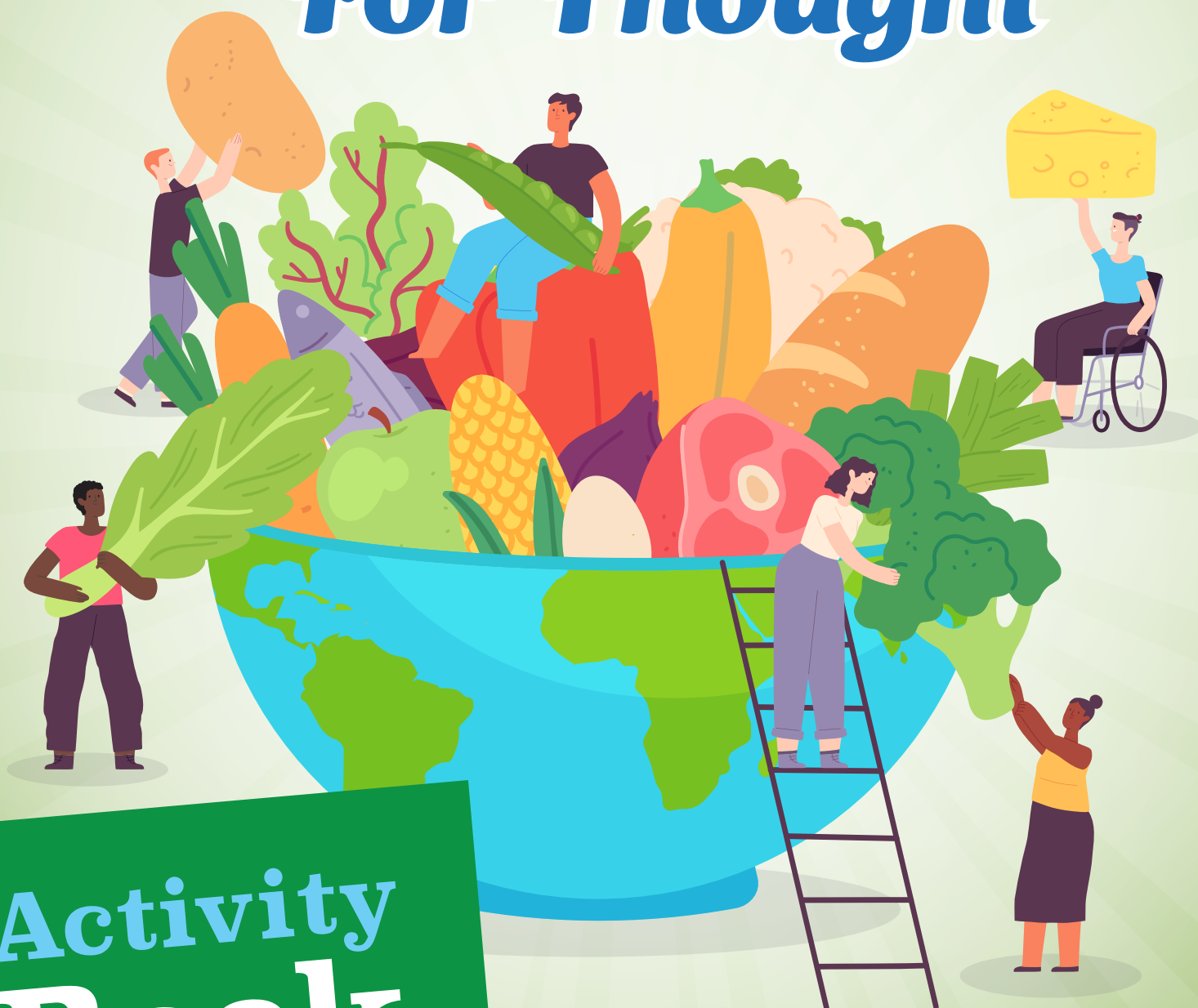




CANADA

FOOD

For Thought



Activity
Book

Acknowledgements

Food For Thought offers 4-H Canada members and their clubs across the country the opportunity to learn how they can play a role in supporting food security as part of the Zero Hunger United Nations Sustainable Development Goal (SDG 2). This unique hands-on program would not be possible without the dedicated support of our Sustainable Agriculture & Food Security Pillar Partner, Syngenta Canada.

