels have filled out</b> and in between rows, but not full size</li> <li>4. <b>Tassels and silks are drying</b> or brownish</li> <li>5. <b>Cob is at a 45°</b> angle from stalk</li> </ol> <p>Always check seed package for days of maturity, morning harvest is best and eaten within hours, average yield per 20' row is 30-40 ears (1 cob per plant), weather and fertilizer influence the length and shape of the ears. Pre-milk kernel is small, juice is clear and watery Milk-kernel is large and plump, sweet and high sugar, juice becomes milky</p>
Cucurbits	Cucumber	<p><b>The 'fruit' is the edible part</b></p> <p><b>Pickling</b> - pick when immature <b>5-12 days</b> after anthesis (when flowers are fully open; which in warm weather is usually 32-36 days after planting)</p> <p><b>Slicers</b> -should have a diameter of <b>2"</b> for most cultivars (50-60 days after planting) harvest every 2-3 days</p> <p>***Cucs mature quickly (40% in 24 hours), pick daily as they mature to maintain subsequent fruit development</p> <p>***to avoid disease pick only when foliage is dry</p> <p>***Cut fruit from vine and support vine with your hand as you cut to avoid vine breakage; don't flip vine over, as this causes vines to split</p>
	Squash - Summer, Winter	<p><b>The fruit is the edible part</b></p> <p><b>Summer Squash (Zucchini)</b> - <b>2-8 days</b> after anthesis (40-60 days after planting), <b>6-8"</b> long and <b>2"</b> in diameter, <b>rind is soft and dents easily with fingernail</b></p> <p>Resist the urge to let it grow big! The larger the size the less tender and flavourful they are.</p> <p>They grow almost overnight, so check daily, <b>leave 1" peduncle</b> (stem) on fruit to lower water loss</p> <p><b>Winter Squash</b> -(<b>80-140 days</b>) after light frost but</p>

	<p><b>before hard frost, vines die and flavour is enhanced, full size and a deep colour with hard rinds (rind should resist denting with your fingernail), stem begins to shrivel and turn grey.</b></p> <p>Let it cure in sun or warm area for 10 days 27-29 degrees C to promote healing, cut stem to reduce wounding, harvest by hand</p>
<p>Melon - Honeydew, Musk, Water</p>	<p><b>The fruit is the edible part</b></p> <p><b>Muskmelon - 1/2 slip stage</b> for best flavour and maximum sugar content, netting is complete over fruit; blossom end (or butt end) of the fruit yields slightly to thumb pressure, and a sweet aroma is detected when smelling the fruit</p> <p>***slip refers to how easily and completely it separates from the vine (abscission) with the rotation of the fruit</p> <p><b>Honeydew - nonslip and fruit colour</b>, harvested when fruit colour changes from lime green to creamy white and blossom end softens slightly, signs of sugar cracks on surface</p> <p>***pick melons in morning before it gets too hot ***if after picking fruit does not exhibit a perfume like odour, leave at room temperature for a few days before refrigerating</p> <p><b>Watermelon - 4 indicators of ripeness:</b></p> <ol style="list-style-type: none"> <li>1) tendrils nearest to stem dries up and turns brown,</li> <li>2) the ground spot (where it was laying in the garden) turns from white to a creamy yellow and the shiny surface turns dull</li> <li>3) knock on the melon with your knuckle - it is still immature if it makes a sharp ringing sound ripe watermelons sound muffled</li> <li>4) count 35 days from 1st female flower opening for pollination - at this point it should be ripe, however refer to steps 1,2 and 3 above.</li> </ol>

