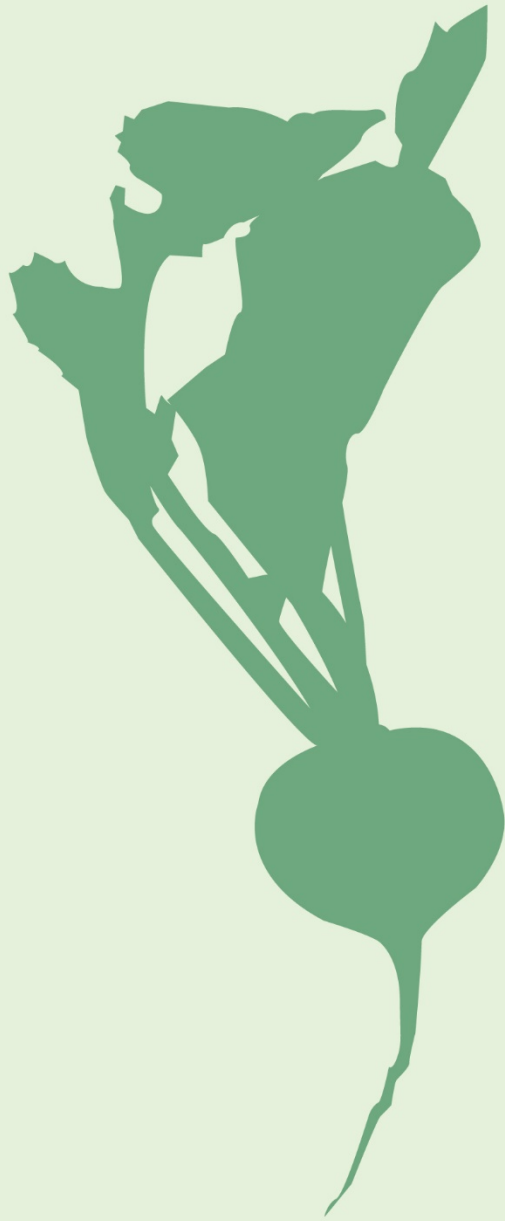




Farm to School



Farm to School:

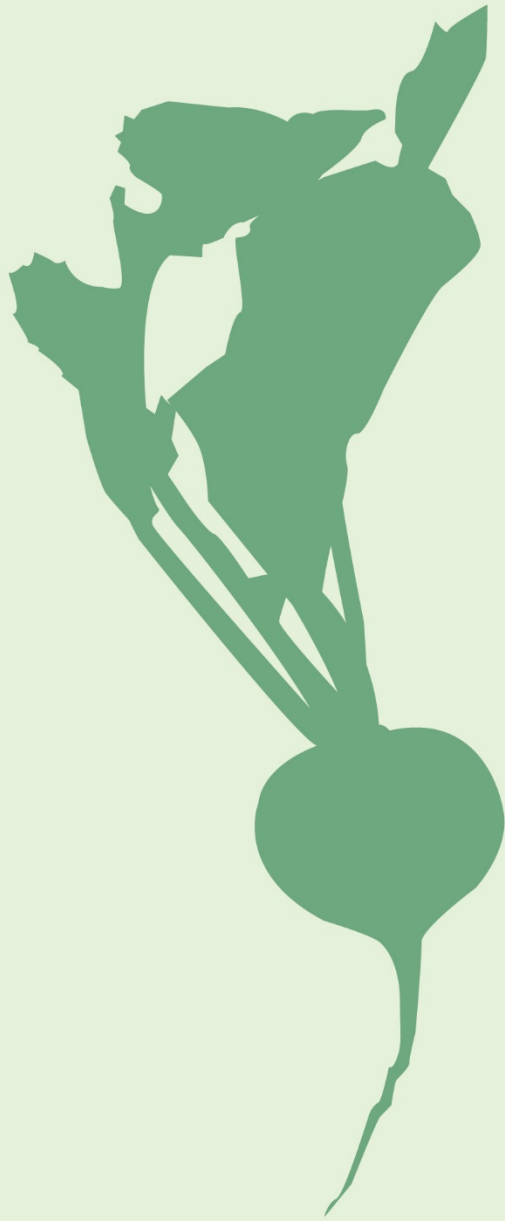
There are three aligned pillars of Farm to School:

- 1. Healthy Local Food**
- 2. Food Literacy and Hands-On Learning**
- 3. Community Connectedness**

What do you think the three pillars mean and why would they be important?

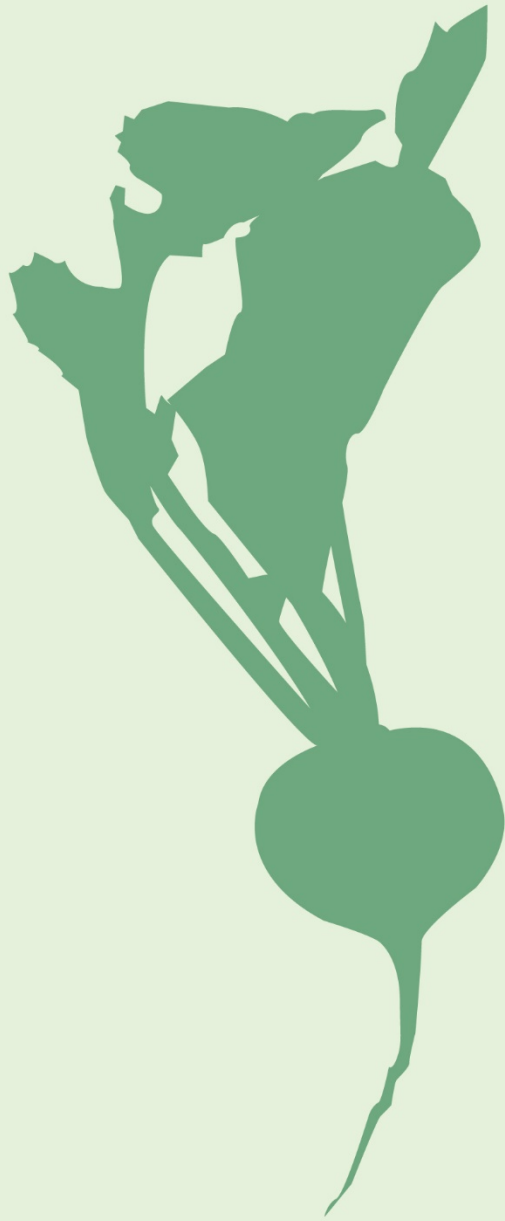
What activities can you imagine for each pillar?

Who might these activities benefit and how?



Defining Farm to School

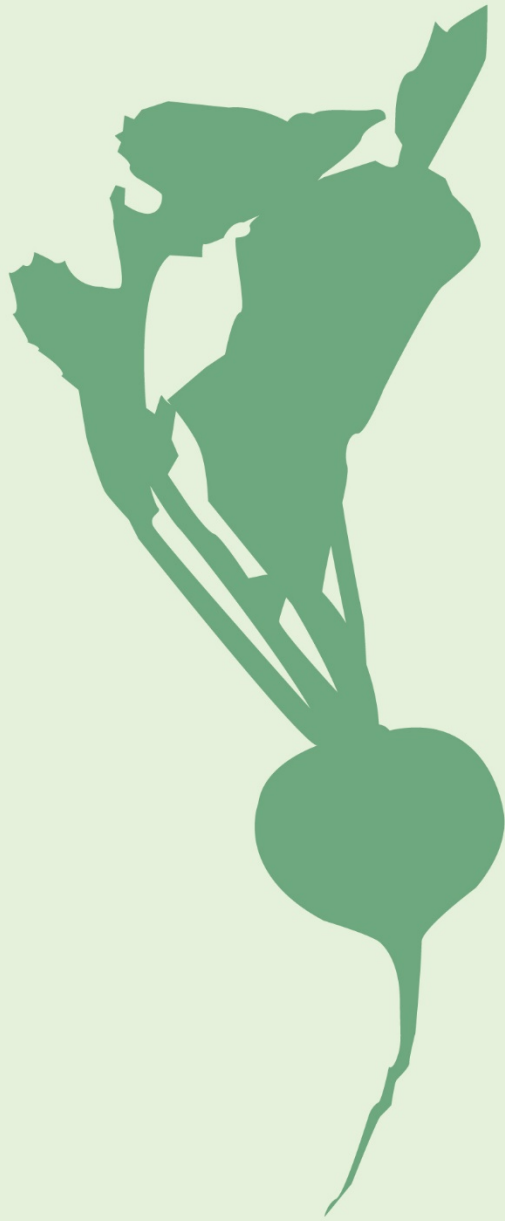
What is Farm to School? Farm to School activities and programs endeavor to bring healthy local and sustainable foods into schools, provide food literacy resources to schools and students, and connect the community of stakeholders. These efforts are also underway for hospitals, Post-Secondary education campuses, and other public institutions (Farm to Cafeteria Canada, 2018.)



Farm to school implementation differs by location but always includes one or more of the following:

Farm to school enriches the connection communities have with fresh, healthy food and local food producers by changing food purchasing and education practices at schools and early care and education sites.

Students gain access to healthy, local foods as well as hands-on and theoretical education opportunities such as school gardens, cooking lessons and farm field trips, and healthy diet and nutrition curriculum. Farm to school empowers children and their families to make informed food choices while strengthening the local economy and contributing to vibrant communities.

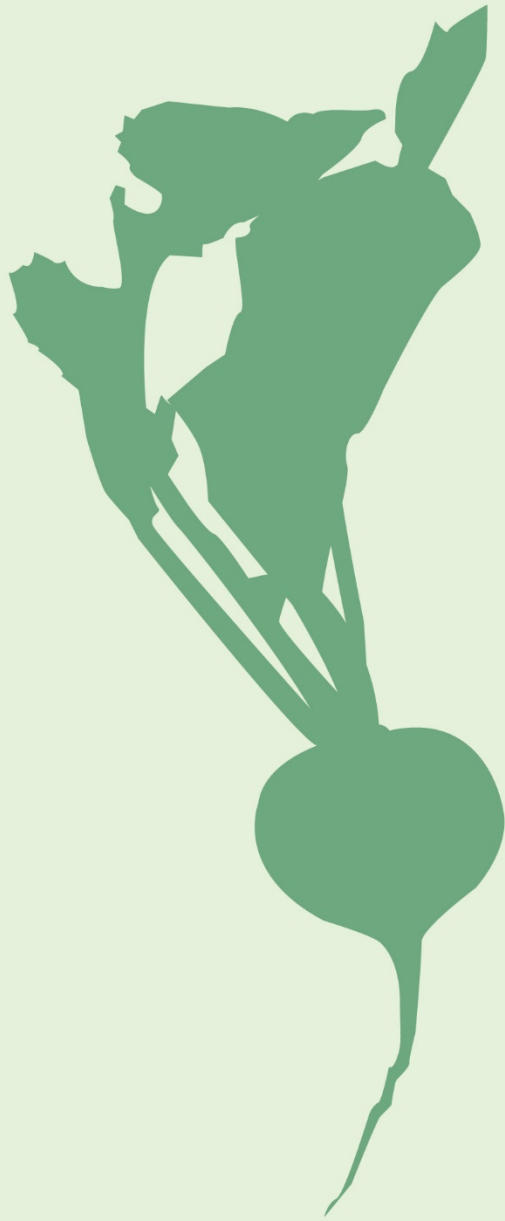


Procurement: Healthy local foods are purchased, promoted and served in the cafeteria or as a snack or taste-test;

Education: Students participate in education activities related to agriculture, food, health or nutrition;

Strengthens community economies through local food procurement and connects the community through activities designed to engage all stakeholders;

School gardens: Students engage in hands-on learning through gardening (farmtoschool.org, n.d.; farmtocafeteriacanada.ca, n.d.).



Benefits of Farm to School

A review of literature from both peer- and non-peer reviewed reports cited the most common benefits of F2S programs as an increase in fruit and vegetable consumption in children (Berlin, et al. 2010). They are also widely touted as promising a range of economic, health and academic benefits including:

- Support for local farmers (increasing their profits), the community, and the economy;**
- Higher quality food in schools;**
- Increased fruit and vegetable intake in students;**
- Improved diets;**
- Increases in student knowledge about nutrition;**
- Increased participation in school meal programs;**
- Improved school public relations (Aftosmes, A. 2011).**



Benefits of Farm to School

According to a Health Canada Commissioned Study from 2000:

Farm to School provides an immense amount of benefits for students and the community. Student nutrition is improved with increases in healthy food consumption such as fresh fruits and vegetables. Food literacy provides a base for health and wellness where food knowledge improves habits and willingness to try new foods and make healthier choices, it engages educators and parents, reduces food waste, can provide more sustainable choices, and increases the community's acceptance, affinity and relationship to local food. Local food and food literacy both lead to increased agricultural and associated economic investment and output (farmtoschool.org, n.d.).

We cut out these cards and used 4 or 6 cards describing actual (evidence-based) benefits alongside 2 or 3 cards describing benefits that are not associated or verified. Students were tasked with trying to choose the cards with actual benefits.

Benefits of a Healthy Diet
Evidence-based Health and Wellness Outcomes

**May assist in
maintaining healthy
weight**

**May aid in
preventing diabetes**

**May assist heart
health**

**Usually increases
vegetable
consumption**

**Improved
physical activity
promotes a feeling of
wellness/perception
of improved health**

**Usually increases
fruit consumption**

Benefits of a Healthy Diet

Health and Wellness Outcomes - False/Non-Benefits

Lower BMI

**Greater pulmonary
health**

Better muscle mass

**Enhanced skeletal
health**

**Increased olfactory
activity**

**Increased synaptic
activity**

Benefits of a Healthy Diet
Evidence-Based Academic Outcomes

Improved academic performance

Increased percent of students graduating

Increased percent of students applying to and going to college or university

Improved class attendance / less absenteeism

Improved classroom behaviour

Less students at-risk; reduced suspensions

Benefits of a Healthy Diet
Academic Outcomes - False/Non-Benefits

**Higher incidence of
Students completing a
PhD**

**Higher levels of
language
comprehension**

**Higher levels of music
comprehension**

**More global awareness
of education**

**More students
follow STEM
disciplines in post-
secondary studies**

**More students gain
engineering degree**

Benefits of Supporting Local Food
Evidence-Based Community Outcome Benefits

**Increased local
agricultural activity**

**Improvements
to the local food
supply chain**

More food security

Increased CSA activity

**Potential for
growth for the
local economy**

**Increase in community
awareness about and
interest in purchasing
local foods and foods
served in school
cafeterias**

Benefits of Local Food

Community Outcomes – False/Non-Benefits

**Increased global
agri-business**

**Innovations in food
processing**

**Re-thermalization
improvements**

**Improves global
trade relations**

**Lengthens local
supply chain**

Improves yield



ecosource
Growing a Green Community

Grown in Mississauga Training Manual

Learn how to grow fresh vegetables at home with this interactive step-by-step guide inspired by the experiences of our Local Food Ambassadors



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About Ecosource

Ecosource is an innovative environmental organization that empowers the community to become more environmentally responsible through creative public education. Our vision is to move public attitudes and perceptions about environmental issues towards responsible personal action, while inspiring personal accountability for the viability of the planet.

We are leaders in grassroots environmental education, with a focus on community gardening, urban agriculture, local food in schools, waste reduction, youth leadership and teacher education. Ecosource staff work in schools and throughout the community, delivering interactive learning experiences and fostering leadership to inspire people of all ages to take actions that improve the health and sustainability of our planet.

Learn more and connect with us at www.ecosource.ca.

Community Roots

The Community Roots project (2016-2018) increased opportunities for Peel residents to connect with nature, understand their impact on the local food system through hands-on learning, and take action to improve the health of their communities. Through Community Roots, Ecosource empowered local youth to develop urban agriculture and social enterprise skills at the Iceland Teaching Garden. The Iceland Teaching Garden is a 15,000 square-foot market garden in Mississauga that provides organic and sustainable urban food production education. Local Food Ambassadors, youth leaders in local food, aided in the development of this manual.

Ecosource's Community Roots project was generously supported by the Ontario Trillium Foundation.



An agency of the Government of Ontario
Un organisme du gouvernement de l'Ontario





Land Acknowledgment

As many of us are settlers on this land, it is our collective responsibility to pay respect and recognize that the land we farm today is part of the territory and treaty lands of the Mississaugas of the Credit First Nation. In recognizing that our gardens occupy colonized First Nations territories, and out of respect for the rights of Indigenous people, it is our collective responsibility to recognize our colonial histories and their present-day implications, and to honour, protect and sustain this land.

Historically, the lands of southern Ontario were shared hunting territory for the Anishinaabek and Haudenosaunee Confederacy. These nations had a treaty, referred to by the Anishinaabek as “Gdoo-naaganinaa”, which translates to “one dish”, and to which the Haudenosaunee refer as, “the dish with one spoon”. The treaty signified an understanding between nations that these lands were a shared resource and it was everyone’s responsibility to look after the shared ecology of southern Ontario. When settlers arrived, this treaty was extended to include Euro-Canadians, and it was expected that settlers would respect the bounds of the “one dish” treaty, by sharing resources and living in peace, while respecting one another’s sovereignty and nationhood.

Today, Ecosource is grateful to have the opportunity to work in the community and on this territory, and we strive to honour the principles of the “one dish” treaty through our stewardship and community initiatives, to protect the wellbeing of all living things on this land, for generations to come.

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INTRODUCTION

Ecosource's Iceland Teaching Garden is a 15,000 square-foot peri-urban food growing space modeled after a small-scale market garden in Mississauga. It provides a growing environment for food donations and serves as a base for our urban agriculture educational programming. The garden is cultivated following organic and sustainable principles that focus on soil health, biodiversity, succession planting, crop rotation and more. Season extension techniques are employed to enable the production of late fall and early spring salad greens and other cold-hardy plants. Each year, schools, community groups, corporate volunteers, youth urban agriculture leaders and community volunteers visit the garden to learn about organic and sustainable gardening, while helping to grow food for the community.

The Iceland Teaching Garden was first cultivated in 2010, under the Mississauga Sustainable Urban Agriculture project (MSURA) funded by the Ontario Trillium Foundation. Through MSURA, a partnership with Eden Community Food For Change as well as support from the City of Mississauga and the University of Toronto Mississauga allowed us to increase access to fresh, healthy and local food for food banks and develop food growing training programs for youth and community members.

The Community Roots project emerged out of MSURA and allowed Ecosource to expand its food system and urban agriculture education. Through the Community Roots project, Ecosource worked with youth leaders in Peel, our Local Food Ambassadors, to connect our communities with nature and increase their understanding of the impact of local food systems. Local Food Ambassadors received urban agriculture and social enterprise training at Ecosource's urban agriculture teaching site, the Iceland Teaching Garden.



to grow their own food at home and work together to improve the health of our local food systems. As we say in all our workshops – you don't need any gardening experience to enjoy this!