Sustainable Agriculture and Food Security Pillar Partner

This program is part of a commitment by 4-H Canada and its partner, Syngenta Canada, to teach youth about the importance of building a sustainable future for all Canadians. Syngenta Canada and 4-H Canada have a long history of working together to advance shared interests in positive youth development, leadership, communities, sustainable agriculture, and food security.

For more information about Syngenta Canada, please visit [syngenta.ca](https://www.syngenta.ca).

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Activity Kit Partner



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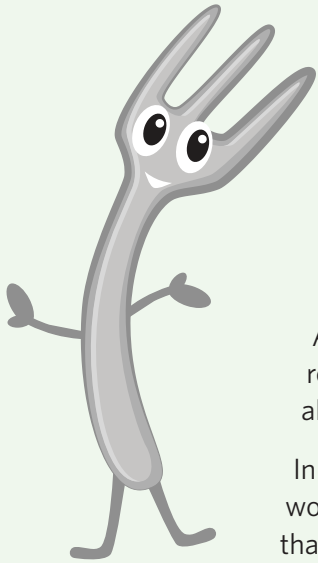
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You will notice there are links to videos and other information throughout this activity book. Please download the digital version of Food For Thought for easy access to these links at: 4-h-canada.ca/programs/outreach-initiatives

Introduction



Hello!

We are so excited that you are joining us for *Food For Thought*, a 4-H Canada programming initiative for 4-H members, families, leaders, and clubs! This is an opportunity for you to learn about an interesting topic, participate in hands-on activities (including making your own sourdough pizza), and have some fun in your own home or with your 4-H club!

This initiative is part of 4-H Canada's programming initiatives supporting the Sustainable Agriculture and Food Security Leadership Development Pillar. This resource covers topics related to sustainable agriculture, food security, and how you can act on this critical issue. It also provides related resources and experiential learning opportunities for the 4-H community.

In this activity book, you'll find lots of information about food security at home and around the world, along with hands-on activities, and the necessary supplies to complete them! Our hope is that as you make your way through this activity book, you'll achieve the following learning goals:

- Learn about food security and why it's an issue.
- Learn about the United Nations (UN) Sustainable Development Goals (SDGs) and their impact on the world.
- Identify actions you can take to address food security challenges – around the world, in your community, and in your home.
- Develop skills that will help you to problem solve, have fun in the kitchen, and improve your food literacy.
- Become a food security and Zero Hunger champion by creating awareness about this issue.

This activity kit contains:

- Food For Thought Activity Book
- Supplies to make your own recipes:
 - > 4-H Canada recipe card
 - > 4-H Canada measuring cups and spoons
- Sourdough starter and instruction sheet
- Squash, corn, and bean seeds

By making this kit available across Canada to 4-H members, families, and clubs, we're bringing hands-on educational experiences directly to you, so you can learn more about how to play a role in addressing global issues.

4-H Canada is a positive youth development organization that empowers youth to be responsible, caring, and contributing leaders that effect positive change in the world around them. You are part of the 4-H movement, which includes over 17,434 youth members across Canada with the support of more than 6,770 dedicated volunteer leaders. Find out more about 4-H Canada's programs at 4-h-canada.ca!

We cannot wait to see what you learn, create, and cook! Take a minute to share it with us! Tag us [@4HCanada](https://twitter.com/4HCanada) on Twitter, Facebook, Instagram, or LinkedIn and use the hashtag [#4HFoodForThought](https://twitter.com/4HFoodForThought).

The 4-H Canada Team

What are the United Nations Sustainable Development Goals?