Leaf & Leafy Greens	Celery	<p><b>Leaf Stalk is the edible part</b>  120-140 days to maturity  <b>Cut mature plants when 12" high</b>  <b>A few outside stalks can be harvested before maturity or entire plant can be cut</b>  <b>Can harvest until snowfall</b>  ***can dig plant and roots and replant in crates of moist soil and store in dark cellar to keep 3-5 months</p>
	Lettuce	<p><b>Leaves are the edible parts</b></p> <p><b>start harvesting loose leaf types when they are 2-3"</b></p> <p><b>Head- cut below lower leaf and remove damaged leaves and wash</b></p> <p><b>Butterhead (Boston lettuce) - head size of large baseball up to total head diameter including outer leaves is 10"</b></p> <p><b>Romaine- cut when 12" high</b></p> <p><b>Leaf- tear off outer leaves as they mature, or cut entire plant</b>  ***since lettuce bolts (rapid upward growth, starts to set seed, is very bitter to taste) in heat &amp; matures fast; its better to harvest slightly immature than to leave too long</p>
	Spinach	<p><b>Leaves are the edible parts</b></p> <p><b>Cut plant below crown above root</b></p> <p><b>New Zealand Spinach (warm season spinach that continues to grow all summer) - cut above growing point for regrowth and subsequent harvests</b></p>
	Swiss Chard	<p><b>Leaves and stalk are the edible parts</b></p> <p><b>Harvest at "crinkle stage" when leaves just fully expanded or slightly earlier</b>  <b>Harvest outer leaves, keeping 5 centre leaves to promote further development</b></p>

<b>Legumes</b>	Beans - Snap, Dry, Shell, Pole	<p><b>Pods are the edible parts</b></p> <p>Bush - Snap (string beans) green, wax also Italian, flat pod, fava, broad bean, lima beans are all bush-type or determinate beans, that grow to certain size and stop growing; heavy producers that only last a few weeks</p> <p>Pole - indeterminate (vine type) and continue to grow flower and set fruit until frost; stay tender longer than snap beans; can also use as shell bean</p> <p><b>Snap- diameter of the pod is same as a pencil, best to taste; left too long plant stops producing</b></p> <p><b>Shell - pods are swollen &amp; plump with tender seeds</b></p> <p><b>Dry - pods are fully developed, completely dry</b></p> <p><b>Fava - pods are 6" long &amp; plump</b></p>
	Peas - Snow, Garden, Snap	<p><b>The pods are the edible parts, whereas garden peas, it is the peas inside that are the edible parts</b></p> <p><b>Snow - as soon as pod reaches mature length; slender, tender and flat</b></p> <p><b>Sugar Snap (edible podded peas) - as soon as peas are plump but not oversized and pod snaps freshly (pods are still tender)</b></p> <p><b>Garden - when pods are filled out but not bulging (knuckling); pods are tough and stringy</b></p>
<b>Root Crops</b>	Beets	<p>The root or bulb is the edible part, however beet greens can be harvested when young and tender</p> <p>When to thin?  1st - plants are 2" high, thin (harvest) greens to 1 finger apart (cut at soil level)  2nd- Root just starting to swell - thin plants to 2 fingers apart  3rd - 50 to 80 days (2 finger diameter) - Twist off greens, harvest root  4th - 90 to 110 days (3 finger diameter) - twist off greens, harvest root (long term storage)</p>
	Carrots	<p><b>The slender roots are the edible part</b></p> <p>Maturity of most varieties 120-180 days  Dig from soil or gently tug them out of the soil, grasping onto bunch of leaves close to the top of the root</p>

		<p><b>Fresh Carrots - late July through October</b>  Processing (for freezing)- October through November</p> <p>Thinning - plants are 2" high, thin to 1 "apart  <b>1st Harvest - baby carrots when carrots are pencil thickness in diameter</b></p>
	Radish	<p><b>Harvest according to seed package maturity specifications</b>  Most radish are mature 30- 50 days from direct seeding; a dry season produces woody (dry) and spicy (hot) roots</p>
	Turnip & Rutabaga	<p><b>The bulb is the edible part</b></p> <p><b>Turnip - roots and greens, flesh is white,</b>  best as fresh crop, more heat tolerant than rutabaga</p> <p><b>Rutabaga - roots, flesh is orange/yellow</b> best for long term storage remove greens</p>
Solana- ceous Crops	Eggplant	<p><b>The fruit is the edible part</b></p> <p>Can be harvested anytime after they have reached half of their mature size, usually 4-5" from calyx (attachment to the stem) to the blossom end (butt end of the fruit)</p> <p>***Early harvested eggplants are more tender and promotes further development of remaining fruit</p>
	Peppers - Hot, Sweet	<p><b>The fruit is the edible part</b></p> <p>Can be harvested green or yellow, but are completely ripe when they are red; its personal preference</p> <p>Sweet Peppers (bell peppers): Green is fresh, red is sweeter (green and red are different varieties)  ***Plant will continue to set fruit all season if harvested green, will not turn red after harvest</p>
	Tomatoes	<p><b>The fruit is the edible part</b></p> <p><b>Stages of ripeness:</b>  <b>Immature Green</b> (19-23 days to full colour) - skin is green, hard flesh, skin rubs off, seed not developed, if harvested will not ripen properly</p>