How to use this manual

Each chapter focuses on a different sustainable food production topic. You may jump between chapters; however, each chapter builds upon previous ones, so it is recommended you work cover-to-cover. Keep an eye out for stories and profiles from our Local Food Ambassadors to get inspiration for your own garden!



This is a **definition box**. When you see this, it means a new term is being introduced and explained.



This is our **tip box**! You can find environmental, gardening and education tips here.



This box offers **safety and cautionary advice**.



Get your sharpener ready! This pencil means it's time for you to start working on your garden plan. We've included space for you to work right in the manual.

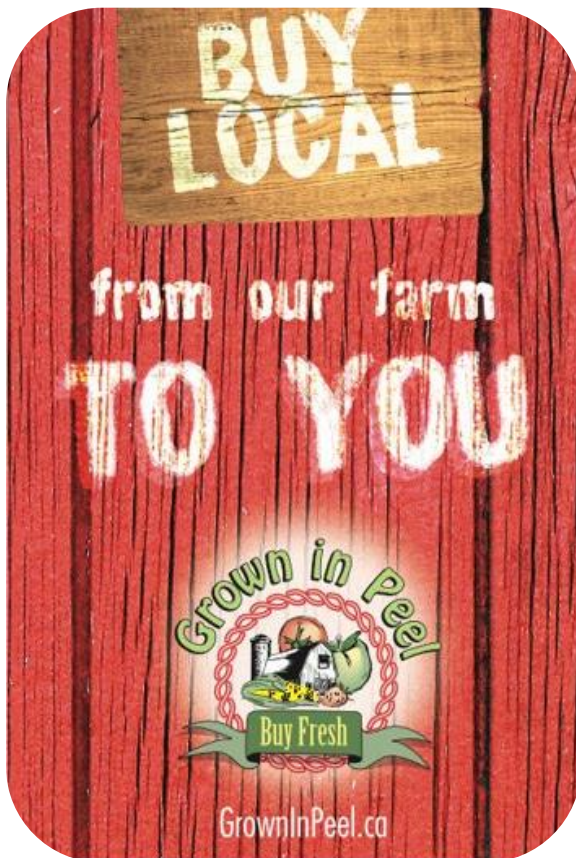
After working through this training manual, you will have a completed growing calendar and garden plan. These are two key documents that you will continuously reference throughout the year. The growing calendar will outline all the major tasks that need to be done and when. The garden plan will be a visual documentation of the exact layout of your garden.

Equipped with these tools, we hope you'll feel empowered to dig in and start gardening on your own. It may not always be easy, but remember: gardeners learn by trial and error, nothing is perfect in nature, and the fresh, healthy food that you grow will be the best reward for your perseverance and hard work.

FOOD SYSTEMS

Where in the world is your food from?

Whether we're heading to a supermarket or ordering take out, we often take our food at face value. When we sit down for a meal, are we thinking about the economic, environmental, political, and social conditions surrounding our food's production and distribution? Are we thinking about how the imported bread, local and organic pickled daikon and conventional pork sausage in our Bánh mì have different impacts on our environment and health? Understanding the way our food moves through the system is the first step in thinking about how we can advocate for change and make more sustainable choices.

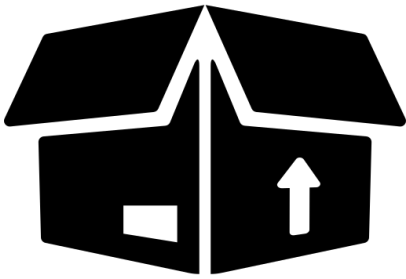


It's sometimes hard to remember that local food exists in urban cities that are bustling with people, buildings, cars and plazas. But, did you know that the Region of Peel has a thriving agricultural sector? Grown in Peel is an initiative that promotes local agriculture and food, connecting producers with consumers. Each year, the Grown in Peel guide is published in-print and online. The guide includes a map of local farms, retailers, and markets where you can connect with local farmers and buy local food. The Grown in Peel guide is a great reference for engaging in our local food system.



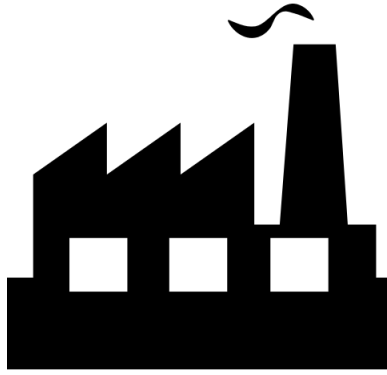
A **food system** is the complete journey of a food item from growth to disposal. There are different stages and processes in a food system which include, in no particular order:

Packaging



www.ecosource.ca

Processing



www.ecosource.ca

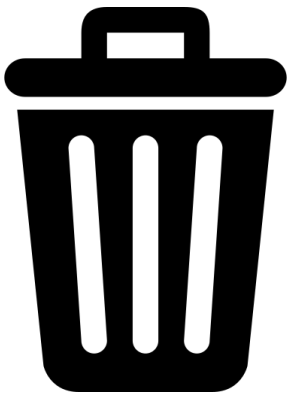
Growing



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Disposal



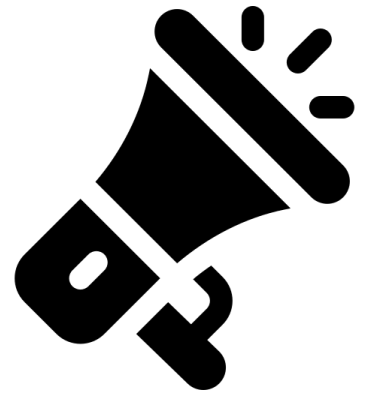
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Retail



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Marketing



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Consumption



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Harvesting



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Transport



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Think of a food item that you eat often and try to correctly order the food system stages in middle column of the chart (*hint: some stages may occur more than once*).

Food item: _____

Input	Food System Stage	Output
<i>Seeds, water, soil amendments, labour, wages for farmers, machinery/ equipment, time</i>	<i>Example: Growing</i>	<i>Possible soil amendment run-off, pollution from machinery, habitat for animals and insects, food item</i>

Each stage along the food system requires **inputs** and produces **outputs**. Brainstorm some environmental, social and economic inputs and outputs that occur at each stage. Add your ideas onto the chart in the appropriate columns.



An **input** is something that is added to complete the food system process.

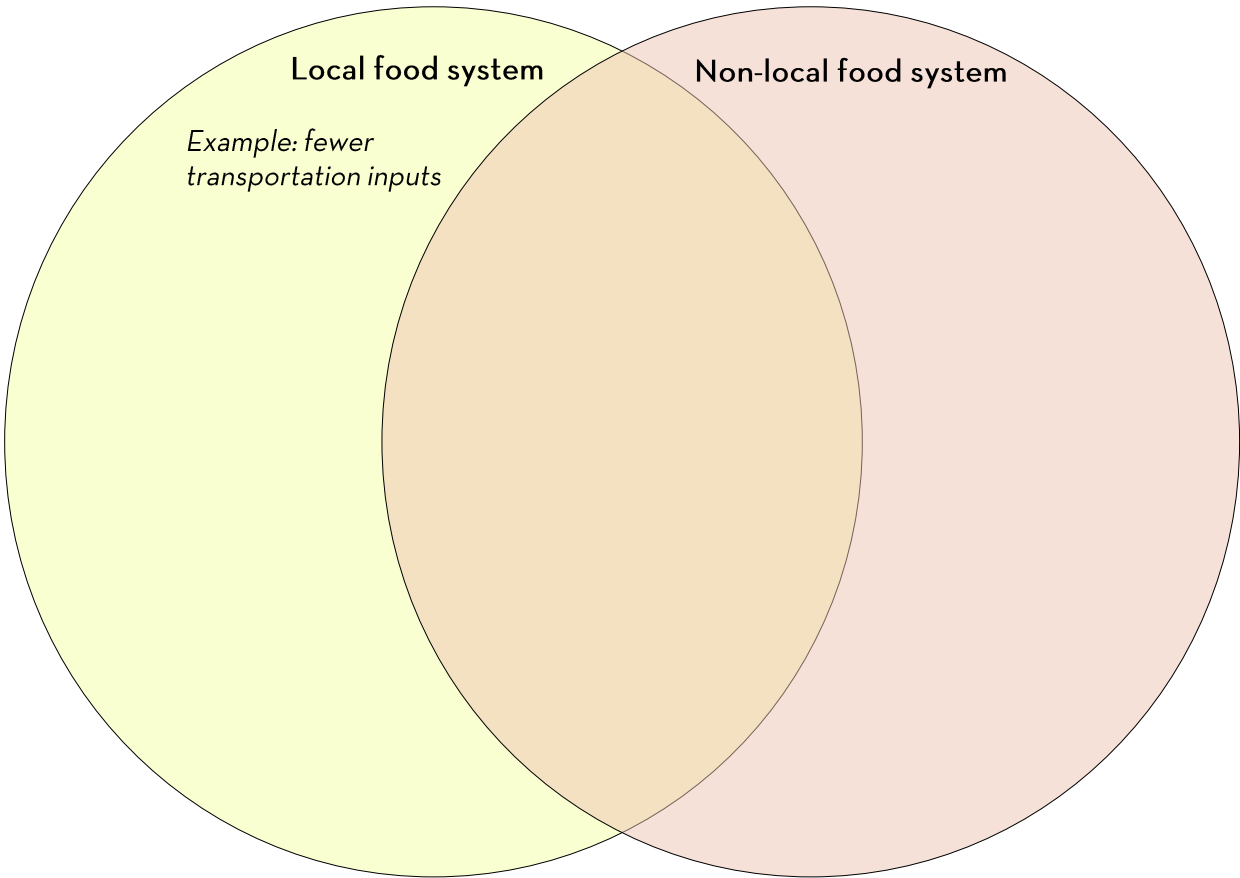
An **output** is something that is produced during a food system stage.

Outputs can leave the food system or become inputs for the next stage.

Everyday, we engage in different food systems that are combinations of local, global, simple, and complex. Consider how the food system would change for a local and non-local version of a specific food item, such as an apple. Would the food system have as many stages? How would the inputs and outputs change? Are there any stages, inputs, or outputs that would stay the same?



Record your answers in the diagram below:





Buying local versions of food items can greatly decrease your environmental footprint, help support our local economy and strengthen your community connections.

We live in a region with diverse and tasty cuisine from all over the world. Some items such as bananas, avocados and mangoes cannot be grown here and require us to participate in a global food system which is usually more complex and involved. Being environmentally conscious doesn't mean you have to completely disengage from our global food systems. Being aware of where your food is coming from and its impact will help you make choices that align with your values. Understanding how the food systems of local, global, organic and conventional food items are similar and different can help us start thinking about the role growing our own food at home plays in food systems, food security and food culture in Peel.

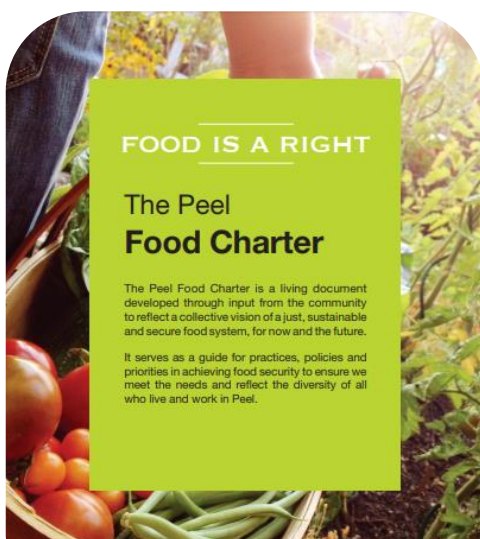
FOOD SECURITY

What does food security mean to you?

Food security is a complex concept that relates to all steps in our food system, including production, distribution, consumption, and disposal. It also involves all the political, social, economic, and environmental factors that influence what, where and how food is grown. To achieve food security, we need to support a functional food system that provides all people with access to the food they need to thrive no matter their physical, social or economic situation.

Canada's Food Guide, the UN Special Rapporteur on the right to food and Region of Peel's Food Charter all highlight the importance of food security in building sustainable and resilient communities. If you would like to learn more about food security in Canada and Peel, these are great documents to reference. These documents can help us begin to understand how our personal reflection on food security and systems in our local communities fit into the regional, national and global context.

Feeling a bit overwhelmed by the idea of food security? You're not alone! Remember, food security is a very complex concept that some researchers have dedicated their careers to studying. The best way to delve deeper into food security is to have discussions with your friends, family and community. Listening to the stories your neighbours share about food can give you a diverse perspective on the intersections between the food we consume everyday and the political, social, economic, and environmental factors that influence it.



The Peel Food Charter was endorsed by the Region of Peel in November 2017. It provides a framework for engaging stakeholders across the food system in promoting food security for all residents of Peel. The charter is available online at http://www.povertyinpeel.ca/_include/peel-food-charter.pdf

What does food security mean to you?

Consider some of the factors of food security shown on the following pages. Cut these cards out and use them to start conversations with your friends and family about food security.

Affordable Food



Food that I can comfortably afford without sacrificing my quality of life

www.ecosource.ca



Healthy Food



Food that is nutritious and contributes to my overall health

www.ecosource.ca

Fresh Food



Food that is not unnecessarily processed and that is of good quality. Food that is not rotten or moldy

www.ecosource.ca

Organic Food



Food that is grown using organic methods which include no synthetic fertilizers, chemicals, or GMOs (genetically modified organisms, etc.)

www.ecosource.ca

A Grocery Store Within Walking Distance



Food that is available close to my home and that I can comfortably access

www.ecosource.ca

A Garden to Grow Food in my Neighbourhood



Access to a space where I can grow my own food

www.ecosource.ca

Land for Local Farming



Land for farmers to grow food that is close to me

www.ecosource.ca

Local Farmers' Markets



Access to food that is grown by local farmers. Being able to meet the person that grows the food that I eat

www.ecosource.ca

Nutrition Education in my Community



Being able to learn more about different kinds of food and their nutrition values

www.ecosource.ca

Cooking Education in my Community



Being able to learn how to cook and prepare food

www.ecosource.ca

Food Growing Education in my Community



Being able to learn how to grow food

www.ecosource.ca

Stable Jobs in Agriculture and Food Sectors



Making sure that the workers who grow, cook, and prepare my food feel financially secure and continue doing that

www.ecosource.ca

Locally-Grown Food



Food that doesn't have to travel long distances to reach my plate

www.ecosource.ca

Variety of Food



Access to lots of different kinds of food for different kinds of cuisine

www.ecosource.ca

Sustainable Food



Food grown, transported, processed, consumed, and disposed in a sustainable way

www.ecosource.ca

Food Transported in a Sustainable Way



Food that reaches my plate without being wasteful or harmful to the environment

www.ecosource.ca

Food Waste Disposed in a Sustainable Way



Food that produces waste that does not harm our environment

www.ecosource.ca

A Network of Local Food Banks and Pantries



Access to different sources of food, even if someone can't afford to buy it

www.ecosource.ca

Food Banks that Accept all Individuals Regardless of Documentation



Everyone having access to food banks, without having to prove anything

www.ecosource.ca

Good Food Procurement Practices



Making sure our schools, hospitals, and institutions are thinking about the kind of food they are buying

www.ecosource.ca

Which item above stood out the most or is most important to you?



Was it difficult to choose just one item? In reality, a number of these items may be important to you. They are all interconnected and often we cannot have one without another. For example, we cannot have local farmers' markets without having land for local farming. These political, social, economic, and environmental factors make up what we call **food security**.



“Food security is the condition in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

- Food and Agriculture Organization of the United Nations

Based on this definition and the items above, do you think everyone in our community is food secure? Why or why not? What can we do to make a difference?



Food security is complex and in order to create a food secure community we need to engage multiple stakeholders across the food system. As you work through the rest of this manual, we encourage you to continue to re-visit the ideas introduced in this chapter and have conversations with your friends and family about food systems. Though growing food at home is one action we can take to increase our access to fresh food, it doesn't solve the systemic problems we need to address when working toward food security for all. Continuing the dialogue about food security, connecting with your neighbours about issues that matter to you, and getting involved with local organizations working on food access are great ways to have an impact.

GROWING REQUIREMENTS

Back to basics

Growing our own food not only gives us delicious fresh produce to eat, but is also a way for us to connect with nature, better understand our impact on the environment and interact with our food systems and food security on a very local level. Just like any skill, growing takes practice. You'll learn just as much from your mistakes as you do from your successes. Understanding the growing requirements of your plants and garden will set-up a strong foundation for growing success!

Through your growing journey, you will realize that different plants have different needs. Just like we are all individuals with our own characteristics, plants are living organisms that need things to survive and thrive. What are some things that plants need to survive? How are these different for different plants?



Some factors to consider when you are growing include sunlight, water, air, soil and space. We will explore these factors in-depth in upcoming chapters, but here is a general overview for reference.



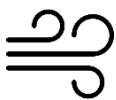
Sunlight

Plants need sunlight to conduct **photosynthesis**. Different types of plants need different amounts of sunlight.



Water

Water helps carry nutrients, dissolved sugars and other things plants need from the soil into the plant. Drainage is important to ensure your plants don't get too much or too little water. Again, not all plants need the same amount of water to thrive.



Oxygen

This is an easy one – all plants need air! They take in carbon dioxide and release oxygen. Air and wind movements play an important role in keeping your plants healthy and managing pests and disease. Some plants are even pollinated by wind, a process called **anemophily**, like many cereal crops.



Soil

Soil is a place for plants to anchor their roots. It also holds many of the important micro-organisms, nutrients and water that plants need. Different plants thrive in different kinds of soil and sometimes **amendments** like compost are needed to ensure your soil is the right composition for your plants.



Space

No one likes being overcrowded. Plants come in all shapes and sizes and need adequate space to grow. Your garden space characteristics will also help you determine which plants will be most successful.



Photosynthesis is a process used by plants to convert energy from sunlight into an accessible energy that it can use to grow.

Anemophily is a process of pollination that occurs through wind.



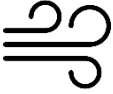

Amendments are products and materials that are added to your soil to improve plant growth and health and soil health and fertility.




At the Iceland Teaching Garden, our Local Food Ambassadors have learned through experimentation and hands-on growing what different plants need to thrive. Here is one Local Food Ambassador giving a group of youth a tour of the garden and pointing out the trellising system for our tomato crops. Our Local Food Ambassador then facilitated a discussion about the important roles trellising and suckering tomatoes play in adequate air circulation and pest and disease management for tomato plants.

SELECTING AN OUTDOOR GARDEN SPACE

Anyone who has seen a weed thriving in the crack of a sidewalk knows that plants can grow almost anywhere. However, vegetables can be a bit more particular about their growing conditions, especially if you want to optimize their growth and increase your production. No matter the size of your garden, an outdoor growing space will typically have most of the elements your plants need to grow. Nonetheless, we recommend carefully considering the factors that support plant growth at the very beginning when you are selecting your outdoor garden space. This will ensure you set yourself up for success. Let's look at the growing requirements again, but this time through the lens of an outdoor setting.