The **Sustainable Development Goals (SDGs)** are global goals developed by the United Nations (UN). The UN is an international organization that encourages nations to protect peace, security, and work well together. The SDGs were agreed to by all 193 member nations, including Canada. Each nation is working to achieve these 17 goals, which deal with poverty, health, education, and the environment. When setting a goal, it is always valuable to look to the future - what will it look like when the goal is achieved? How long will that take? Is it realistic? In 2015, the UN developed these goals and laid out what they wanted the world to look like in 2030.

Explore the 17 SDGs

You can learn more about what the 17 goals are at:

 sdgs.un.org

Fill Your Plate

What is a long-term goal you have achieved for yourself? Maybe, it was to develop a new habit or achieve something that is important to you. How did you work toward that goal? Did you take little steps, or was it a big effort all at once? How did you know when you achieved it?

.....

.....

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Consider the SMART template for setting your own goals!

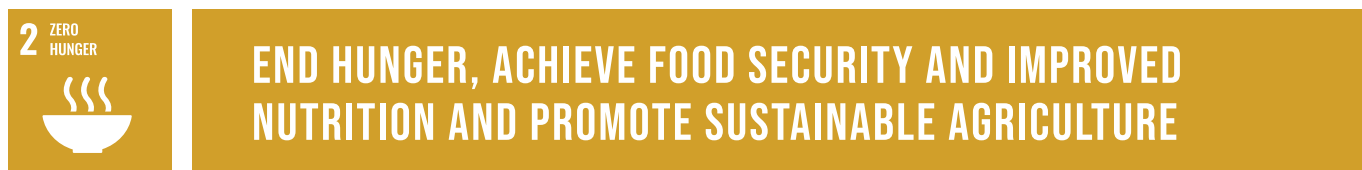
Specific S G	Measurable M O	Achievable A A	Realistic R L	Timely T S
What do you want to do?	How will you know when you've reached it?	Is it in your power to accomplish it?	Can you realistically achieve it?	When exactly do you want to accomplish it?

United Nations' Sustainable Development Goals:

SUSTAINABLE DEVELOPMENT GOALS



In *Food For Thought* we are focusing on SDG 2, Zero Hunger, with the goal to:



SDG 2 is all about ending hunger and achieving food security. **This means making sure everyone has access to enough safe and healthy food to lead a healthy and active life, and that no one goes hungry.** We need to make sure that food is produced in a way that responsibly uses water, land, and other resources, so that our food system is sustainable and does not harm the planet. It also means that farmers should make a decent living and have the resources they need to grow food for everyone.

Almost 9% of the world's population is affected by hunger¹. While the global population continues to rise, we need to look for ways to increase the amount of food we can produce in a sustainable way, while also decreasing the amount of food wasted. This will reduce the number of people who are currently hungry in the world, and make sure that there is enough food for future generations!²

Fill Your Plate

Food insecurity and hunger are issues in Canada too. One in ten Canadians, including one in five youth, struggle to access healthy food.³ Explore this global issue and travel the world to see where hunger exists on this interactive globe: www.fao.org/state-of-food-security-nutrition/2-1-1/en/ Want to learn even more? Check out this article about food security and global hunger: www.fao.org/hunger/en/

Food Security Snapshot

Food security is an issue that affects people around the world, within communities, and even individually. When learning about SDG 2, Zero Hunger, key topics include food security, food sovereignty (the freedom to make choices), and food safety. By reading this activity book and trying out the activities, you'll get to learn more about food security and sovereignty which will increase your food literacy. You'll also get to think about where your food comes from, how it's produced, and the impact it has on the environment. Here are a few terms that are important to know before moving forward in this activity book:



Food security – when all people at all times have physical and economic access to enough safe and nutritious food that meets their dietary needs and food preferences for a healthy and active life.⁴

Food sovereignty – focuses on the food choices people have, including where their food comes from, the conditions under which it is produced, and how it is delivered to people. Within Canada, this is particularly important to Indigenous communities and the right to access healthy and culturally appropriate foods, produced sustainably through their own food and agriculture systems.