	<p><b>Mature Green</b> (9-13 days) - skin bright or whitish green, glossy and waxy, blossom end white (white star), fruit is fully grown, flesh is still hard, seeds developed and browning, locular jelly (the juicy jelly-like flesh inside the tomatoes) forming</p> <p><b>Breaker</b> (8 days) - skin has trace colour (whitish), 25% of the surface of blossom end shows slight yellow to pinkish blush, is as this stage tomatoes are picked for fresh market</p> <p><b>Pink</b> (6 days) - 75% of fruit is pink and flesh is firm</p> <p><b>Light Red</b> (3 days) - 90% is light red and flesh is firm; some have yellow shoulders</p> <p><b>Full Ripe</b> (1day) - 100% deep red colour; flesh is still firm, shoulder fully coloured, skin yields slightly to finger pressure</p> <p><b>Over Ripe</b> - 100% deep red colour and fruit starts to soften and breakdown</p>
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## Resources

### Print:

Creasy, Rosalind; Edible Landscaping; Sierra Club Books, San Francisco, California, 2010.

Dannenmaier, Molly; A Child's Garden; Timber Press, Portland, Oregon, 1998.

Smith, Edward C.; The Vegetable Gardener's Bible; Storey Books, Pownal, Vermont, 2000.

Smith, Edward C.; The Vegetable Gardener's Container Bible; Storey Publishing, North Adams, Main, 2011.

### Internet:

<http://www.almanac.com>

<http://www.growarow.org/indexENG.htm> See menu for *Tips on Growing Vegetables* and *The Plant a Row Grow a Row JUNIOR Program*

[http://www.youtube.com/watch?v=\\_kWJ35ynzSM](http://www.youtube.com/watch?v=_kWJ35ynzSM) (vegetable garden design)

<http://www.youtube.com/watch?feature=endscreen&v=vymivy-7KTg&NR=1> (garden preparation)

[http://www.youtube.com/watch?v=\\_BOjv\\_0DH4A](http://www.youtube.com/watch?v=_BOjv_0DH4A) (soil preparation)

<http://www.youtube.com/watch?v=npDgozWsyFs> (vegetable selection)

[http://www.youtube.com/watch?v=\\_dDedxmi7uw](http://www.youtube.com/watch?v=_dDedxmi7uw) (growing in containers)

<http://www.youtube.com/watch?v=3OWJmZvJuW8> (harvesting)

### Canadian Green Industry Associations:

Canadian Nursery Landscape Association: [www.canadanursery.com](http://www.canadanursery.com)

Quebec Nursery Association: [www.aqpp.org](http://www.aqpp.org)

British Columbia Landscape & Nursery Association: [www.bclna.com](http://www.bclna.com)

Landscape Manitoba: [www.landscapemanitoba.com](http://www.landscapemanitoba.com)

Landscape Alberta Nursery Association: [www.landscape-alberta.com](http://www.landscape-alberta.com)

Landscape New Brunswick Horticultural Trade Association: [www.nbhta.ca](http://www.nbhta.ca)

Landscape Newfoundland Labrador: [www.landscapenl.org](http://www.landscapenl.org)

Landscape Nova Scotia Horticultural Trades Association: [www.landscapenovascotia.ca](http://www.landscapenovascotia.ca)

Landscape Ontario: [www.landscapeontario.com](http://www.landscapeontario.com)

Saskatchewan Nursery Landscape Association: [www.snla.ca](http://www.snla.ca)

**Other:**

Google search for your local Master Gardener, Horticultural Society or Garden Club who may have resource volunteers to assist in providing information or guest presentations at your member meeting.