Factor	Considerations	Notes
 Sunlight	Although sunlight is easily accessible outdoors, we live in a city with urban and natural structures that cause shadows. These structures include houses, apartments, trees and fences. Plants requiring less sunlight can be planted in these shadier areas. A good rule of thumb is placing your garden in an area that receives at least 6 hours of direct sunlight per day.	<i>Does your garden get enough sun? Complete the sun-shade map activity on pages 17 and 18 to find out.</i>
 Water	Your soil will naturally replenish its water supply with snowmelt and rainfall. However, you will need to water your garden most days, so make sure you have a water outlet close by. If your garden is naturally waterlogged, you will want to build trenches to drain and redirect water or use raised beds. Rain barrels are a great way to capture rainfall for your garden.	<i>How will you water your garden?</i>
 Air	Wind and air movements play an important role in helping to strengthen and pollinate outdoor plants. Extreme heavy wind can damage plants. For this reason, it's important to consider locating your garden in a sheltered area away from high winds.	<i>Is your garden sheltered from high winds?</i>
 Soil	The level of biodiversity you see in your soil is a good indicator of how healthy it is. With the natural soil you have, you can build your soil health and fertility up over time with compost, natural soil amendments and using organic growing techniques.	<i>Do you see evidence of biodiversity in your soil?</i>

 <p>Space</p>	<p>Ideally, a south facing location with a very slight slope is best as the soil will warm from the sun and drain faster in the spring. However, you can adapt to the space you have by selecting the right plants for your conditions.</p>	<p><i>Which direction does your garden face? Is the ground sloped or flat?</i></p>
--	---	--



Direct sunlight is when the rays of the sun hit your plants directly.

Rain barrels are outdoor containers that collect and store rainwater from your roof.

Biodiversity is the variety of living organisms such as plants, trees and animals in your garden.



Rain barrels allow you to utilize rainwater before it runs off into our storm drains and natural bodies of water. You can purchase rain barrels online or at garden centres. Community Recycling Centres sell subsidized rain barrels for Peel residents.



Home gardens can be all different designs but are generally divided into two broad categories: in-ground and raised beds. There are a number of considerations that go into making the choice between these two garden types, but the most important factor is the quality of your soil. If you have concerns about your soil, especially with regards to possible contaminants, we recommend conducting soil testing by sending samples to an institution like the University of Guelph's Agriculture and Food Laboratory. Another option is to install raised beds with a geotextile barrier instead. See the chapter on Soil Health for more information.


Since gardens are hard to move once they are built, we recommend paying close attention to the amount of direct sunlight your site receives before putting your shovel in the ground. Of all the growing requirements listed above, it is hardest to change the amount of sunlight your site receives. Plants can be protected from the wind, soil can be amended with compost, water can be brought in, and drainage systems can be added. However, there is not much that can be done if you realize your garden is not receiving enough sun aside from choosing plants that are shade tolerant. This is especially important for vegetable gardening since most vegetables require a minimum of 6 hours of direct sunlight per day.

One of the simplest ways to determine if your site meets the sunlight requirements is by creating a sun-shade map of your outdoor space. This map will help you understand how sunlight moves through your site and can indicate good locations for your garden. Below is a sun-shade map created by our Local Food Ambassadors for the Iceland Teaching Garden. Sometimes a very sunny spot in the morning can be in deep shade by the afternoon so it's a good idea to observe your site throughout the day. Sun-shade maps should be created for the spring, summer and fall seasons as sunlight movements will change through the year.



Iceland Teaching Garden - Summer

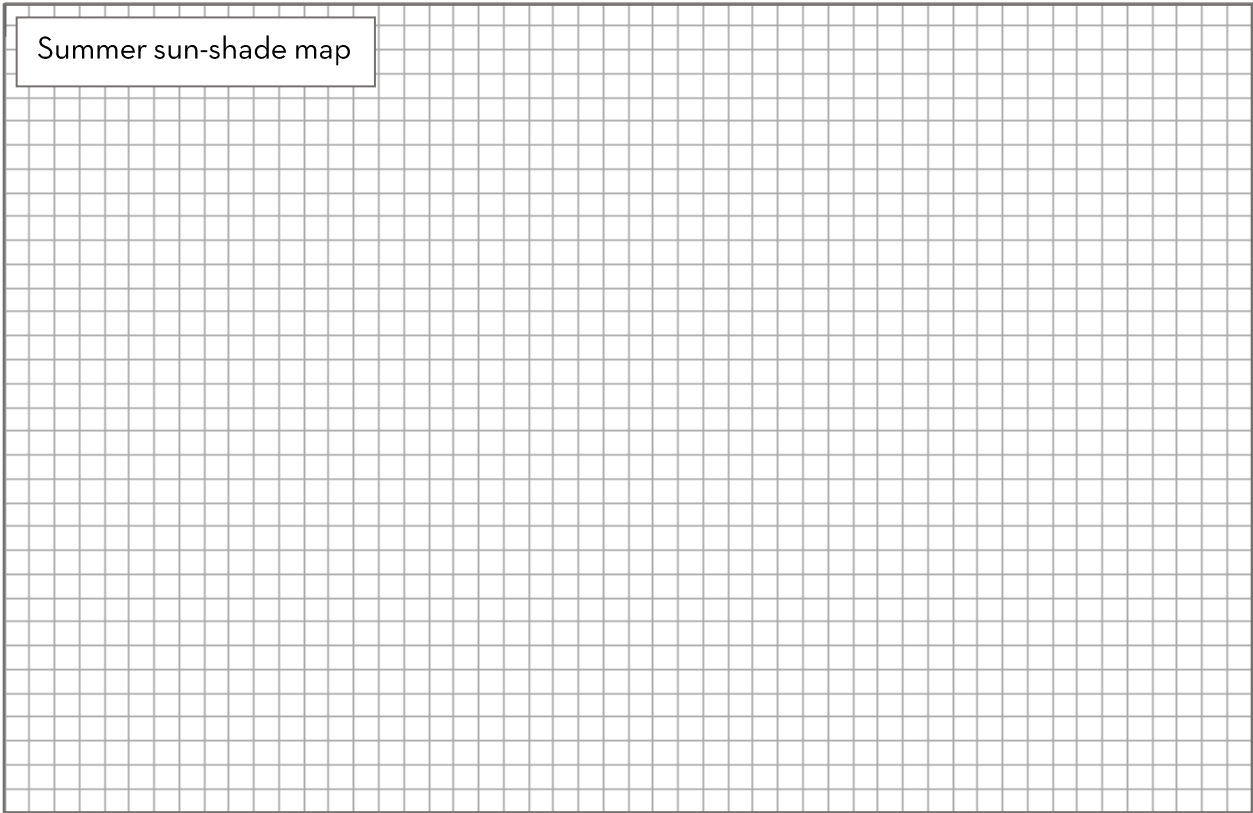
My sun-shade map for outdoor growing

 Sketch your outdoor space in the boxes below. Include things like trees, fences, houses, and another structure that may cast a shadow. During each season, draw where the sun and shade spots are in the morning, afternoon and evening. In the spring, are there any areas that are waterlogged? Are there any areas that become waterlogged after heavy rainfall in the spring and summer? Highlight these on the map.

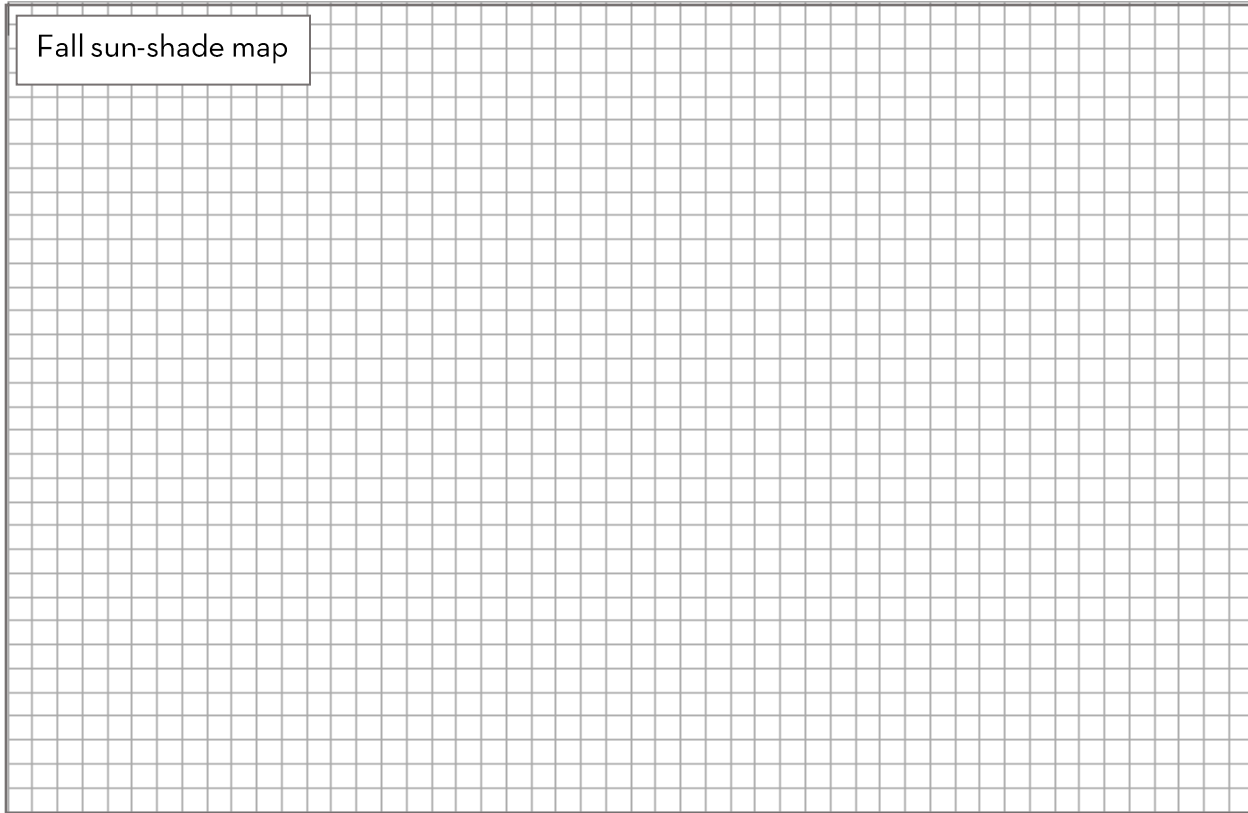
Spring sun-shade map



Summer sun-shade map



Fall sun-shade map





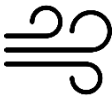

Now that you have completed your sun-shade maps, look back at the considerations in the table at the beginning of this chapter. Are there any sunny spots that wouldn't be suitable for growing because they are too windy or too sloped? Take these into consideration when selecting the best location for your outdoor garden and make note of any problem areas on your maps. As we work through the next chapters, these maps will inform other aspects of your garden plan, including which plants you select, when and where you should plant them, and how many plants your garden can accommodate.


Like everything in gardening, your maps will need to be tweaked over the course of the season and as your garden matures. If this is your first-time gardening in your space, you may not have all the information you need at the beginning of the season. Keep coming back to your maps as you work to add notes about conditions that you didn't expect. It's also a good idea to keep track of plants as they grow. For example, if you select raspberry bushes or other perennials for your garden, these grow bigger overtime and will impact what you can plant next to them as more of the surrounding area is shaded. Continually reviewing and adding observations to your maps as your garden grows will help you improve your plan for next year.

SELECTING AN INDOOR GARDEN SPACE

A misconception in food growing is that your garden must be outdoors. With cities continuously developing and more apartments being built, gardeners have had to get creative and savvy with their growing techniques. Growing indoors is a great option for people in Peel who cannot grow outdoors and for those who would like to grow year-round. Indoor settings are less influenced by natural systems, so you will have to keep a close eye on the growing requirements to create an environment where your plants will grow successfully.

Let's review the growing requirements again, but this time with consideration for indoor growing spaces.

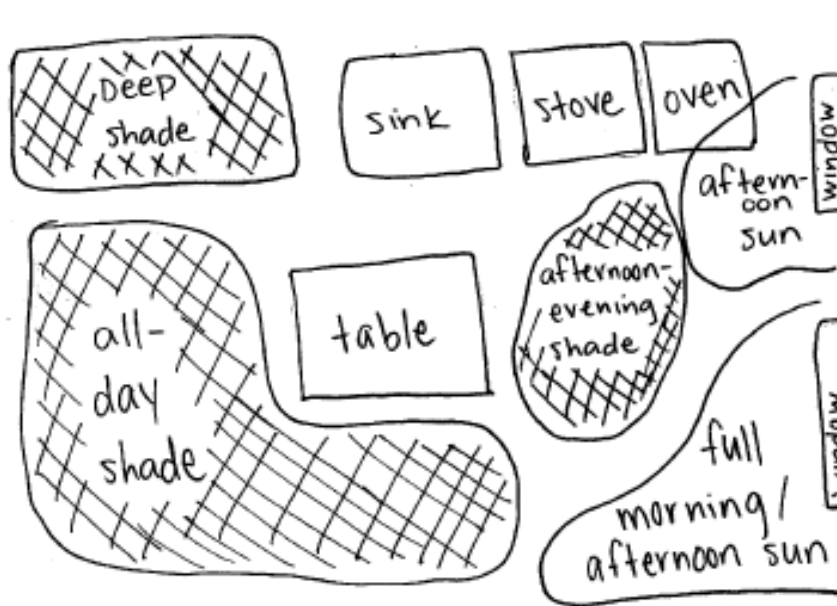
Factor	Considerations	Notes
 Sunlight	Just like an outdoor garden, your indoor growing space should receive at least 6 hours of sunlight per day. Sunlight can be supplemented or mimicked with grow lights .	<i>Does your indoor growing area get enough sun? Complete the sun-shade map activity on pages 21 and 22 to find out.</i>
 Water	You will need to water your indoor garden regularly. After watering, your soil may look extremely wet at the surface while looking dry at other times. Appearances can be deceiving - the most important thing is that your soil is moist at least 1 inch below the surface. Drainage holes are essential for any indoor growing container to help maintain a good water balance.	<i>Think about what vegetables you'd like to plant. How can you make sure they get the right amount of water to thrive in your indoor space?</i>
 Air	Air circulation helps to keep your plants healthy and prevents disease and pests. Open nearby windows daily or create a light breeze using indoor fans. If you are growing plants that are wind pollinated, you will need to do the work of the wind.	<i>How will you promote air circulation in your indoor space?</i>
 Soil	Compost and soil amendments are important for indoor soil. You will need to regularly top-up your soil to keep it healthy and fertile. There are also many ways to fertilize your soil naturally using household waste, including eggshells, green tea, and coffee grinds.	<i>How will you create healthy and fertile soil indoors?</i>

 <p>Space</p>	<p>Ideally, you want to utilize as many of the sunny spots in your indoor space for growing. Don't let a lack of space hold you back - you can grow in the smallest of spaces! Consider stacking plants on tiered shelves, hanging baskets from your ceiling, or putting pots on castors so you can move them around to follow the sun.</p>	<p><i>How will you maximize your indoor growing space?</i></p>
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Grow lights create artificial lighting to stimulate plant growth. You can buy grow lights that emit specific wavelengths that plants need. However, any full spectrum light bulb will work, and you can retrofit old fixtures rather than buying new ones.

Before you hang a pot or install a grow shelf, it's important to figure out where you'll have the most success growing vegetables in your indoor space. Just like for outdoor gardens, creating sun-shade maps will help you understand how sunlight moves through your indoor space and can indicate good locations for your garden. Below is a sun-shade map created by our Local Food Ambassadors for our Local Food Hub Teaching Kitchen.



Local Food Hub - Fall

My sun-shade map for indoor growing



Sketch your indoor space in the boxes below. Include things like windows, furniture etc. During each season, draw where the sun and shade spots are in the morning, afternoon and evening.

Spring sun-shade map

Summer sun-shade map

Fall sun-shade map

This pot is too big! This pot is too small! This pot is just right!

Look at the sun-shade maps you have created for your indoor space and highlight the areas that receive the most sunlight. These highlighted areas are where you should aim to have your indoor garden. You will be co-existing with these plants and sometimes the sunniest spots are already occupied by your favourite couch or are not ideal for a garden for other reasons. If this is the case, consider how your space is already set-up and experiment with the location of your garden to see where your plants thrive the most.

Now that you have your indoor garden spot picked out, we need to select the right type and size of container for your indoor plants. We encourage you to experiment with different containers to see what works best for you, but here are some guidelines to get you started.



At the Iceland Teaching Garden, youth have grown potatoes in old yard waste and burlap bags. This is a great technique that can be used indoors.

Size

Think about how large your plant and its root systems are going to grow and use that as a guideline to determine how big your pot needs to be

Pot size	Plants
10-inch (7-11 liters)	Leaf lettuce, arugula, salad greens, baby radish, baby turnips, green onions, chives, parsley, mint, sage and other small herbs
14-inch (22-26 liters)	Cabbage, swiss chard, kohlrabi, turnips, beets, carrots, peas, lavender, rosemary and other large herbs
16-inch (34-37 liters)	Pole beans, compact varieties of raspberry and tomatoes
18-inch (52-56 liters)	Cauliflower, eggplant, hot and sweet pepper, tomato, okra
24-inch (90-94 liters)	Tomato, cucumber, zucchini, melon, mouse melon, squash

Material

Pots come in a variety of materials. Pot material is personal preference but always make sure your pot has drainage holes. If you are keeping indoor plants, put something underneath your pot to catch any excess water coming out of drainage holes to prevent damage to your floors.

Materials	Cost	Strong and durable?	Lightweight?	Notes	Sustainability
Terracotta	\$ - \$\$\$ (Depending on size)	✓	Small - ✓ Large - X	Soil dries out quickly	Can be re-used for multiple years
Plastic	\$	X	✓	Direct sun can heat plastic which can harm plants	Can only be re-used a few times
Ceramic	\$\$	✓	Small - ✓ Large - X		Can be re-used for multiple years



Add castors to your pots to easily move them within your space or between your indoor and outdoor spaces.

Our Local Food Ambassadors love upcycling old equipment and containers for growing, including sinks and food-grade bins from local restaurants.

Shoots and sprouts

Starting an indoor or outdoor garden can be intimidating, especially if you are new to the gardening world. Starting with a small indoor growing project can help you build confidence and skills. Sprouts and shoots are easy to grow year-round and are perfect for new growers. They contain loads of vitamins, minerals, proteins and fibre.



Sprouts and shoots are **microgreens**. Microgreens are a vegetable green that are harvested shortly after they sprout.



Always be sure to buy organic seeds sold specifically for sprouting. Our favourite places to purchase organic sprouting seeds are local farmers' markets, health food stores, or online at Mumm's Sprouting Seeds or Urban Harvest.

Our favourite shoots to grow are pea shoots because although they are only green and leafy, they taste just like sweet peas! We love using them to garnish salads, sandwiches and stir-fry dishes.