Food safety – deals with the safety of our food – including the production, labelling, storage, and consumption. In Canada, the Canadian Food Inspection Agency (CFIA) works to make sure our food safety regulations are some of the safest in the world.⁵

Food insecurity – when people do not have reliable access to nutritious food. This can be caused by not producing enough food, food waste, high food costs, or limited access to where food is sold.

Food literacy – having the skills and knowledge related to food that help you to be confident about your food choices.



If you would like to learn more, download **My Plate and the Planet** at:

➡ 4-h-canada.ca/healthyliving/myplate – another

4-H Canada Initiative related to this topic.

The Three Levels of SDG 2, Zero Hunger

Level One: In My World

SDG 2, Zero Hunger, is being worked on around the world in several ways. International organizations are working to reduce hunger and poor nutrition through programs that increase access to food and support agriculture.

- The UN World Food Programme (WFP) is helping provide food and nutritional assistance to over 80 million people in 88 countries
- The UN is also helping fund agriculture by supporting small-scale farmers in developing countries to increase the amount of food they can produce on their farms and their Zero Hunger Challenge is working to reduce poverty, hunger, and provide nutrition education through various programs.

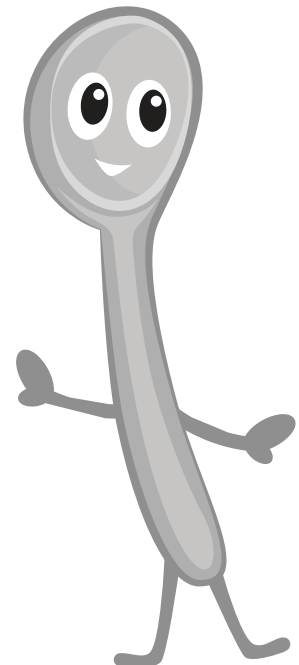
The **Syngenta Foundation for Sustainable Agriculture (SFSA)** works with small-scale farmers in developing countries, helping them increase crop yields and sell their crops to new markets – for better income and food security. Syngenta shares science-based knowledge, providing small-scale farmers access to tools and new opportunities. You can learn more at: syngentafoundation.org/.

How SDG 2 is supported around the world:

Many SDG 2 projects around the world are about discovering new solutions or methods that support food and agriculture. These innovations make farming and producing food easier which leads to growing more food with fewer resources and using technology to make work more efficient and safer.

SDG 2 is also supported by:

- **Protecting our climate, environment, and soil health:** globally, farmers are choosing to farm in ways that reduce greenhouse gases from agricultural activities, reducing tilling to protect soil, planting cover crops, and carefully using manure as a fertilizer to improve soil health.
- **New seeds and crops:** innovations have improved food security by making crops more productive, able to grow in tough conditions, and more nutritious. This means with the same amount of (or even less) work and resources, farmers can grow more food to feed more people.
- **Food packaging:** preserving food in new ways helps reduce waste. For example, vacuum sealing and adding specific gases to packages (like the air in potato chip bags) can increase the shelf life of produce, allowing food to be stored longer, also reducing spoiling during transportation.
- **Improving food affordability:** farmers use various tools such as irrigation, fertilizers, machinery, crop rotation and greenhouses to do everything from provide water, to improve efficiency and grow crops all year round.



This helps increase production and ensure there is enough affordable food for everyone. Using these tools, farmers can improve the overall efficiency and effectiveness of their agricultural practices and reduce food waste for a more sustainable and responsible food system.

- **Precision agriculture:** uses satellite pictures, Global Positioning System (GPS), drones, and even Artificial Intelligence (AI) to check crop and soil health and water quality. This allows farmers to be alerted if something goes wrong so they can quickly make changes to solve the issue. Drones, electronic tagging, and heat-detecting sensors make it easier to check on animal health, detect diseases, and find solutions to stop diseases spreading from animals to humans.



Digital technologies are transforming the way farmers grow food. With a tool called Cropwise™, powered by Syngenta, farmers do not need to guess. This technology provides reliable information and real-time data to help farmers make decisions on what to grow, when to plant, and how to keep their crops healthy. This means that more food can be grown efficiently and sustainably.

Level Two: In My Community

Community actions are important for working towards achieving SDG 2. Communities tend to focus on local solutions to problems so they can best serve the unique needs of a particular area, its residents, and their specific realities.

How SDG 2 is supported in your community:⁶

Community Programs

- **Food centres and food banks** - Food Banks Canada, which supports every province and territory with a network of more than 5000 organizations across the country, is addressing SDG 2. These programs strive to address urgent food needs today and prevent future hunger.
- **Food rescue organizations** - Second Harvest is Canada's largest food rescue organization, working to reduce food waste by redistributing usable food to those who are food insecure or who face hunger. Second Harvest works with thousands of food businesses to send surplus food to charities and non-profits across Canada instead of having it go to waste. Find out more at:  secondharvest.ca.

Agriculture and Producers

- **Community-Supported Agriculture (CSA) programs** - These programs provide fresh, local, in-season food via subscription service, while also supporting the local economy.
- **Promoting connections between farmers and communities** - This can happen through initiatives like the creation and support of farmers markets.

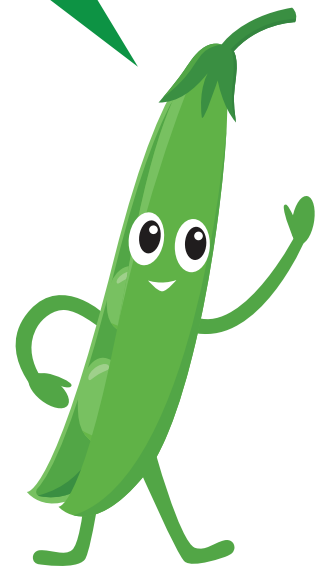
How you can offer support in your community:

- Write an email or letter to local politicians at the municipal, county/district, provincial, and/or federal level and ask about what work is being done to address SDG 2. Share why this issue matters to you and why you think it's important to your community. Look up your local politicians online by searching your town name + the level of politician you want to contact (e.g., Regina + city council members).
- Support hunger close to home by volunteering and learning more about the food needs in your community at a food bank or centre. You could also start a breakfast or snack program at your school to help make sure no student is hungry while learning.
- Get your hands dirty by starting a community garden! Learn how to grow different fruits and veggies and connect with other people in your community who are passionate about growing their own food.

Did you know that each month, over 1.4 million people across Canada visit a local food bank?

Food Banks Canada not only helps connect people with food, but they are also working to eliminate the root causes of hunger. They also need more than just food donations. Syngenta Canada is a founding sponsor of Food Banks Canada's Rural Support Program, which gives rural food banks access to tools and technology to better serve their communities. This includes fridges, freezers, refrigerated trucks, community garden tools and equipment, software to improve food distribution, as well as educational materials, and more! Learn more about Food Banks Canada at:

 foodbankscanada.ca.





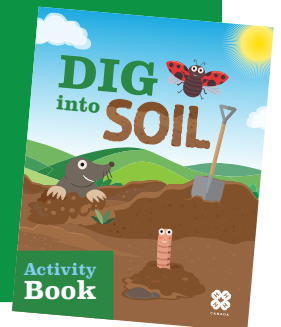
Level Three: In My Home

Supporting SDG 2 in your home can have a direct, positive impact on the lives of you and your family. As a family, you can be more aware of the meals you make, the food you buy, where it comes from, and your connection to the larger food security and sustainability picture. There are also many innovative solutions you and your family can try, making it even easier to play a role in supporting the goal of Zero Hunger.