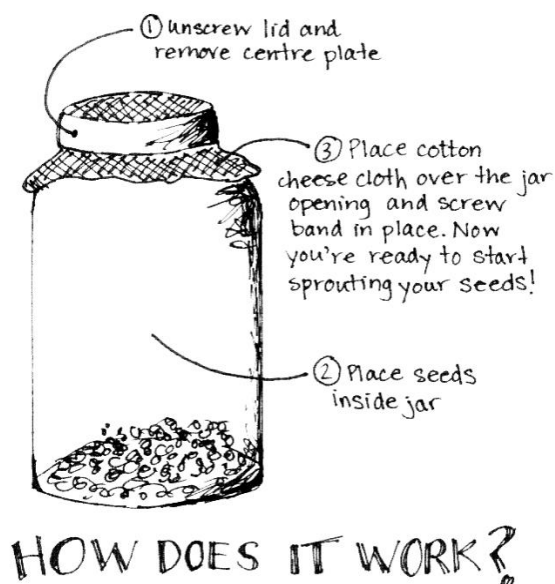
Shoot instructions

1. Soak seeds in lukewarm water for 6-8 hours in a large jar or container. The jar should be $\frac{1}{3}$ seeds and $\frac{2}{3}$ water.
2. Fill a small, shallow dish with a thin layer of potting mix. The dish should be about $\frac{2}{3}$ full.
3. Place your seeds in a single layer across the surface of the soil, making sure that they do not overlap.
4. Place your seeds on a countertop or windowsill and spritz with a spray bottle 2-3 times a day to keep them moist.
5. Your peas will grow into edible shoots in about 2 weeks. Trim off the top of the plant (leaving an inch of stem). Some of the shoots will re-grow.

Sprouts are simply germinated seeds. You can eat raw sprouted nuts, grains and beans from a huge variety of sources such as alfalfa, broccoli, red cabbage, radish, clover, mustard, lentils, chickpeas, onion and sunflower greens. You do not need any soil to grow sprouts.

Sprouting instructions

1. Put 1 teaspoon of your sprouting seed mix in a glass jar and cover with a mesh screen or cheesecloth. Secure down with a lid ring or elastic band. Add water, swirl the jar around to ensure even water contact for all seeds then invert the jar to drain.
2. Add enough cool water to completely cover the seeds. Let seeds soak for 4-6 hours, then drain.
3. Two or three times a day, refill the jar with cool water, swirl it around and drain. Keep the jar inverted so water continues to drain out. Leave the jar in an area with good air circulation so your sprouts get plenty of oxygen.
4. As the sprouts begin to grow, you may need to shake the jar a little or take the cover off to separate the sprouts from the mesh to allow for a good rinse and drain.
5. In 3-5 days, your sprouts will be ready to eat. Wait 12 hours after your final rinse to ensure the sprouts are thoroughly dry, then transfer them to a container and refrigerate. Never refrigerate wet sprouts! Eat within a week.



Sprouting tips

- Use filtered water to soak and rinse your seeds, if possible
- Drain your sprouts thoroughly after each rinse - the most common cause of mold is too much moisture
- Leave the jar in an open area with good air circulation - another common cause of mold is poor air circulation
- Don't be startled by "root hairs" - the little bit of white fuzz you may see on the sprout tails is not mold. They appear when sprouts are "thirsty" and fall back against the sprout when you rinse them
- Always remember to thoroughly wash your sprouting jar after each use and before soaking any new seeds
- Just like any vegetable, if your sprouts smell, look or taste off, compost and start-over!



If you are pregnant, have an autoimmune deficiency, or are working with children or older adults, please be advised of the health risks associated with sprouting.

Transferrable Skills

We have discussed the general growing requirements for indoor and outdoor gardens separately but the skills, knowledge and experience you build with your indoor garden can be transferred outdoors and vice versa. Plants need the same things, whether they are indoors or outdoors. The growing techniques and gardening concepts that we will be exploring in the upcoming chapters can be applied to an indoor or outdoor garden.



Our seedlings for the Iceland Teaching Garden are grown by students in Mississauga. Students from our partner schools work together in their greenhouse to start and care for all our plants. Every day, at lunch, a group of students visit the greenhouse to water and monitor the seedlings. Many of them visit the Iceland Teaching Garden to help us plant the seedlings and see how their plants are growing!

Stories from Local Food Ambassadors

“If we all make small changes in regard to what we consume, collectively we can have a big impact not only on the environment and our health, but also on the structure, values and views of our society and community.”

Jorge Garcia has always enjoyed spending time in nature. He wanted to learn how to garden at home, so he joined us at the Iceland Teaching Garden to gain knowledge and skills in urban organic growing. No matter the conditions – sunny, rainy, drought or stormy, Jorge was in the garden every week after work; showing us all what dedication, commitment and passion looks like.

Snack time quickly became Jorge’s favourite part of our volunteering sessions. A chance to sit in some cool shade on a hot summer evening and sample different dips, gluten-free cookies and snacks the group was sharing taught Jorge a big lesson. Jorge saw, firsthand, how the act of sharing food with others helps build community and connection to not only the environment and our food but to our neighbours. He believes that community farms and gardens can be a solution to disconnection, poor health and sedentary lifestyles.

The garden has taught us all important lessons in community building, nature connection, patience and teamwork. One snack time conversation about the benefits of gardening and garden accessibility led to a group of 7 Local Food Ambassadors partnering with Ecosource’s Urban Agriculture Team to make the Iceland Teaching Garden more accessible for all. They started an initiative to install raised and wheelchair accessible garden beds at the Iceland Teaching Garden. Jorge joined the team and created the design plan for the accessible garden beds. Using his gardening knowledge, he was able to improve his designs by incorporating elements that allowed for things such as square foot gardening, easy watering and trellising.

Jorge encourages his family and friends to consider where their food comes from and the environmental impact of the products they consume, both edible and non-edible. Jorge’s experiences in the garden have increased his awareness about the importance of increasing access to local and sustainable food. Gardens are not only designed to grow food; they are designed to empower communities, spark ideas about sustainability, build friendships among neighbours, and connect us to nature.



SOIL HEALTH

The dirt on soil

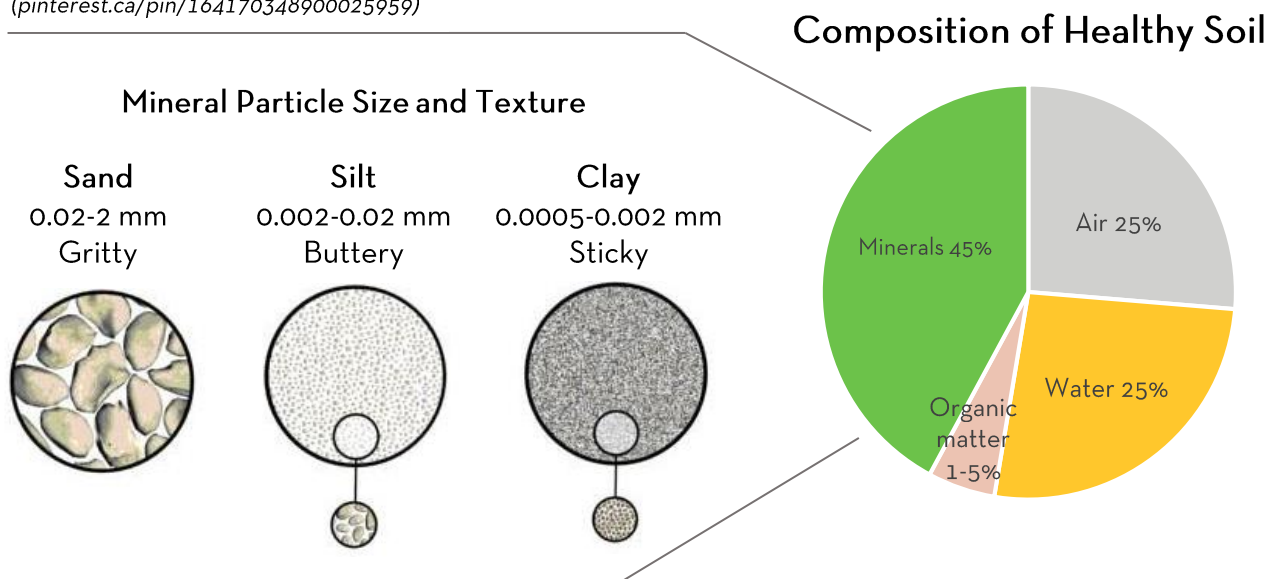
Ask any organic gardener what makes an indoor or outdoor garden healthy and they will probably say “soil”! Healthy soil is at the basis of all organic gardening philosophy. Nutrient balance, soil structure and healthy microbial life all contribute to a balanced ecosystem where your vegetables will flourish. Soil is more than just dirt; it’s the living, breathing foundation of your indoor and outdoor garden.

Healthy Soil = Healthy Plants = Healthy Food = Healthy People = Healthy Communities

Soil composition

Soil is made up of minerals, air, water and organic matter including living organisms. It’s the organic matter percentage that sustainable food gardeners really focus on building since it increases the amount of nutrients available in the soil and helps improve soil structure and drainage. The amount of soil biodiversity you see in your outdoor garden is a good indicator of how healthy and fertile it is.

Source to particle images: Misha Genesis
(pinterest.ca/pin/164170348900025959)



Before planting an in-ground garden, it is important to know the history of our property. Certain property types (e.g. residential) are more likely to be safe, than others. If you are unsure about your soil, it is better to test for contaminants before planting your garden or choose raised beds with a soil barrier instead. The Agriculture and Food Laboratory at the University of Guelph is a great resource to help you with any soil testing you may need.

Soil particles and soil texture

Minerals are varying sizes of bits of rock and include three particles - sand, silt and clay. Different soils have unique ratios of each soil particle which indicates **soil texture**.

Why is it important to know the soil texture of your outdoor garden? Soil texture will affect **soil aggregation** which in turn affects **pore space**. Water and nutrients in your soil will stick to the surface of your soil particles, keeping them in the garden ready for your plants to use. Soil with more clay particles has a greater total surface area to hold water and nutrients than soil with more sand particles. On the flip side, soil with more clay particles has less pore space because the particles are more tightly packed together than soil with more sand particles. Soil texture will determine the characteristics of your soil.



Soil aggregation is how tightly soil clumps and sticks together.

Pore space is how much wiggle-room there is for plant roots to penetrate the soil and affects water retention and nutrient movement.

Soil texture is the ratio of clay, silt and sand particles in a specific garden.

Loam is the ideal mix of sand, silt and clay, consisting of approximately 40% sand, 40% silt and 20% clay.

Sand	Silt	Clay
<ul style="list-style-type: none"> - lightweight soil - good drainage - can become dry in hot summer months - plant roots and garden tools penetrate easily - can't hold water or nutrients well because there is little surface area and large pore spaces 	<ul style="list-style-type: none"> - dense soil - poor drainage - fertile soil 	<ul style="list-style-type: none"> - very dense soil - very poor drainage - holds nutrients and water well but are prone to becoming waterlogged and suffering soil compaction - contain high levels of minerals which can be made available to plants by adding organic matter

Organic matter

Organic matter is made-up of all the animal and plant residues in soil including roots, worms and visible and microscopic microorganisms. Organic matter that is in the process of decomposing is considered **active** and helps to replenish nutrients in the soil. Active organic matter also feeds

living microorganisms who produce **humus**. Humus gives soil its **structure**, helps to retain nutrients and creates healthy aggregation. Soils high in organic matter and humus are usually darker in colour and have an earthy odor. Plant and animal materials don't only become useful once they start decomposing. Living organisms are equally important for your outdoor garden because they perform many tasks that make your soil healthier. For example, mucus from soil microorganisms helps increase aggregation, which means your soil will be less susceptible to wind or water erosion.



Active organic matter is in the process of decomposing and plays an important role in soil health by helping to replenish nutrients, contributing to soil aggregation and supporting microbial life.

Humus is stable organic matter that has been completely decomposed.

Soil structure is determined by soil texture, pore space and aggregation. Soil that is friable, easily crumbles and cake-like is said to have good soil structure.

Soil tilth describes the overall physical condition of soil by taking into consideration all the things we have discussed - soil texture, structure, aggregation, pore space, etc.

Soil tilth

Is your head spinning with all these soil terms?

Soil science is a very complicated and complex subject. Gardeners and scientists who have dedicated their lives to understanding soil are just beginning to scratch the surface. How do all the things we've been learning about soil come together?

Soil tilth describes the overall physical condition of soil. Loose, easy-to-work with soil that has ample space for roots to take hold, retains nutrients and water without becoming too dry or soggy and has lots of living organisms is considered to have good tilth.



Cultivation Tips for Healthier Soils

1. Do not work soil when it is excessively wet, dry and/or windy.
2. Avoid walking where you are planting.
3. Do not disturb your soil structure by double-digging or loosening/fluffing soil.
4. Never keep your soil bare, you'll be exposing it to the elements

Soil considerations for your indoor garden

All the soil concepts discussed in this chapter can be applied to your indoor garden with some considerations. You never want to bring outdoor soil into your indoor garden - we recommend getting indoor soil mixes from a local garden centre. Purchasing indoor soil mixes gives indoor gardeners an advantage because this soil has great soil tilth.

Although living organisms are beneficial for your outdoor garden, avoid bringing them into an indoor garden. Living organisms in your indoor garden will be restricted to the space of your containers which may cause some pest or disease issues.

When you have your base soil in your containers, you will want to add some compost to increase organic matter. If possible, purchase organic compost from a local garden centre instead of using outdoor compost. This will decrease the chance of pests and disease in your indoor garden.

Testing your garden's soil



There are several easy tests you can do to find out more about your soil's texture, structure and organic matter content. If you are looking for more in-depth information, consider purchasing a home soil testing kit or sending a sample of your soil into a lab. Use the assessment sheet to record information on your soil. Remember to do these tests in a few locations; the soil in one spot may be different than another!

Squeeze Tests – to determine soil texture

1. Take a palm full of soil, moisten it slightly and roll it into a ball
2. Press your finger through the ball. If it breaks apart you have sandy soil. If it sticks together you have clay soil.
3. Try squeezing the ball of soil between your thumb and finger to create a ribbon shape. Sandy soil won't ribbon, while clayey soils will ribbon more than 2 inches.
4. Repeat this test in different areas of your garden to get a full picture of your texture.

Jar Tests – to determine soil texture

1. Fill half a jar with topsoil and the other half with water, leaving an inch of air space.
2. Tightly close the lid and shake for 1 minute.
3. Let the jar sit for at least 24 hours to allow the mineral particles to settle out.
4. Sand particles will settle to the bottom, followed by silt and then clay. Humus particles will make the water look cloudy and will not settle.
5. Repeat this test in different areas of your garden and at different depths to get a full picture of your texture.

Earthworm Count Test – to determine amount of organic matter

1. Use a garden trowel to dig one square foot of your garden's topsoil, about 4-6 inches deep.
2. Count every worm you find.
3. Soils with good organic matter content will usually have at least 5-25 worms per square foot.
4. Try this test in different areas of your garden.

My garden soil assessment

Date _____ Today's weather _____

Squeeze test results

Observations:

Jar test results

Observations:

Earthworm test results

Observations:

Other indicators to consider: What colour is your soil at different depths (remember, darker topsoil indicates high organic matter)? Is there decomposing material in your soil? Does soil crumble in your hands? How quickly does the soil dry out after watering? Does water puddle on top of the soil when it rains? How much biology (worms, insects, etc.) do you see in your soil?

Observations:

Using your soil assessment, which areas in your outdoor space have the best soil? Highlight these areas on your outdoor sun-shade map. Looking at this map, are there any areas that receive good sunlight, have good soil characteristics and/or have good drainage? These spots are probably the best place to start your outdoor garden.

Healthy soil will set you up for success in your indoor and outdoor garden. If your plants are not moving through their lifecycle properly or if you come across another garden issue, start by troubleshooting your soil. Your soil holds all the essential ingredients for success – take care of it and it will reward you with delicious food!



Our Local Food Ambassadors know the importance of keeping soil healthy and fertile. After two years of growing at the Iceland Teaching Garden, this Local Food Ambassador always takes a few extra minutes to make sure the soil is prepared for plants.

Sources

Fairholm, Jacinda. “Oh, To Grow: An Educational Primer for New Farmers”, 2nd Edition. Guelph: Ignatius Farm CSA, 2008.

Hayes, Jane. “Soil and the Soil Food Web: Overview of Soil Science for Gardeners – A Garden Jane Resource”. Toronto: Garden Jane, 2011.


PLANT LIFECYCLE

They grow up so fast

Getting to know the lifecycles of vegetables and fruits is helpful for gardeners of all levels. By observing how your plants grow, you can understand a lot about what they need to thrive and when it's time to harvest.

Each plant is unique and will spend different lengths of time completing a lifecycle stage. If we left all plants untouched, they would mature, develop seed and give way to the next generation. However, as a gardener, we may stop the lifecycle at any point to enjoy the edible parts of the plant. For example, we stop the lifecycle of a tomato plant at the fruiting stage whereas the lifecycle of a basil plant is stopped once it develops mature leaves that we pick.

It's also helpful to understand the lifecycle of plants so you can plan your garden properly and maximize the growing potential of your space. Plants like arugula and spinach go through their lifecycles very quickly early in the season and you can replant or start another crop afterwards. Understanding how your plants will grow will also help you fit them in your garden better. For example, if you know that zucchini plants produce large leaves and flowers before bearing fruit, you won't plant something in their shade.

 The lifecycle stages of a tomato are listed below in no particular order. Try to organize them in the blank flow chart on the next page. Along the lifecycle, there are some inputs required for the plant to grow successfully. Do you know where these inputs may be needed?