How to support SDG 2 at home:

- **Download a “fridge tracker” app.** These apps help you and your family keep track of what food you have in your fridge, freezer, and cupboards.
- **Regrow certain vegetables from scraps.** Did you know the root end of lettuce, celery, and green onions can sprout again? Learn more about giving your veggies a second life at: farmersalmanac.com/regrow-vegetables-from-kitchen-scraps-24373.
- **Composting to redirect food waste.** See if you have space to create a compost pile either at home, or in your neighbourhood to keep food waste out of the trash. Even a countertop compost bin is a great option. Participate in a community-wide green waste program if there is one in your local area.
- **Plant a garden.** Whether it’s a small window box with herbs, a single pot with a tomato plant, or a larger garden with different types of veggies, fruits and herbs, this is a hands-on way to practice sustainable agriculture and see firsthand where food comes from.

Want to learn more about closing the loop on food waste at home? Check out our ***Dig into Soil* Activity Book** and “The Ultimate Compost Challenge” activity in it at: 4-h-canada.ca/dig-into-soil. You’ll learn how you can turn household food and yard waste into nutrient-rich compost!





Best Before Dates

Did you know that “best before dates” aren’t the same as “expiry dates”? Best before dates aren’t about food safety, they’re about food quality. In Canada, there are only five types of food with true expiry dates that shouldn’t be consumed after the expiry date has passed:

- Baby formula
- Meal replacements or supplement bars
- Meal supplement drinks
- Prescriptions from doctors for formulated liquid diets
- Prescription foods used in low-energy diets.⁷

If we all make a commitment to better understand best before dates, think of the food that we could divert from landfills!⁸ Check out these helpful resources to start learning more.

👉 blog.secondharvest.ca/2022/02/19/everything-you-need-to-know-about-best-before-dates/secondharvest.ca/getmedia/e05e0d48-9ab0-42a0-b9d9-4c89c0d7f5f7/SH-BBD-Consumer-Timetable.pdf

Activities



ACTIVITY 1

Your Sourdough Slice

Imagine what it would've been like to try to feed your family before there were grocery stores, bakeries, or even cars! Historically, one way people practiced food security was to ensure they could always make bread. They did this by keeping a sourdough starter – a living mixture of wild yeast, flour, and water on hand. Today, we typically use commercial dried yeast which is very handy but also has a shelf life of about a year. Sourdough starters can live for hundreds of years. All it needs is a bit of water and flour and it can be used to make bread indefinitely! During times when food chains are disrupted, people may rely on sourdough starter to make different types of breads and doughs. This is your chance to try it out and make a tasty meal!



When it comes to sourdough starters and commercial yeast, one isn't better than the other. They're just different and often used for different purposes. You can read more about it here: www.mydailysourdoughbread.com/sourdough-vs-yeast/.

Think of your sourdough starter like a pet, a living thing that smells like fresh bread. The wild yeast in sourdough starter eats the flour and water you feed it and produces bubbles of carbon dioxide. Some people even name their sourdough starter! Share a photo of your sourdough starter 'pet' with 4-H Canada on Twitter, Facebook, Instagram, or LinkedIn by tagging us @4HCanada. Don't forget to use the hashtag #4HFoodForThought!

Let's get your sourdough starter... started!

What you'll need:

- Sourdough starter and activation instructions
- Measuring cups
- Glass jar with lid – a large mason jar is perfect!
- Elastic band
- Water
- Flour
- Electric weigh scale – optional

Waking up your starter!

1. If you're doing this activity with your club, your club leader will wake up the starter and get it active, and then share with everyone.
2. Follow the activation instructions that came with the starter. It will take about a week to get the powdered starter well fed and ready to use.

Top tip:

Put an elastic band around the outside of your starter jar to easily track how much the starter grows. As it starts to bubble and rise, notice how high above the elastic band the starter rises.

3. As the starter grows, you can divide it into more containers to share with other people. To divide, add 1 part of your starter with 1 part flour and 1 part water in a new jar. Let it rise, discard $\frac{1}{2}$, feed it again (1 part flour, 1 part water), and then you'll have a new batch to share. Sharing about 1 cup of starter per person is typically just the right amount.

For instructions on how to keep your starter fed and stored, see page 2 of the activation instructions under "Maintaining your Sourdough Starter".