Did you know 1 in 3 bites of food is pollinated by bees? Pollinators play an important role in the lifecycle of fruits and vegetables. As a result, keeping our ecosystem healthy is an important part of food security.



www.ecosource.ca



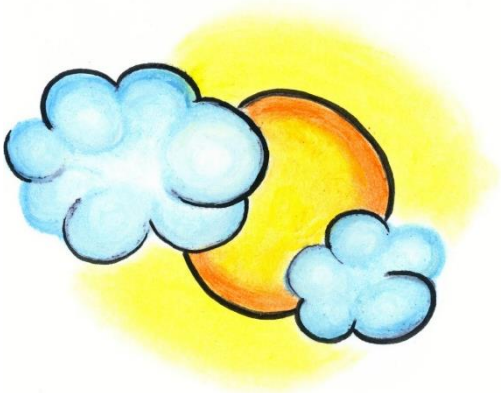
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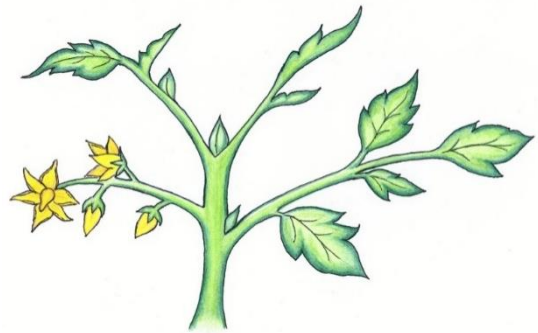
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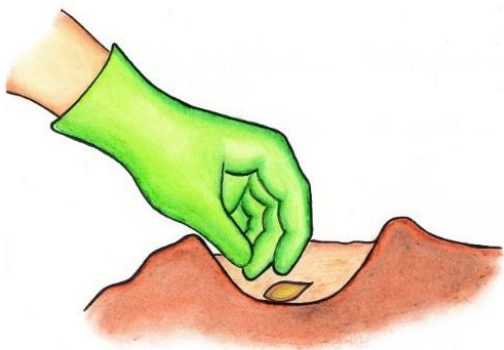
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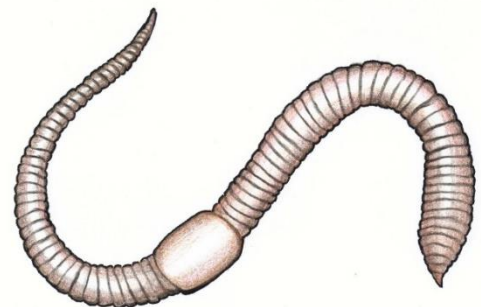
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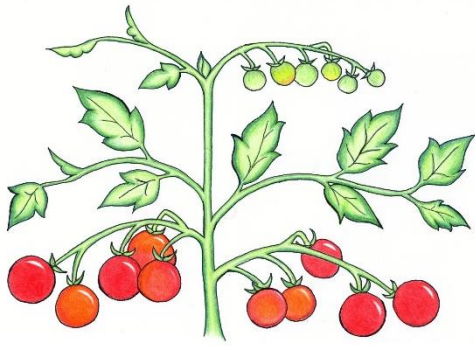
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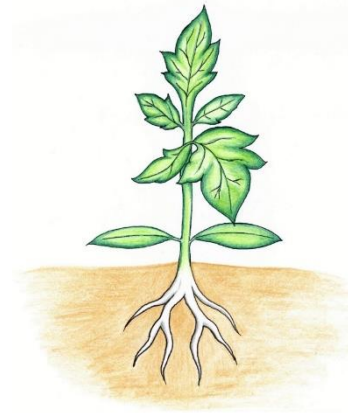
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Now that you've had a chance to learn about the lifecycle of a tomato, think about another vegetable you'd like to plant in your garden this season. Write or draw the steps of your plant's lifecycle in the space below. As you work, consider how the lifecycle of this plant is different from the lifecycle of the tomato you completed in the previous exercise.

PLANT SELECTION

Tomatoes and lettuce and squash, oh my!

For most gardeners, selecting the plants you are going to grow is the most exciting part of the planning process. Remember, there are many varieties of each vegetable type (for example, there are hundreds of kinds of tomatoes) so you can typically find a variety that suits your space, environment and personal preferences.



Start SMALL! It's easy to get excited and want to plant everything. Start with one to three vegetables in your first year. Once you are comfortable with that, add a few more in the following years.



Here are 3 questions to ask yourself to determine which plants you should grow. Draw or write your thoughts in the box below.

1. Which vegetables do you, your family and friends eat the most or enjoy eating the most?
Growing vegetables you eat often or enjoy eating will help you save money.
2. What vegetables do you enjoy but have trouble finding at stores or markets?
Complement your food purchases with hard-to-find vegetables or cultural staples.
3. Are there new vegetables you would like to try to grow or experiment with?

Plant selection for indoor spaces

Growing food indoors has never been easier. Creativity and careful planning will help you grow in the smallest of spaces. When selecting your plants, consider the following types of varieties to overcome spatial challenges.

Compact Varieties

Choosing varieties that grow compact is a great space-saver. Read seed packets or catalogues to see which specific varieties are compact. Our favourite one to grow is the Tiny Tim tomato.

Small Varieties

There are some plants that inherently do not take up much space. Try: leaf lettuce, spinach, arugula and small herbs.

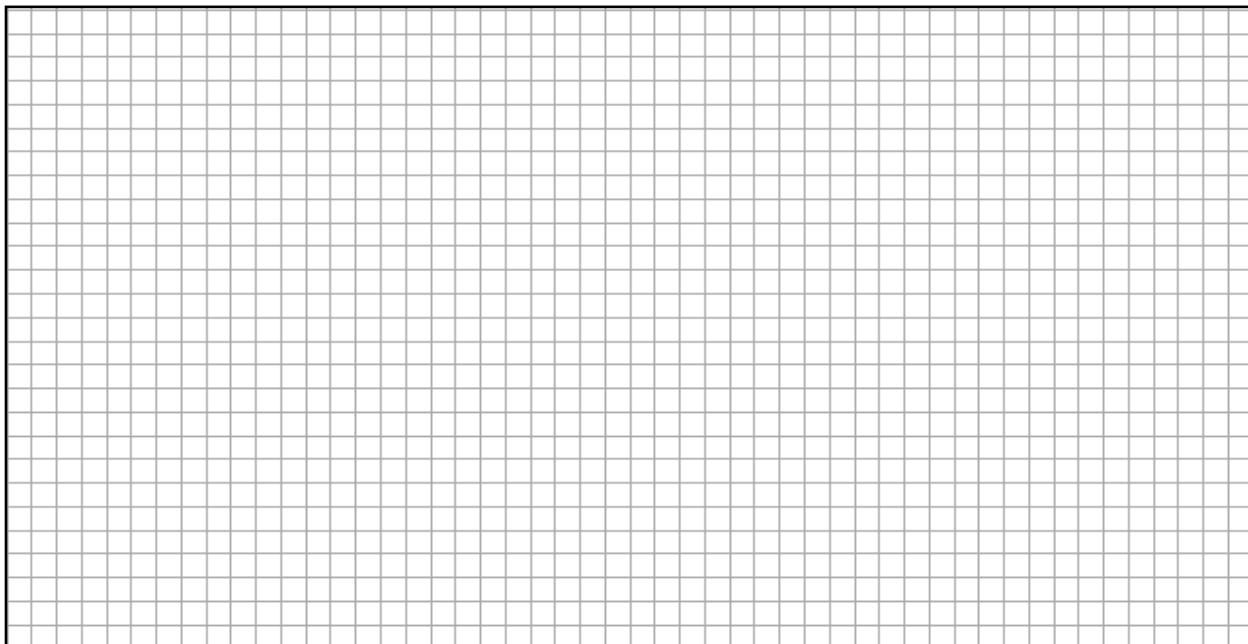
Vertical Climbers

Plants that grow as 'vines' are easiest to grow vertically. As a general rule, if the variety produces fruit smaller than a tennis ball, you can grow it vertically with support. Remember, vertical climbers need strong supports and will create shade in the surrounding area. Vertical climbers not only save space but are easier to harvest and control pests/weeds. Try: Malabar spinach or mouse melon.

Get space-savvy!



If you are growing indoors, space will be your biggest challenge. Look back at your indoor sun-shade map. Where there are any good growing areas that didn't have space for lots of plants? One way to optimize your growing space is by growing vertically. You can create vertical levels and layers of growth by using shelves or stacking pots and containers. Create a blueprint of your space-savvy indoor garden below. Be creative - maybe you could use an old ladder or bookshelf.



To sow, or not to sow, that is the question

The growing season is determined by the end and start of frost days. In southwestern Ontario, frost-free days start at the beginning of May and end around mid-October. This gives us between 150-170 days of growing.

Some vegetables can go through their entire lifecycle within 150-170 days. Quick growing vegetables such as mizuna and turnips can have their seeds **directly sowed** into your indoor and outdoor garden. Vegetables that require a longer growth period such as okra, bittermelon and kohlrabi need to be planted as seedlings. You can purchase seedlings at your local farmers' market or garden center.



We like to use old yogurt containers, toilet paper rolls and newspaper pots as containers to start our seedlings.

Alternatively, you can start your own seedlings indoors in March and April. If you are growing your seedlings at home, make sure you provide adequate warmth and sunlight.

Keep in mind that some vegetables don't like to be **transplanted**. Transplanting can be very shocking for plants. Before transplanting, soak your seedling's soil with water. Transplant quickly with care, paying particular attention to roots. Water as soon as transplanting is done. If your seedling starts to look droopy or pale in colour, it is probably experiencing transplant shock. Give it lots of water and extra care. Examples of vegetables that do not like being transplanted include carrots and cucumbers. Always read the seed package and follow the planting recommendations. The "Growing Calendar" chapter has a quick guide on which plants should be seeded or transplanted.



There are two ways plants can get into your indoor or outdoor garden. **Direct seeding** or **sowing** is placing your seeds directly into your garden where you would like them to grow. Sometimes you may want to plant a seedling into your garden instead of seeds. **Transplanting** is moving a seedling from one location (seedling container) to another (garden).

Whether you are direct seeding or transplanting, you will want to prepare the soil in your outdoor garden for planting. We recommend working up the soil in the fall and covering it with a cover crop or mulch for the winter. If you are breaking ground in the spring, remember to let the soil dry out to a crumbly texture before you begin to dig. Digging or walking in wet soil can compact it, making it difficult for plants to grow and for microbial life to flourish. For your indoor garden, top the soil up with compost and other amendments once a year.



Choose local and organic seeds and seedlings when possible. Our favourite spots to get organic seeds are at local farmers' markets, seed libraries or online at Urban Harvest, Hawthorn Farm Organic Seeds or Matchbox Garden Seed Co.

Seed libraries are places that lend and share seeds that gardeners in the community have donated. They are a great place to swap seeds, meet other gardeners and find rare, local and heirloom varieties. The Port Credit and Lorne Park libraries have seed libraries in Mississauga. In Caledon, visit the seed libraries at the Albion Bolton and Inglewood Branches.



Our Local Food Ambassadors love visiting seed libraries to browse the seeds that have been donated by local gardeners. They can find a variety of local-adapted and rare seeds for their own gardens and for the Iceland Teaching Garden. In the fall, they give back to seed libraries by donating some of their own saved seeds.

	Frost - Tolerant/Cold Hardy* (Plant early or late in season)	Best Grown in Shade	Require Full Sun	Direct Seed (Seeds can be sown directly into the ground)	Transplant (Seeds can be started indoors and transplanted)	Fast-Growing (under 40 days)	Medium-Growing (45-65 days)	Slow-Growing (over 70 days)	Requires Lots of Space	Might Require Trellis/Staking
Beans	•		•	•			•			•
Tomato			•		•			•		•
Pepper			•		•			•		
Eggplant			•		•			•		
Cucumber			•	•	•		•		•	•
Zucchini			•	•	•		•		•	
Winter Squash			•	•	•			•	•	
Melon			•	•	•			•	•	
Beets	•			•			•			
Spinach	•	•		•			•			
Lettuce/Greens	•	•		•	•	•				
Broccoli	•			•	•		•			
Bok Choy	•			•	•		•			
Kale	•			•	•		•			
Radish	•	•		•		•				
Turnip	•			•		•				
Peas	•			•			•			•
Garlic	•		•	•				•		
Leeks	•		•	•	•			•		
Onions	•		•	•	•			•		
Green Onions	•		•	•	•		•			
Basil			•		•					
Cilantro			•	•			•			

* NOTE: Vegetables have varying degrees of tolerance. Some can only tolerate slight frost or partial shade, while others require shade and do not do well in full sun.

Early Spring <i>Plant as soon as ground can be worked in spring</i>	Mid-Spring <i>Plant at time of the average last spring frost</i>	Mid-Spring <i>Plant 2 weeks after all danger of frost has passed</i>	Mid-Summer <i>Start seedlings indoors in mid-June and transplant in late July/early August</i>
Broccoli Cabbage Endive Fava Bean Kohlrabi Lettuce Onion sets Parsley Peas Radish Spinach Turnip	Carrots Cauliflower Beets Onion seeds Parsnip Swiss Chard Potato Early Tomato Seed Zucchini	Beans Cucumber Pumpkin Corn Tomatoes Eggplants Peppers (hot and sweet) Okra	Broccoli Beet Carrot Bok Choi Cauliflower Cabbage Kale Kohlrabi Parsnip Peas Salad Greens (arugula, lettuce, mustard greens) Radish Spinach Swiss Chard Turnip

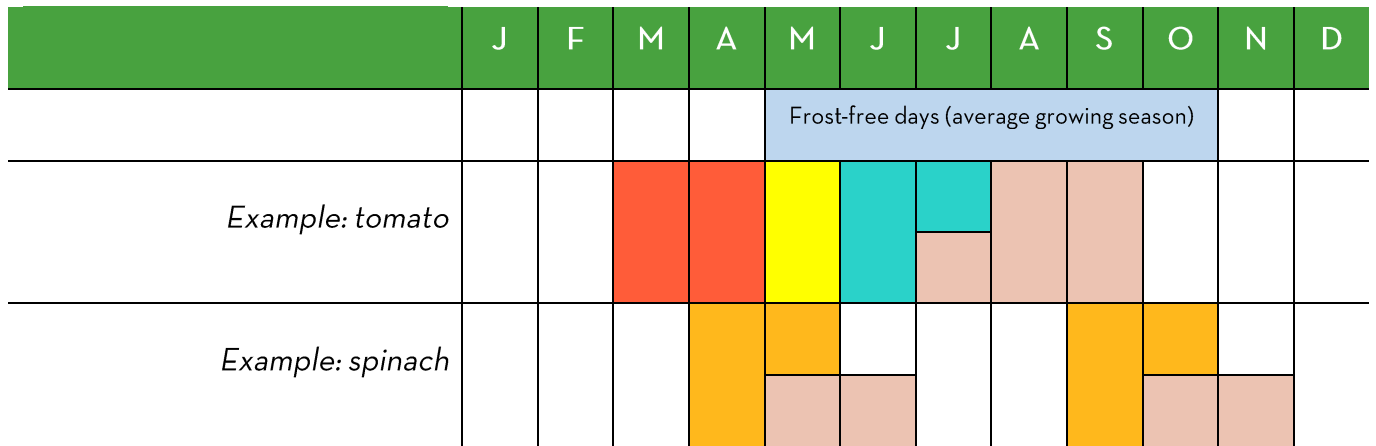
My growing calendar



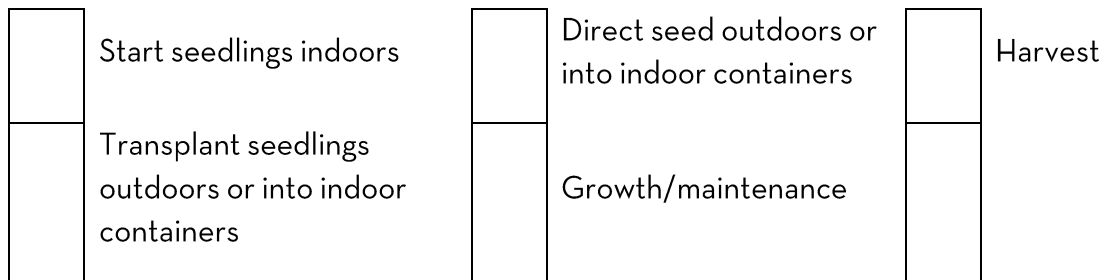
Growing calendars are a great way to help you visualize and organize garden tasks. In the calendar record a different colour or symbol for each activity in the legend. Then:

1. Write the vegetables you would like to grow in the first column.
2. Refer back to your chart which indicates if your plants need to be direct seeded or transplanted. Indicate which month direct seeding and transplanting will happen - the second reference chart in this chapter can help you find the right time of year. If you are growing your own seedlings indoors, indicate when you need to start growing.
3. Using the information in this manual and other sources, determine in which month you will be able to harvest.
4. Add any other information you think is relevant or will help you have a successful garden.

Example:



Create your own



	J	F	M	A	M	J	J	A	S	O	N	D
					Frost-free days (average growing season)							

Stories from Local Food Ambassadors

“When I started volunteering in the garden, my mind changed a lot. I have met many people like me from around the world that came to Canada. The language barrier did not exist in the garden. Maybe some of us are not good in English but we connected through the garden work. I didn’t feel isolated anymore – I felt happy at that time and they are still in my memory.”

Nha volunteered at the garden and at the Erin Mills Backyard Market helping to sell #GrownInMississauga produce and products. His favourite moments were harvesting the plants and getting them ready for food banks and market. Nha enjoyed tending to the plants because he saw the bountiful outcomes of cooperation, hard work and sharing between volunteers and gardeners. This helped him develop a sense of duty, responsibility and purpose in his community. Before long, Nha was at the garden everyday watering, planting, and harvesting, and at the farmers’ market every weekend selling local and organic produce to shoppers.

The garden and farmers’ market not only provided a platform for Nha to practice his English and connect with others but were important spaces that reminded him of home and family in Vietnam. When he was young, Nha would go to his grandmother’s house every summer. His grandmother had hills and hills of orchards. From the middle of one orchard, Nha was able to see the valley where his uncle lived, a familiar cloud in the sky or an advancing rainstorm floating over the opposite hill. Being out in nature - in the garden - always brought Nha back to these childhood memories.

Nha encourages newcomers to volunteer and join social activities. He believes this will help create a harmonious link between newcomers and non-newcomers in all communities. At the garden and farmers’ market, Nha was able to learn about local food systems and how they relate to a newcomer’s or immigrant’s identity.



Photo credit: Mikaeel Ghany (Instagram: @mgxa_)

INTERPLANTING, COMPANION, SUCCESSION, AND RELAY PLANTING

Maximizing your production

In urban areas, it may not always seem like you have enough space to grow all the things you want. It's important to strike a balance between maximizing the space you do have and being realistic about your time and resources. Keeping a smaller garden will be easier than a larger garden that will need more care and weeding. In theory, any spot that is growing a weed could be growing a vegetable. It's also important to remember not all vegetables are ready to harvest at the same time. You can use this to your advantage to plant multiple crops in the same space and have a steady harvest all season long. Here are some things for you to consider before you finalize your garden plan:

Space

An important part of planning your garden is figuring out what your plants will need. Some plants are small and compact, others are tall and thin or short and bushy. If you are new to gardening, respect the spacing distances in garden books or on seed packets – good quality vegetables need adequate space to grow.

The benefit of knowing your vegetables is that you can fit them together like a puzzle. This is especially important if you have a small growing area. While you cannot plant tomatoes close together, you may **interplant** a small, lower growing plant like basil or lettuce in between your tomato plants. A general rule to follow for interplanting is to match a slow growing, large vegetable with a fast growing, smaller vegetable. The fast growing, small vegetable can be grown in between the slow growing, large vegetables and will be ready to harvest before the larger plant shades them out.

Another way to optimize your space is **companion planting**. It is important to remember that interplanting and companion planting do not mean crowding your plants - it means planting vegetables with complementary shapes and properties to maximize the use of your space. You will use up the bare spots, but not negatively impact the growth of your plants.