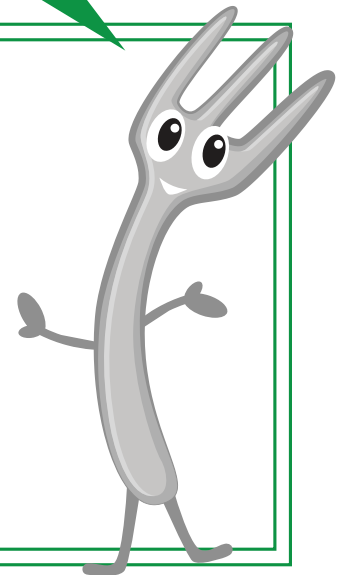
How does it work?

Sourdough starter is a "symbiotic colony of yeast and bacteria", also called a "SCOBY". This means the yeast and bacteria are happily living together. It contains wild yeast that naturally occurs in the air, in the flour you use, and even on your hands. Feeding this yeast some flour (which contains carbohydrates - a form of sugar) and water produces carbon dioxide bubbles, which is what makes bread rise. It also produces lactic acid, which gives sourdough its great slightly tangy taste. This also stops other bacteria from growing in the mixture.



Fill Your Plate

Canada grows so much wheat that we have more than we need - we produce about seven times more wheat than what we eat! But instead of wasting all that extra wheat (which gets turned into flour, just like the flour in your pizza dough), we can share it with other countries who need it. People all over the world really like Canadian wheat because it's high quality. Part of the reason why Canadian wheat is such good quality is because companies like Syngenta give farmers access to products that help keep their plants healthy and strong, ensuring the wheat kernels have ideal protein and quality, which is important for creating flour for lots of different uses. Canada exports a lot of its wheat to other countries - almost 35 million tonnes in one year!⁹ By sharing our extra food with other countries, Canada is helping to make sure that everyone has enough to eat, which is important for global food security.



Bring on the pizza!

Now that your starter is fed and happy, you can start to use it! You can make bread, cinnamon buns, even pancakes! A great easy recipe to get started is sourdough pizza dough. Simply prepare the dough, then top it however you like.



TIME 24 hours

Active Time: 40 minutes | Bake Time: 10 minutes



MAKES

1 thick crust 14" pizza, or 2 thin crust 12" pizzas

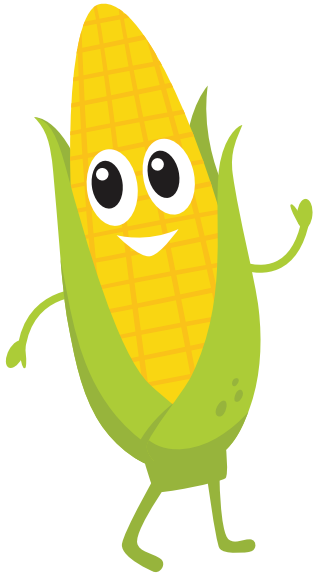
You'll need

- 1 cup sourdough starter – ideally fed 4-6 hours before starting to make the dough
- ½ cup water, plus 2-8 Tbsp. of water (depending on how dry the dough is)
- 1 tsp salt
- 2 ½ cups all-purpose flour
- Pizza sauce
- Your favourite pizza toppings
- Cornmeal (optional)
- Parchment paper (optional)
- A large pizza pan or baking sheet – rectangular or round
- Timer

Directions

*Note: the time it takes for your dough to rise can change depending on the temperature or humidity. In the summer, your dough will likely rise faster; in the winter, it will likely take longer.¹⁰