Interplanting is growing one or more vegetables alongside your main crop.

Companion planting involves planting different vegetables in close proximity for pest control, pollination or to increase productivity.

Succession planting is planting successive batches of a specific vegetable to ensure a steady supply of harvest throughout the year.


Relay planting is when different vegetables are planted following each other in a 'relay' so that space is always in use.

Keep in mind that not all plants can be interplanted or planted as companions. Incompatible vegetables should not be planted together because they will not grow well in close proximity to each other.

Timing

Although we have a short growing season in Ontario, there are some quick growing crops such as green onions, spinach and arugula you can grow multiple times during the season. This can be done through **succession** and **relay planting**.

If you are succession planting, always plant a minimum of two successions of the same vegetable to ensure success and extend your harvest time. For example, lettuce can be sown every 2 weeks. Unlike succession planting, relay planting involves different vegetables. For example, in the spring, you may choose to plant lettuce, spinach and green onions. Once these items are harvested, you will free-up space for a second batch of different plants in early June or late July that can be harvested in the fall (for example, carrots).

 Here is a non-exhaustive list of companion plants. If a vegetable you are interested in growing is not on the chart, use additional resources to find companion plant options. Add this information to the blank spaces at the bottom of this chart.


Vegetable family	Variety	Companion	Incompatible
<i>Leguminosae</i> (<i>Fabaceae</i>)	Pea	Bean, carrot, celery, corn, cucumber, eggplant, parsley, radish, spinach, strawberry, sweet pepper, turnip	Onion family
	Pole bean	Carrot, cauliflower, chard, corn, cucumber, eggplant, pea, potato, strawberry	Basil, beet, cabbage, fennel, onion family, radish, sunflower
	Bush bean	Beet, cabbage, carrot, cauliflower, celery, chard, corn, cucumber, eggplant, leek, parsnip, pea, potato, radish, strawberry, sunflower	Basil, fennel, onion family
<i>Apiaceae</i> (<i>Umbelliferae</i>)	Carrot	Bean, brussels sprout, cabbage, chive, leaf lettuce, leek, onion, pea, pepper, red radish, tomato	Celery, dill, parsnip

	Celery	Bush bean, cabbage family, leek, parsley, pea, tomato	Carrot, parship
	Parsnip	Bush bean, garlic, onion, pea, pepper, potato, radish	Caraway, carrot, celery
	Dill	None	None
	Parsley	Asparagus, corn, tomato	None
<i>Brassicaceae</i> (<i>Cruciferae</i>)	Arugula	Beet, carrot, cucumber, potato, spinach	Pole bean, strawberry
	Kale	Beet, bush bean, cabbage, celery, cucumber, lettuce, onion, potato, spinach, tomato	Pole bean
	Broccoli	Beet, bush bean, carrot, celery, chard, cucumber, dill, kale, lettuce, onion family, oregano, potato, spinach, tomato	Lima, pole and snap bean, strawberry
	Cauliflower	Beet, bush bean, carrot, celery, cucumber, dill, kale, lettuce, onion family, potato, spinach, tomato	Pole bean, strawberry
	Brussels sprout	Beet, bush bean, carrot, celery, cucumber, lettuce, onion family, pea, potato, radish, spinach, tomato	Pole bean, strawberry
	Cabbage	Beet, bush bean, carrot, celery, cucumber, dill, kale, lettuce, onion family, potato, spinach, tomato	Pole bean, strawberry
	Turnip	Onion family, pea	Potato
	Radish	Bean, beet, cabbage family, carrot, corn, cucumber, leaf lettuce, melon, parsnip, pea,	Broccoli, cabbage, cauliflower, hyssop

		spinach, squash family, tomato	
<i>Alliaceae</i> (<i>Amaryllidaceae</i>)	Onion	Beet, cabbage family, carrot, leek, early lettuce, parsnip, pepper, spinach, strawberry, tomato, turnip	Asparagus, bean, pea
	Garlic	Beet, carrot, lettuce, raspberry	Bean, pea, potato
	Leek	Beet, bush bean, carrot, celery, onion, parsley, tomato	Bean, pea
	Chive	None	None
<i>Chenopodiaceae</i>	Spinach	Cabbage family, celery, legumes, lettuce, onion, pea, radish, strawberry	Potato
	Swiss chard	Bean, cabbage, onion, tomato	None
	Beet	Bush bean, cabbage family, corn, leek, lettuce, lima bean, onion, radish	Mustard, pole bean
<i>Asteraceae</i> (<i>Compositae</i>)	Lettuce	Everything but especially carrot, garlic, onion family, radish	None
<i>Gramineae</i> (<i>Poaceae</i>)	Corn	Beet, bush bean, cabbage, cantaloupe, cucumber, parsley, squash	Tomato
<i>Solanaceae</i>	Potato	Bush bean, cabbage family, corn, parsnip, pea	Cucumber, raspberry, squash family, sunflower, tomato, turnip
	Pepper	Carrot, eggplant, onion, parsnip, pea, tomato	Fennel
	Tomato	Asparagus, basil, bush bean, cabbage family, carrot, celery, chive, cucumber, garlic, head lettuce, onion, parsley, pepper	Dill, fennel, pole bean, potato

	Eggplant	Bush bean, pea, pepper, potato	None
<i>Cucurbitaceae</i>	Winter squash	Celery, corn, dill, melon, onion, radish	Potato
	Cucumber	Bush bean, cabbage family, corn, dill, eggplant, lettuce, pea, radish, sunflower, tomato	Potato

My companion and interplanting plan

 Are any of your selected plants companion plants? Can any of them be interplanted? Are there plants you are interested in that should not be grown in close proximity? In the chart below, write down the main crops you have chosen to grow. What are some companion plants and interplanting options? Remember, don't choose plants just for the sake of optimizing space. Choose plants you will enjoy eating, looking at, or ones that will benefit your garden the most.

Vegetable	Interplanting options	Companion plants	Adversaries
<i>Example: tomato</i>	<i>Lettuce</i>	<i>Basil</i>	<i>I am not interested in growing any plants that are adversaries to tomato.</i>

My succession and relay planting plan



Refer to your growing calendar. Let's think about which plants can be grown in succession or relay planted with each other. At the top of the growing calendar, we have marked out the growing season for you. Are there any vegetables that can have one or more successions of planting within the growing season? Are there any vegetables you can relay plant within the growing season? Take note of any succession and relay planting options below. Keep in mind that if you are growing indoors, you can grow year-round and are not bound to the growing season.

Vegetable	Number of successions, if possible	Relay planting options
<i>Example: tomato</i>	<i>0</i>	<i>None</i>
<i>Example: spinach</i>	<i>2</i>	<i>Lettuce, mizuna, green onions</i>

Gardening with these techniques will help you maximize your space and keep your plate full of fresh, local food throughout the season. If you're a beginner gardener, it's a good idea to start small with one or two of these planting options and then scale-up what's successful overtime. A growing calendar packed with relay and succession plantings can be overwhelming and difficult to manage at first. If you'd rather not go into that much detail on paper, don't worry! Observing your garden over the season is a great way to identify opportunities to use these techniques. When you see bare soil after harvesting your first batch of quick-growing crops in early summer, you'll likely be inspired to start something new in their place. At that time, when inspiration strikes, come back to this chapter for ideas.

CROP ROTATION

Round and round we go

Crop rotation is a very important concept in sustainable agriculture. By changing where we plant vegetables each year, we can help regenerate our soil, deter pests, and increase the productivity of our garden. Crops are rotated based on their **plant family**. Knowing plant families will help you understand why some plants work well together while others do not.



A **plant family** is a group of plants that share characteristics and similar features such as appearance, seeding habits, growth patterns and cycles, and harvesting methods.

Table of Plant Families

Plant family	Latin name	Vegetables	
Salad (Lettuce) - SUNFLOWER FAMILY ASTER or DAISY FAMILY	<i>Compositae,</i> <i>Asteraceae</i>	Artichoke Chicory Endive	Lettuce Radicchio Sunflower
Brassica - COLE FAMILY CRUCIFER/MUSTARD FAMILY	<i>Brassicaceae,</i> <i>Cruciferae</i>	Arugula Broccoli Brussel Sprouts Cabbage Cauliflower Collards Kohlrabi	Kale Mustard Radish Rapini Rutabaga Turnip
Curcubit - SQUASH FAMILY	<i>Curcubitaceae</i>	Cantaloupe Cucumbers Gourds Pumpkins Summer Squash (Zucchini)	Watermelon Winter Squash (Bittermelon)
Beans/Peas - LEGUME FAMILY	<i>Fabaceae,</i> <i>Leguminosae</i>	Beans (runner and bush) Chick Peas Lentils Peanuts	Peas Clover Alfalfa Hairy Vetch

Onion - ONION FAMILY	<i>Amaryllidaceae,</i> <i>Alliaceae</i>	Chives Garlic Leeks	Onions Shallots
Carrot - PARSELY FAMILY	<i>Umbelliferae,</i> <i>Apiaceae</i>	Carrots Celery Cilantro/Coriander Dill	Fennel Parsley Parsnip
Beet - BEET FAMILY GOOSEFOOT FAMILY	<i>Chenopodiaceae</i>	Beets Swiss Chard Spinach	Lamb's quarters (Wild Spinach)
Nightshade - TOBACCO FAMILY	<i>Solanaceae</i>	Eggplants Ground Cherries Peppers	Potatoes Tomatillos Tomatoes
GRASS FAMILY	<i>Gramineae, Poaceae</i>	Barley Corn Oats Rice	Rye Sorghum Wheat
MINT FAMILY	<i>Labiatae, Lamiaceae</i>	Basil Bee Balm Lemon Balm	Marjoram Mint Oregano
MALO FAMILY	<i>Malvaceae</i>	Okra	
MORNING GLORY FAMILY	<i>Convulvulaceae</i>	Sweet Potatoes	
BUCKWHEAT FAMILY	<i>Polygonaceae</i>	Buckwheat	Rhubarb
LILY FAMILY	<i>Liliaceae</i>	Asparagus	
AMARANTH FAMILY	<i>Amaranthaceae</i>	Callaloo	

Your plant families



Which plant families do the vegetables you selected belong to? What about the vegetables that you have chosen as companion or interplanting options?

Vegetable	Plant family
<i>Example: Rapini</i>	<i>Brassicas</i>

My crop rotation plan

Each crop family has different needs and will use and replenish different nutrients in the soil. This means growing the same plants in the same spot each year will deplete the soil of certain nutrients and result in lower yields. For example, the legume family fixes nitrogen into the soil which all plants need to grow. Keeping legumes in the same spot each year will result in an overabundance of nitrogen in one area of your garden. Vegetables in the nightshade family are **heavy-feeders** so a good strategy to implement is following a legume planting with a nightshade planting.



Heavy feeders are plants that thrive in very rich, high nutrient soil. For example: tomatoes, peppers, eggplants, corn and squash. Generally, a plant where you eat the fruit will have higher nutrient requirements.

Medium feeders are plants that require good soil fertility but not super rich soil. For example: leafy greens and brassicas. In crop rotation, you might plant a medium feeder where a heavy feeder used to be.

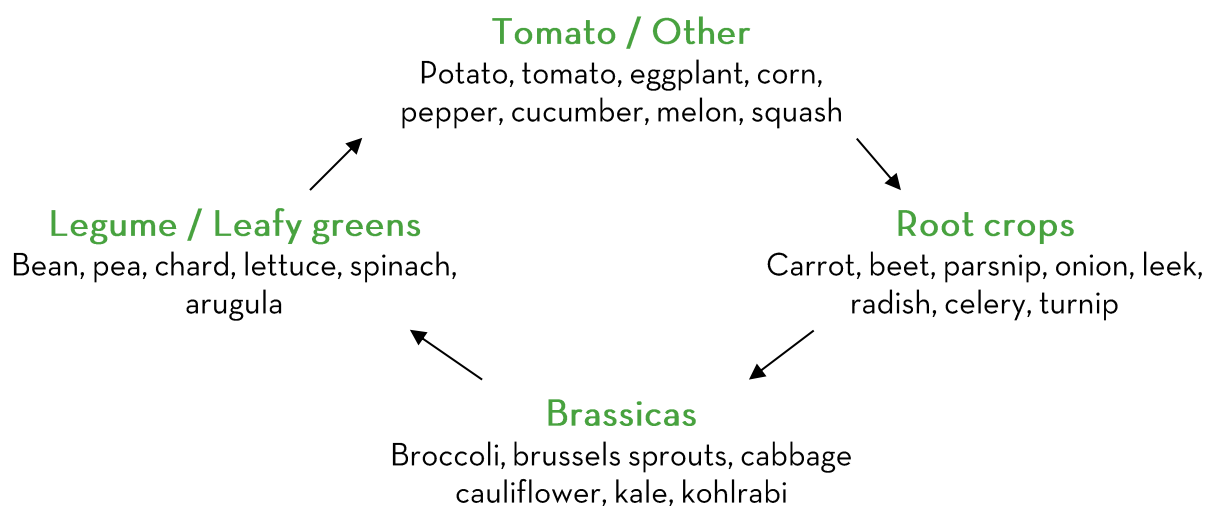
Light feeders are plants that do not require high soil nutrient content to flourish and may not do well if soil is too rich. For example: carrots, root crops and legumes.

Crop rotation involves growing plants from different families in different places in your growing space each year.

Pests are the real deal with organic growing. Moving plants around each year will make pests work to find the vegetables they want to munch on. This will also help prevent disease build-up in soils. Previous plantings of different vegetables may help future plants survive. For example, onions leave residues which repel the carrot fly.

To avoid pest and disease build-up and increase soil health, practice **crop rotation**. Crop rotation is not necessary if you are growing in containers as long as you take care of your soil and top it off with compost or amendments as needed.

Here is an example of a crop rotation plan that can be followed for a specific area in your garden. There are many different crop rotation plans that can be used but this is the most common and highly recommended option for home-growers.



Crop rotation plan for outdoor home gardens

Experienced gardeners can adjust their crop rotation plans to better suit their garden and personal preferences. At the Iceland Teaching Garden, we have split our garden into four sections, with each section hosting a different crop rotation category each year. We really enjoy growing garlic, so we adjusted our crop rotation plan to ensure there is always one section of our garden planted with lots of garlic. We replaced brassicas in our crop rotation plan with garlic, and because of our specific garden conditions decided to group brassicas into the legumes/leafy greens category. Below is the basic crop rotation plan we use at the Iceland Teaching Garden.

Example of crop rotation plan used by Local Food Ambassadors at the Iceland Teaching Garden

Garden section	Year 1	Year 2	Year 3	Year 4
A	Root crops	Garlic	Legume/leafy greens	Tomato/other
B	Garlic	Legume/leafy greens	Tomato/other	Root crops
C	Legume/leafy greens	Tomato/other	Root crops	Garlic
D	Tomato/other	Root crops	Garlic	Legume/leafy greens



Look back at the plants you would like to grow. What crop rotation category does each vegetable fall into?

Crop rotation category	Vegetables you want to grow
<i>Example: tomatoes/other</i>	<i>Eggplants, potatoes, ground cherries, cucumbers</i>
Root crops	
Legume/Leafy greens	
Brassicas	
Tomatoes/other	

Crop rotation is the last technical concept you need to know before designing your garden plan. This tool, combined with the other gardening techniques discussed in previous chapters, will help you design a planting plan that is sustainable and productive. Like all other technical concepts in this guide, crop rotation is sometimes best learned through trial and error, and there is no such thing as perfection in organic gardening! The important thing is that you know that rotating plants by their family is a best practice to try in your garden this season.

GARDEN PLAN

X marks the spot

You're now ready to sharpen your pencil and draft your planting plan! The previous chapters have given you all the information you need to move ahead with planning a sustainable garden that maximizes the space you have and supports the health of our local environment. As a reminder, we have explored topics related to food systems, food security, site selection, soil health, plant lifecycles, plant selection, growing calendars, interplanting, companion planting, relay planting, succession planting and crop rotation.



Are you an expert gardener? Test your knowledge of the key concepts of organic gardening by matching the concepts to their definitions below.

Food system	Sunlight, water, air, soil and space considerations for an indoor and outdoor garden
Food security	Planting different vegetables in close proximity for pest control, pollination or to increase productivity
Soil tilth	The variety of living organisms in your garden
Direct seed	Vegetable greens that are harvested shortly after they sprout
Plant lifecycle	The complete journey of a food item from growth to disposal, including inputs and outputs
Microgreens	Planting successive batches of a specific vegetable
Succession planting	Growing plants from different families in different places each year
Growing requirements	The condition in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life

Interplanting	The ratio of clay, silt and sand particles, with loam being the ideal mix
Biodiversity	The growth stages of a plant
Crop rotation	Different vegetables are planted following each other
Companion planting	The overall physical condition of soil
Soil texture	Placing seeds directly into your garden
Transplant	Growing one or more vegetables alongside your main crop
Relay planting	Moving a seedling from one location to another

Plant space needs


In urban environments, gardeners must get creative to maximize the space they have. We also have to reel in our aspirations to ensure our garden plans are realistic and will encourage the optimal growth of our vegetables and fruits. Overplanting can be very counter-productive and is one of the biggest mistakes beginner gardeners make. In our excitement to plant everything on our wish list, we sometimes forget how much space plants need to thrive.



In the chart below, write down the vegetables you would like to grow. Using seed packages and other resources, record the space requirements for each vegetable. How many plants of each vegetable do you want? Remember, one plant of some vegetables will give you one vegetable, while others will give you multiple. For example, one carrot plant will give you one carrot whereas one bittermelon plant will give you multiple bittermelon.

Vegetable	Space requirements	Number of plants you want	Number and size of containers you need, if planting indoors
<i>Example: Eggplant</i>	<i>24" between mature plants</i>	<i>2</i>	

My garden plan

 It's finally time to create a blueprint for your garden! Just like any puzzle, this will require lots of patience and time. Through each step, we will slowly add all the layers of organic growing techniques we have learned onto our blueprint. Even experienced gardeners will have to tear down and build up their garden plan a few times before they are satisfied with the result. Remember to start small, learn from your mistakes and build on your successes.

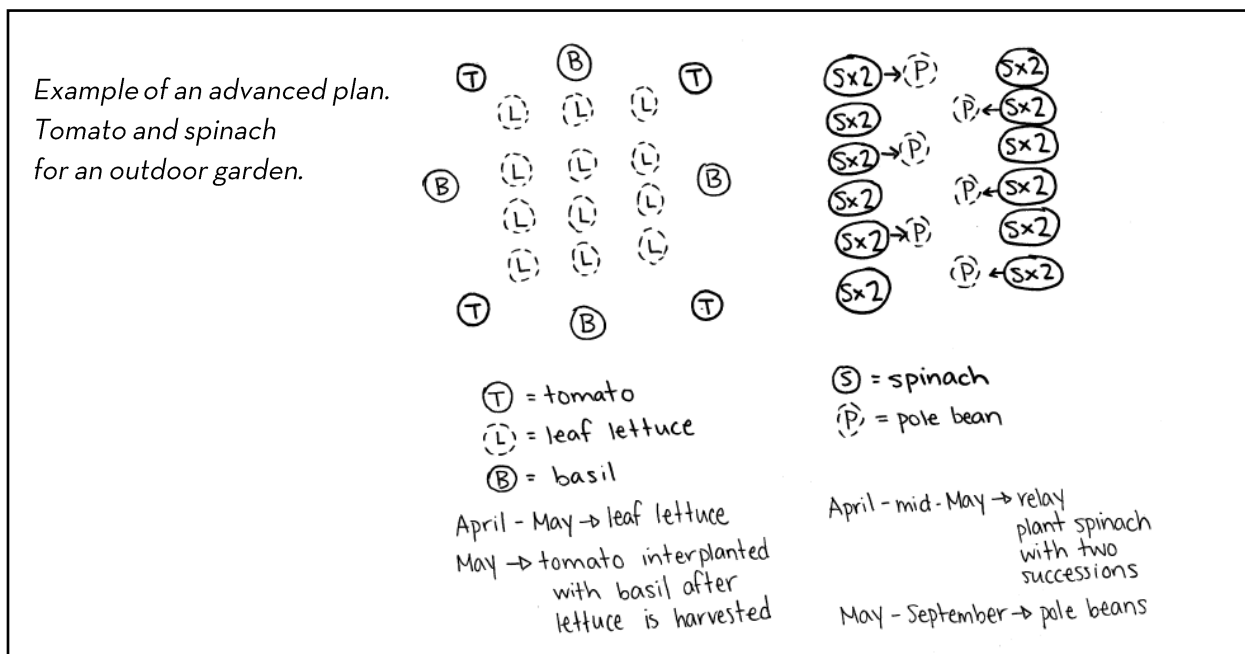
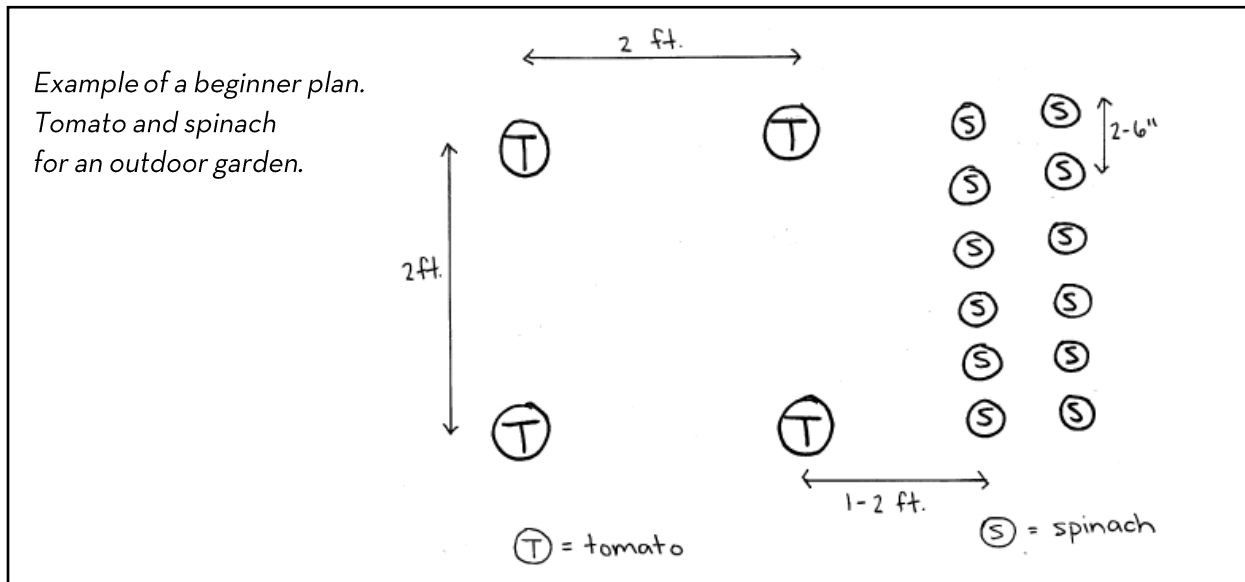
Transfer the areas you identified as good growing spaces from the “Selecting an Indoor/Outdoor Garden Space” chapter to the box below. Your garden plan should be specific. We have divided the steps to create your garden plan into two levels – beginner and advanced. Feel free to stop at the step or level you feel comfortable at. The more technical concepts of succession planting, interplanting, companion planting and relay planting can be introduced later or next season once you are comfortable with the basics.

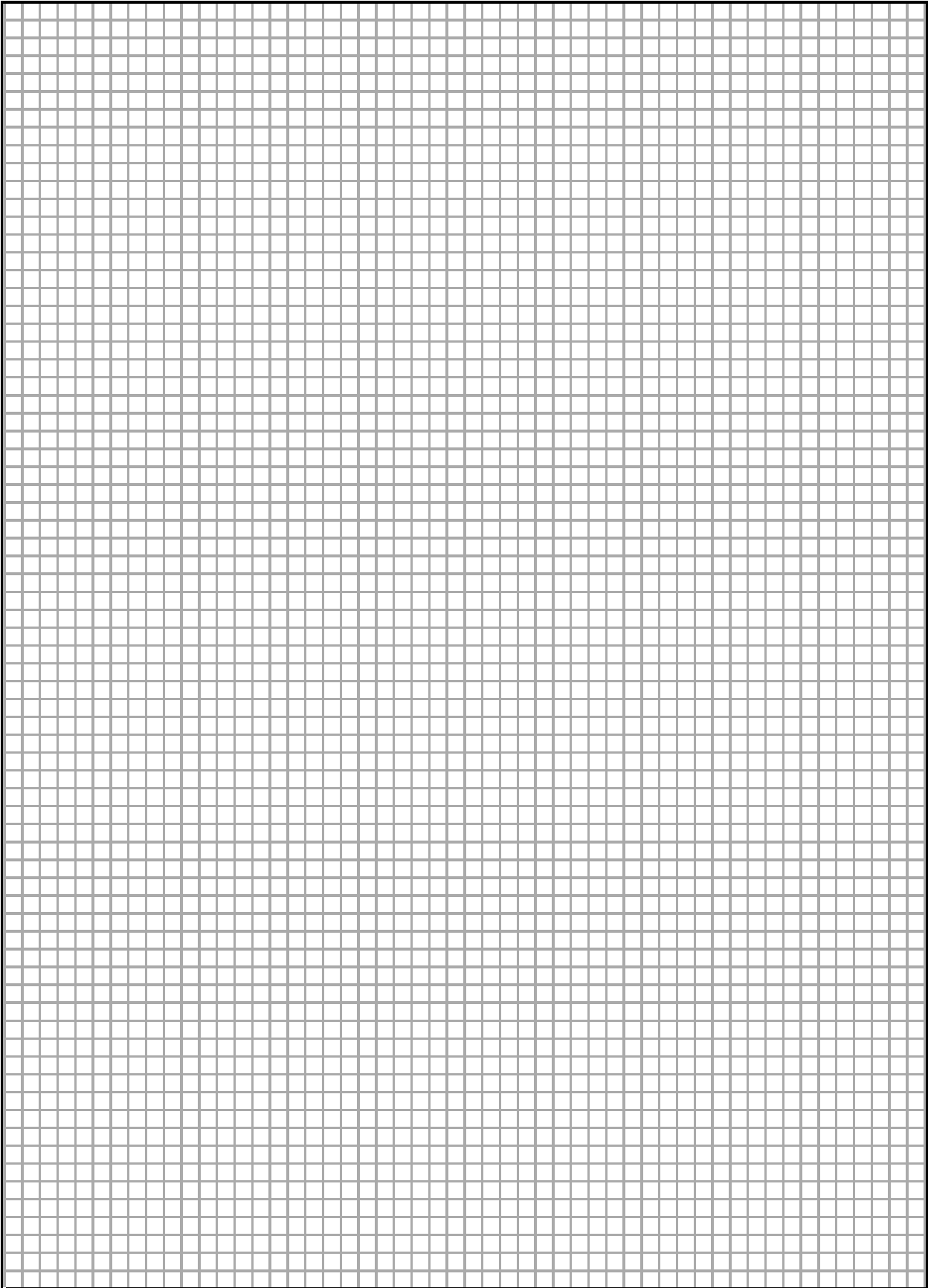
Beginner garden planning

1. Ensure your plan has accurate measurements of the growing space you have. For an outdoor garden, this means the parameters and boundaries of your growing space. For an indoor garden, consider the amount of space you have, any vertical levels you can create and the number and size of containers.
2. Refer to the main vegetables you chose to grow in the “Plant Selection” chapter. Draw where each plant will be grown, keeping in mind that some plants are incompatible. What will the spacing between plants and rows be for an outdoor garden or indoor container that can hold multiple plants? For indoor containers that can only hold one plant, how much space will this container take up?

Advanced garden planning

1. Don't forget about the crop rotation categories. While you are figuring out where each plant will go and the spacing needed, try to keep vegetables of the same crop rotation category together. This is done easily if you divide your garden into four sections and dedicate each one to a different crop rotation category.
2. Refer back to your growing calendar and succession and relay plan. If a plant will not be planted until after April/May, can you use that space for a quick-growing plant? Once harvested, is there time for another quick-growing plant?
3. What were some of the interplanting and companion planting options for the vegetables you have selected to grow? Is there space to add these into your garden? It's ok if there is little or no free space, don't overcrowd your plants!





My crop rotation plan



You now have a garden plan for your first year of growing. Can you use this same garden plan every year? Review why crop rotation is important in the previous chapter. To create your crop rotation plan, follow the steps below:

1. The main vegetables you have selected to grow should already be grouped into their crop rotation categories in different sections of the garden. Don't worry if the plants you have selected for succession, relay, interplanting or companion planting are not grouped in the correct area. The most important thing is to have your main vegetables in the right spot.
2. Which crop rotation category (root, brassica, legume/leafy green or tomato/other) should be planted in each section of your garden the following year? Write this down in a different colour.
3. You now have two years of your crop rotation plan done! Repeat step 3 two times, recording each year's information in a different colour.
4. As you gain more experience as a gardener and get to know your garden, you can adjust your crop plan to meet your garden's needs and personal preferences. You can also start to rethink your succession, relay, interplanting and companion planting plans to accommodate crop rotation.

Are you day-dreaming about garden plans yet? After years of gardening, we are still learning and making mistakes every day! If you need more time to build skills and knowledge, consider stopping after the beginner steps in the "My garden plan" activity. Crop rotation, interplanting and companion, succession and relay planting are great organic growing techniques that will help you maximize your space and create a healthy garden. However, to be a successful grower, you do not need to always implement every technique that we have learned. Your growing experience should be relaxing and enjoyable. If all you can do right now is plant once for the season, focus on that. As you gain more experience, you can slowly start incorporating more growing techniques into your garden.

HARVESTING

Enjoying the fruits of your labour

One of the most enjoyable parts of growing your own food is eating it! Knowing when and how to pick your vegetables will ensure you get to enjoy the bounty of your garden. In the summer, the harvest will start to roll in quickly. You will likely have to harvest daily to make sure all your ripe vegetables are coming out of the garden. Picking ripe vegetables will encourage the plant to continue producing and prevent vegetables from rotting in your garden which may attract pests and disease.

So how do you know when your vegetables are ready to be picked? Your expert taste buds can help you determine the best time to harvest. Don't hesitate to pick a sample vegetable to test how it's ripening and then decide whether to harvest the rest or leave them to grow a little longer. The harvest times for each vegetable you planted should already be outlined in your growing calendar. However, it's important to remember that your growing calendar is not written in stone. Any gardener will tell you that things never go according to plan. The growing calendar is there to help you organize your tasks, but you will probably deviate from this plan in practice, and that's okay! Your plan may not be what ends up happening in reality, so it's important to keep track of when seeds and seedlings are actually planted and when the vegetables they produce are actually picked.



Sometimes, gardeners can't keep up with all the harvest coming out of their gardens. If your garden is giving you too much food, think about sharing your bounty with friends and family, preserving the produce or donating any surplus to local food banks.

There are many food banks you can donate to. In Mississauga, check out Eden Food for Change, SEVA, Compass, ICNA Relief Canada, or The Indigenous Network. In Brampton, visit the Knights Table, Islamic Forum of Canada or the Heart Lake Community Food Cupboard. In Caledon, donations can be taken to Caledon Community Services @ The Exchange.



Always wash your harvest with water before enjoying. If a vegetable smells, is rotting or tastes bad, compost it.

My garden log book



Garden log books are a way for you to record a growing calendar that reflects the reality of your garden. Some gardeners like to record every single detail of their garden, while others like to only include the bigger tasks and activities. Keeping a log book will help remind you of when things are ready to harvest. In the notes section, think about these questions:

1. What did I plant today and where?
2. When will the things I planted be ready to harvest?
3. What plants are almost ready to harvest? Do any plants look like they have pest, disease or health issues?
4. Did I harvest anything today? If so, how much?

Date	Notes/Observations
<i>Example: June 15th</i>	<ul style="list-style-type: none"> - <i>Transplanted 5 seedlings of swiss chard</i> - <i>Planted 10 turnip seeds to harvest end of July</i> - <i>Harvested 0.1kg of spinach</i> - <i>Tomatoes with blossom end rot have been picked off plant</i> - <i>Lettuce looking pale</i>

Increasing your harvest

By maintaining and caring for your plants during their lifecycle, you can get the most out of your garden. Pinching, pruning, thinning and trellising are some of the common maintenance tasks you can perform to keep your plants healthy and increase the productivity of your garden.

Pinching

Herbs need to be cut back or pinched frequently to encourage them to continue producing the parts we want to eat - the stems and leaves. Pinching involves squeezing or carefully tearing off the upper portion of an herb plant. This will prevent the herb from continuing its lifecycle and producing seed, which can affect the taste of the parts of the plant we eat.



Once a plant starts to produce seed it will put all of its energy into reproduction. This means that although the edible parts of the plant are still present, their flavor may not be optimal.

Pruning

Like pinching, pruning is a way to maximize the growth of our vegetables. For example, garlic plants produce scapes that can be removed and enjoyed. Garlic scapes are explained in more detail in the “Winter Preparation” chapter and removing them helps plants put energy into growing the juicy garlic bulbs we love to eat. Tomato plants produce suckers - a small shoot that grows at the point where a branch of a tomato plant meets the main stem. Suckers don't produce any fruit and left untouched will continue to grow, causing the tomato plant to become bushy. They will not harm your plant but may result in lower yields because some of the energy is being redirected from fruit production to the suckers. Suckers can be gently pulled off the plant.

Thinning

If you are direct seeding, it's good practice to plant more seeds than you need. These extra seeds will act as a 'back-up' for any seeds that don't germinate, ensuring you get at least the minimum number of plants you wanted. But remember, your plants won't like to be overcrowded. Once your seedlings have at least two pairs of **true leaves** and are 3-4 inches tall, you will want to thin them out. This will give the remaining seedlings adequate space to grow. To thin, gently pull out or use scissors to cut the tops of the weakest plants or the ones that are crowded closely together. Refer to your seed package to see what is recommended as the optimal plant spacing.



For most seeds, the first set of leaves to emerge are the cotyledon. A **cotyledon** is a “seed leaf” and is considered a part of the embryo of the plant. The leaves that emerge after the cotyledon are considered the **true leaves** of the plant.

Trellising

Some plants such as peas, tomatoes, Malabar spinach, mouse melon and pole beans grow like vines. A trellis is a support structure for these vertically climbing plants and can be made out of almost any material – plastic, wood, metal, etc. Trellising plants will also help manage pests and diseases and vegetables will be easier to harvest.



Our Local Food Ambassadors recommend repurposing items such as old brooms to create your trellising systems.

Performing garden maintenance will not only increase your harvest, but is also a great way to keep an eye on your plants and better understand their needs. Keeping a garden log will show you the reality of your garden and can help you create a more realistic growing calendar in the future. Harvesting and enjoying your vegetables is a rewarding task. Sharing your harvest with your family, friends and local food banks can help you start conversations about how growing food supports local food systems and food security.



Our Local Food Ambassadors love harvesting and enjoying fresh vegetables from the garden. In this picture, Local Food Ambassadors are picking bok choy for a salad that was shared with the community.

SEED SAVING

The next generation

At the end of their life, your plants will often *go to seed*. This means that your plants are done providing edible food for you and are now ready to pass on their genetic traits to the next generation through their seeds. Plants can do this in a variety of ways and it is important to know if your plant is an **annual** or **biennial**.

Why save seeds?

Preserve genetic diversity

Saving seeds from your own garden ensures that the specific variety of plants that you grew will be able to pass on their genetic traits to the next generation. This means that your variety of beans is specific to your garden and might be able to survive if a disease wipes out other varieties.

Save money

If you save seeds from your own garden this year, there's no need to go out and buy more seeds or seedlings the next year!

Better crops

Heirloom seeds are naturally better suited to the area they're planted in, so they grow better in their environment. Since they've been cultivated in the same conditions for many years, they have adapted to their surroundings better than the store-bought seeds that were cultivated in a greenhouse far away. Seeds you saved are more likely to yield better vegetables than those you buy at the store.

Hybrid vs Open-pollinated

A **hybrid** vegetable is created when plant breeders intentionally cross the pollen (genetic material) of two different inbred varieties of a plant, aiming to produce an offspring that has the best traits of each. Seeds from hybrid plants can be saved but there is no guarantee you will produce the same vegetable with similar traits and characteristics if planted the next year.

Open-pollinated vegetables create seed using the unrestricted flow of pollen in nature. They are genetically diverse, which can cause a greater amount of variation in plant characteristics but also allows plants to adapt to local growing conditions. If pollen from different varieties of the same



Annuals are plants that complete their life cycle in within one year. Seeds are ready to be saved close to the end of the growing season.

Biennial plants complete their life cycle in two years. Seeds are ready to be saved in the second year of growth.



Which seeds do you save? Save seeds from plants that you find produce the most tasty vegetables, store the best, are pest resistance, produce high yields, look visually appealing or mature quickly as these are the traits that will be passed down.

species do not cross, then the saved seed will produce the same vegetable with similar traits and characteristics the following year.

You may have also heard the terms heirloom and GMO/bio-engineered. **Heirlooms** are 'old generation' vegetables that have had their seeds saved for many years. Heirloom vegetables are considered stable and seeds will produce the same vegetable with similar traits and characteristics each year. **Genetically-modified organisms** (GMO), or bio-engineered, are crops that are created in a lab and involves altering the genetic material (DNA) of the seed to add or remove particular traits. This genetic alteration cannot happen naturally and these seeds are usually patented. Seeds from GMO crops will not produce the same vegetable with similar traits and characteristics if planted in the future. GMO seeds are usually only available for purchase for large-scale farmers.

Choosing whether to plant hybrid, open-pollinated, heirloom or GMO seed is up to gardener preference. Usually, you'll find a combination of all these different types in one garden. We recommend planting heirloom and open-pollinated varieties, as these are best for seed saving. In addition, they are usually better suited to local growing conditions, promote biodiversity and are cheaper. Some gardeners will argue that they also taste better and are more nutritious! Regardless of which plants you choose to save seeds from, always read seed packages and labels for recommendations.



Seed packages and catalogues will indicate if a variety is hybrid. If you see "F1" on the package or in the name, it is a hybrid. *F1* is an abbreviation for Filial 1 (first children).



Pollination is transferring pollen from male to female flowers of the same variety in order to create offspring that are identical to the parent plant.

Cross-pollination occurs when one plant pollinates a plant of another variety. Pollen from two different varieties combine to create offspring that have characteristics from both parent varieties and is considered a new variety.



From your garden plan, list all your vegetables below and whether they are hybrid or open-pollinated. This will give you an idea of which seeds you could save seed from.

Vegetable/variety	Hybrid	Open-pollinated
<i>Example: Leonardo hybrid organic radicchio</i>		X

Pollination

Plants are **pollinated** through wind, insects and animals or self-pollination. Plants that self-pollinate are easiest to save seeds from. Their flowers hold both female and male parts and there is low risk of **cross-pollination**. Self-pollinating plants include tomatoes, beans, peas, peppers and eggplants. Plants such as corn, beets, spinach and chard require the wind to carry their pollen. Wind-pollinated vegetables can have their pollen carried far distances and the risk of cross-pollination is significantly higher. Insect or animal pollinated plants include watermelon, zucchini, cucumbers and pumpkin. Cross-pollination is also likely with insect-pollinated plants.

Isolating

Although some vegetables may cross-pollinate with each other, there are strategies to decrease the risk of this happening.

Distance

If there is a specific variety you want to save seed from, leave enough distance between the variety and other vegetables in the same family to prevent pollen crossing. Some varieties only need a few feet of distance to prevent crossing while others, such as squash, need a further distance.

Time

Pollen is only available at certain times of the year. Try staggering your plantings so plants are producing seeds at different points in the year to reduce risk of crossing.

Geographic

Geographic barriers can decrease chances of cross-pollination. Try planting vegetables you don't want to cross on different sides of your house.

Hand

Closing the flowers of plants that are insect or wind pollinated is a great way to ensure pollen doesn't escape. Tie flower petals up or place brown paper bags over flower heads once pollen has started to develop. If you are closing your flowers, remember you will have to do the work of insects and wind. You will have to transfer pollen between the flowers and plants you want to save seed from to ensure the pollen is fertilized and turns to seed. This can be done by swabbing flowers with a paintbrush or Q-tip.

Harvesting Seeds


Different vegetable seeds need to be saved in different ways. Here's a quick reference guide. Make sure seeds are fully dry before storing. Store them in a dark, dry and cool place. Label clearly with the variety name and date saved. Any extra seeds you have saved can be donated or exchanged at your local seed library.



We like to store our seeds in brown paper bags or recycled clean glass jars with a lid.

Beans and peas	Fleshy fruits (tomatoes, cucumbers, etc.)	Onions, garlic, chives, etc.	Greens (lettuce), brassicas (arugula, radish, etc.)
Wait for the pod to become dry and brittle on the plant, then remove pod from plant and gently break open to remove seeds. The pod should feel papery when it's ready to harvest and when rattled, you should hear the seeds inside.	Wait for fruit to become slightly over-ripe. Harvest fruit from plant and put seeds and pulp in a jar. Add water and let it stand for 2-3 days, stirring once or twice daily. Viable seeds will sink to bottom. Separate seeds out, rinse and dry completely.	Wait until the scape at the top of the plant bursts into a flower. When flower has dried, collect seeds before they fall to the ground.	Wait until the plant starts to <i>bolt</i> . Bolting occurs when the plant grows tall and forms a stalk of seed pods. When pods begin to dry out, remove them from the stalk.

My seed saving plan

 In your growing season calendar, mark when you need to save seeds. If you are new to seed saving, try saving seed from only one or two vegetables in your first few years.



	J	F	M	A	M	J	J	A	S	O	N	D
					Average growing season (frost-free days)							
<i>Example: tomato</i>												
<i>Example: spinach</i>												



Our Local Food Ambassadors enjoy saving seeds from their favourite plants for next year. Here, one Local Food Ambassador is saving seeds from her favourite herb plants at the Iceland Teaching Garden. She used these seeds in her indoor herb garden over the winter.

WINTER PREPARATION

Putting your garden to bed

Whether you are growing indoors or outdoors, your garden will need to be prepared for the winter. For your outdoor garden, this means pulling out plants you are done with and adding compost to increase your soil's fertility.

You never want to leave your soil bare, so

cover your garden with **cover crops**, cardboard or landscape fabric to prevent erosion, weed growth and to replenish the soil. If you are growing indoors, you can grow year-round but use the winter to refresh and reset your garden.



Cover crops are planted to primarily manage soil erosion, soil quality, pests, diseases, and weeds.

Compost and Soil Fertility

The fall is a great time of year to enrich your indoor and outdoor soil. Adding manure or compost means that you can get right into the garden in the spring. A good rule of thumb in vegetable gardening is to add approximately 1 inch of compost to your garden every year, although individual requirements will vary depending on your soil type and the plants you have been growing.

When you spread compost in the garden, be sure to turn it lightly with a spade or digging fork, and then cover the soil with either mulch or a cover crop. Without winter cover, many soil nutrients may erode with wind and melting snow.



In the winter, you will need to take changes in sunlight and temperature into account for your indoor garden. Simulating sunlight and heat through grow lights and heat mats can help ensure your plants survive the winter indoors. Because your soil is in a closed system, you will need to keep an eye on soil fertility to ensure the continued growth of your plants.

Do you know what happens to the things you put in your green composting bin? The Region of Peel uses our organic and yard waste to create compost. This compost can be purchased at your local Community Recycling Centre.

Cover Crops

Cover crops are a great way to add organic matter to soils, improve compact soils and prevent weeds and soil erosion. There are many different types of seed that can be used as cover crops. Answer the following questions to determine which cover crop is best for your garden.

What need am I trying to address in my soil? *Is it extra weedy? Do I want to add organic matter? Do I want to improve compact soil or just prevent erosion over winter?*



When do I need to sow the cover crop for it to be most effective? Is there space available in the garden and where? (Cover crops can also be interplanted between veggie crops).



Cover crop	When to direct seed/sow	Applications
Alfalfa	Sow in spring and work into soil in summer or fall	Perennial cover crop that is a nitrogen fixer with long taproot that helps break up compact soil and improve drainage.
Buckwheat	Late spring to summer	Self-feeding annual that grows quickly and flowers within 6 weeks. Incorporate into soil before seeds set or it will take over your garden.
Hairy Vetch	Late July to early September	Cold-hardy annual that can be incorporated into soil the following spring before seeds set. It is a leguminous nitrogen fixer and can be sowed with oats or rye to increase organic matter. Can harbour diseases such as white mold.
Oats	August through September	Unincorporated oat cover crop will act as a weed suppressing mulch in the spring that prevents weeds and erosion, and adds organic matter to soil.

Garlic Planting

Our favourite thing to grow at the Iceland Teaching Garden is garlic! It is easy to grow, requires low maintenance and provides you with two harvests: the scapes and the bulb. Planting garlic is a great way to utilize your garden over the winter instead of having the soil sit bare.

Garlic Growing Guide

Planting – mid to late October is the best time to plant garlic in the Region of Peel. Separate garlic bulbs into individual cloves. Plant the biggest cloves in your garden 1.5-2 inches deep and 6 inches apart. Cover your planting area with a 4-6 inch layer of mulch (straw or autumn leaves) to help insulate through the winter.

Maintenance – Spring and summer rains usually supply enough water. Pull out any large weeds competing with your garlic for sunlight, nutrients and water.

Harvest scapes – In mid-June garlic plants will develop a flower stalk called a garlic scape. Harvest the scape when it has formed 1-2 curls by pulling or snapping it off the stalk. This ensures the plant continues to direct its energy towards bulb production instead of flower/seed production.

Harvesting bulbs – Mid to late July is usually garlic harvest season. When the first 3 sets of leaves have turned yellow, it indicates your garlic plant is ready. If you pull one out, you should notice a “papery” skin beginning to form around the bulb.

Curing – Hang or store your garlic in a cool, dry and well-ventilated space for 3 weeks to allow time for the bulbs to develop their papery skin. This skin is what prevents garlic from rotting and allows it to store over the winter.

It can be enticing to skip winter preparation because the weather is getting chilly and we need a break from a long season of growing. However, preparing your garden for the winter will help set you up for a great start the next year. The more work you put in now, the less you’ll have to worry about in the spring. You have worked hard all year long to make your garden a success – don’t give up right at the finish line!



Our Local Food Ambassadors enjoy growing garlic more than anything! They love making garlic scape pesto and having fresh garlic year-round. Here, Local Food Ambassadors are getting our garlic crop ready for curing by removing part of the stems and bundling them together. They then took the garlic to a local high school for curing.

PRESERVING YOUR HARVEST

Making the bounty last

Before the age of fridges and freezers, we had to find ingenious ways to preserve our harvest for the winter. However, nowadays, many of us don't think about having to preserve food to last the winter because our global food systems allow us to access all types of food at any time of year. Local food movement advocates are revitalizing food preservation practices as a way to encourage people to connect with their local food systems and eat locally grown food all year long.



What might be some reasons why you would want to preserve your harvest?



Preserving food has many benefits but it is not fool-proof. If your preserved foods turn moldy, smell or taste bad, compost the batch. It's always best to follow a recipe for any preservation, especially if you are preserving for the first time.

Drying

This is a simple and energy efficient way of preserving food. The idea is to dry the vegetable or herb as quickly as possible without cooking them. For vegetables with more moisture, like tomatoes, beets and summer squash, lay them in a single layer on mesh or over trays and let them dry in a warm place with plenty of air circulation. You can also use a needle and string to make hot pepper 'necklaces'. Herbs can be dried in small bundles. Electric dehydrators are also available.

Canning

Foods you find in jars that 'pop' when you open them have been canned. This seal allows food to be stored at room temperature without spoiling. Commercial producers use a high-pressure canner to seal their jars, but at home, we can use the water-boiling method. It is important to follow specific home canning recipes using this method to ensure the acidity level and boiling time is correct. Store your canned goods in a cool, dark place for up to a year.

Storage

Some vegetables just need the right environment to stay fresh for months. Generally, root vegetables and cabbages can be stored in cool, dark and moist places. A cool basement, the garage or even a cupboard that is close to the ground can be a good storage space for veggies. An insulated box can be used to store your root vegetables between layers of sawdust to help absorb any condensation that may cause spoilage. In any scenario, make sure the storage area is well ventilated. Vegetables such as squash, garlic and onions prefer cool dry places. Remember, vegetables that are bruised or cut will not store for very long. Clean dirt off vegetables before storing them.

Fermentation

Kimchi, cheese, sauerkraut, bread, miso and Dahi are all fermented foods. Fermentation can produce tastier food, make nutrients more accessible, and allow food to be stored longer.



Fermentation is a process that causes chemical changes in food using yeasts and/or bacteria.

Freezing

Freezing is a quick and easy way to preserve your harvest. Freezing can preserve flavour, colour and quality better than other preservation techniques. When freezing, consider how you will use the vegetable in the future. For example, if you will use your tomatoes for sauce, freeze the sauce instead of the unprocessed tomatoes. Some vegetables should be blanched before freezing - placed in boiling water for a certain amount of time then plunged into ice water. When vegetables are cooled, place them in freezer-friendly containers or bags.

My preserving plan



Think about your harvest. What vegetables would you like to save for the winter? They could be ones that produced the most harvest or ones that you enjoy so much you'd like to savour a little longer. If you're new to food preservation, we recommend choosing 1-2 vegetables you'd like to save. Write their names in the chart below and then do your own research to determine what preservation methods work best and meet your needs. Record what you learn in the appropriate columns for reference. We've started filling out the chart with a few good options that are typically used for preserving by home gardeners. Don't let this list limit your imagination! You'll have the most success with preserving if it reflects what you like to grow and eat.

Stories from our Local Food Ambassadors

“It made us feel healthier and it was a new way for us to make delicious food”

For two years, Hiba Syed dragged her sisters, Haya, Izza and Sara, to the Iceland Teaching Garden every week during the summer to help get her 40 volunteer hours for high school. We see siblings and families come through the garden all the time, but in 2018, the Syed sisters had a chance to experience a unique family bonding moment.

After two summers of volunteering in the garden - learning how to seed, transplant, weed and harvest - the Syed sisters were beginning to feel comfortable with growing food and understanding its social, environmental and economic benefits. After the fall harvest came in, they decided to help us use the carrots they had planted to create dilled carrot products for our #GrownInMississauga social enterprise.

Cooking and food processing were very new to the Syed sisters. Before joining this program, much of the cooking was done at home by their mother. After spending almost four hours in Eden Food for Change’s kitchen, peeling, chopping and canning carrots, they developed a new-found appreciation for the time and effort that goes into putting meals on the table.

Experiencing the full cycle of our food system - from planting, to harvesting, to processing, to selling - helped the Syed sisters talk to their parents about healthy food and the food choices they were making as a family. Although they still go for that bag of chips sometimes, they are now more aware of making food choices that align with their values of organic, local, sustainable and healthy. At home, Hiba, Haya, Izza and Sara spend more time in the kitchen learning tips and tricks from their mother.



#GrownInMississauga

Dill-Pickled Carrots Recipe

In 2018, our Local Food Ambassadors at the Iceland Teaching Garden worked with older adults from our Seniors Cultivators Program to grow the ingredients to make dill-pickled carrots for local markets. Here is the recipe the Syed sisters and other Local Food Ambassadors adopted from the Bernardin Guide to Home Preserving.

Dill-Pickled Carrots

Makes: 7 x 500 ml jars

Ingredients

- 6 cups white vinegar
- 2 cups water
- 1/2 cup pickling or canning salt
- 7 cloves of garlic
- 14 heads of fresh dill or 1/2 tsp of dill seed per jar
- 3 1/2 tsp hot pepper flakes (optional)
- 5 lbs carrots, ends removed and peeled (or use fresh garden carrots and scrub them well rather than peeling)

Instructions

1. In a large stainless-steel saucepan, combine vinegar, water and salt. Stir well and bring to a boil over medium-high heat, stirring to dissolve salt.
2. Place 1/2 to 1 clove of garlic, 1 head of dill and 1/2 tsp of hot pepper flakes, if using, in each hot jar. Pack carrots into hot jars to within a generous 1/2" from top of jar. Top with second head of dill. Ladle hot pickling liquid into jar to cover carrots, leaving 1/2" headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot pickling liquid. Wipe rim. Center lid on jar. Screw band down until resistance is met, then increase to fingertip-tight.
3. Place jars in canner (see Processing Instructions below), ensuring they are completely covered with water. Bring to a boil and process for 10 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool, label and store.

Processing Instructions

1. Place clean mason jars on a rack in a boiling water canner; cover jars with water and heat to a simmer (180°F/82°C) until ready for use. Set screw bands aside; heat sealing lid in hot (180°F/82°C), but not boiling water. Keep jars and sealing lid hot until ready to use.
2. Ladle veggies into sanitized jars. Jars and contents should be close in temperature to prevent cracking. Fill jars to within 1/2 inch from the rim (headspace). Use a nonmetallic utensil to remove air bubbles and adjust headspace if necessary. Wipe jar rim to remove any food residue. Centre hot sealing lid on clean jar rim. Screw band down until fingertip tight. Repeat for remaining jars and place jars on rack in canner.
3. When canner rack is filled, ensure that all jars are covered by at least 1 inch of water. Cover canner and bring water to rolling boil before starting to count processing time. Boil jars for recommended processing time.
4. When processing time is complete, remove canner lid, wait 5 minutes, then remove jars without tilting and place them upright on a protected work surface. Cool upright, undisturbed for 24 hours; do not retighten screw band.
5. After cooling, check jar seals. Sealed lids curve downward and do not move when pressed. Remove screw bands; wipe and dry bands and jars. Store screw bands separately or place loosely on jars. Label and store jars in a cool, dark place. For best quality, use within one year.



GROWING WITH YOUR GARDEN

Your garden has gone to sleep for the winter and you may have some smaller growing projects started indoors. This is a great time to reflect on the year and think about your successes and mistakes. Reflecting on your growing experience at least once a year will help you achieve your growing goals in the future. Celebrate your triumphs with friends and family and use this down-time to brainstorm solutions to challenges you faced with other gardeners. We love to use the winter season to read books, watch movies, attend workshops and have discussions that will help us learn more about organic and sustainable growing.

Garden reflection



With words, pictures, drawings, and stories, use the space below to reflect on your garden and growing season.

My overall thoughts, feelings and reflection of my garden

My proud and most successful moments

My mistakes and learnings

Vegetables that I enjoyed growing the most or that grew well

Vegetables that I did not enjoy growing, or did not grow well

Blank space for notes.

Concepts and techniques I enjoyed using or I learned more about

Blank space for notes.

Concepts and techniques I had trouble implementing or want to learn more about

Blank space for notes.

Goals for next year

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Think back to when we first discussed food systems and food security. Do you have a better understanding of these concepts? Can you see how growing your own food supports these ideas? As you have probably experienced, food growing is an extremely rewarding and fulfilling journey. With more practice, you will be able to hone your knowledge and skills to grow healthy and sustainable outdoor and indoor gardens.

One of the great joys of growing is sharing experiences, skills and knowledge with friends and family. We hope over time you feel empowered to tell your gardening stories to members of your community. Through this sharing, you will inspire more people to pick up a garden spade, plant a seed and experience the joy of growing food and connecting with nature.

Happy growing!

ADDITIONAL RESOURCES

Gardening is all trial and error. Each year you will gain confidence, knowledge and skills that will help you become a successful gardener. There will be a few bumps along the way. If you are stuck in the mud, check out these great resources.

Ecosource

Ecosource holds many free public workshops on all gardening topics. Check out our events calendar on our website and social media to find upcoming opportunities. We also have free publications online to guide you through your gardening journey.

Master Gardeners of Ontario

Master Gardeners of Ontario is an organization that is dedicated to helping home gardeners by offering free advice. You can connect with your local Master Gardener on their website and directly ask questions.

Local library and seed library

Your local library is a great place to find books and information about gardening. Some libraries in the Region of Peel also have seed libraries and offer gardening workshops. In Mississauga, you can find seed libraries at the Port Credit and Lorne Park libraries. In Caledon, seed libraries are found at the Albion Bolton and Inglewood Branch.

Horticultural Societies

The Brampton, Caledon, Credit Valley and Streetsville Horticultural Societies promote an appreciation for gardening and coordinate regular meetings, presentations and workshops for members. Many Horticultural Societies also host garden tours, plant sales and other community events that are open to the public.



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