- 1. Make the dough.** Stir together the starter, salt, and water in a large bowl. Add the flour and stir until completely incorporated. If it's dry, add 1 or 2 Tbsp of water and keep adding 1 Tbsp at a time until all flour is incorporated. Cover the bowl with a kitchen towel, and let it sit in a warm place for 30 minutes.
- 2. Stretch and fold the dough.** After 30 minutes, remove the cover. Keeping the dough in the bowl, reach in and pull up the dough, and then fold into the centre of itself. Repeat this, working in a circle 8-10 turns – stretching up a handful of dough and folding it into the middle onto itself. Let the dough sit for another 30 minutes, and then repeat the stretch, fold, and rest for 30 minutes process three more times, for a total of four cycles. By the last cycle, you'll notice the texture of the dough has changed to be smoother, stronger, and more stretchy.
- 3. Cover the bowl with a plate or plastic wrap and put it in the fridge overnight.** If it's early in the day and warm, you could also let it rise for 6-8 hours on the counter.
- 4. Shape the dough.** In the morning, your dough will have doubled in size. Put your ball of dough onto a flour-dusted counter. The dough will be sticky, so use as much flour as you need to stop it from sticking to the counter. If you prefer a thin crust pizza, cut the ball of dough evenly in half, to make two pizzas. Using floured hands, gently



form the dough into a ball, rolling it around and tucking any bits underneath the ball. Put the dough ball(s) into the fridge for at least 6 hours. This dough will keep for up to three days.

- 5. Make the pizza:** Remove your ball(s) of dough from the fridge one hour before you plan on making the pizza. Preheat the oven to 260°C/500°F (or the highest setting your oven has). When the dough has warmed to room temperature, dust the dough with flour and place it on a floured work surface. Gently shape the dough into a 14" circle (or 12" if you are making two thin crusts), handling it as little as possible. Transfer the dough onto the pizza pan or baking sheet that you'll be using to cook the pizza. Optional – scatter some cornmeal on the pan first or use a piece of parchment paper to prevent the pizza from sticking.
- 6. Add the sauce and toppings of your choice.** When ready, with adult supervision, place the pizza in the oven for 5-10 minutes. Keep an eye on the pizza as it cooks – some ovens will cook faster; others will take more time. The crust will get brown and puff up, and the toppings will melt or get crispy.
- 7. When done, get an adult to help you take it out of the oven.** Let the pizza cool slightly, and then carefully cut it into slices.
- 8. Enjoy!** Have a slice of your very own pizza you made entirely from scratch! How does the dough taste? What about that combination of toppings? Savour your hard work and share a slice or two with your family, friends, or 4-H club members.

Record your pizza topping experimentation:

My favourite pizza combination

.....

.....

.....

.....

A new pizza topping I'd like to try

.....

.....

Create your own new combination. What would you name it?

.....

.....



ACTIVITY 2

Create and Innovate! The Future of Food Security

The future of food security involves innovation – coming up with new ideas to solve problems. This means figuring out how to reduce food waste, discovering sustainable methods for growing crops while increasing crop yields, discovering new strains of seeds, discovering new ways to combat diseases, or inventing new tools and equipment to help with food production. To feed 9.7 billion people by 2050, we'll need to be creative and innovative to produce enough food to feed everyone, while also taking care of the planet!



This activity is all about being creative and thinking about ways you can make positive changes in the world around you. Let yourself dream and have fun; don't worry about accuracy. You can work individually or in a group with fellow 4-H members.

1. Write or type your answers to the following questions to get your creative juices flowing:

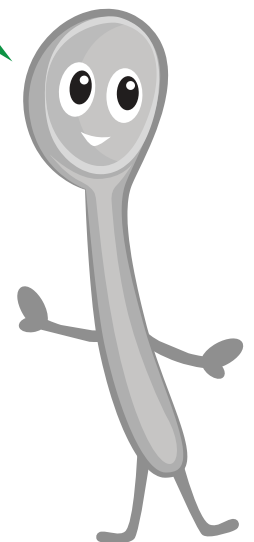
- What food has too much packaging? How can you reduce or change it?
- What food spoils quickly? How can you stop it from going bad, or increase its shelf life?
- How do you want people to better protect the environment to support Zero Hunger?
- How can people reduce food waste at home, at restaurants, or in grocery stores?
- How can you create something new from food items normally thrown away?
- What might a new type of food look like that would cover someone's nutritional needs for the whole day... or an entire week?

Did you know...

cauliflowers can get sunburnt? Most cauliflower leaves need to be bent by hand to protect the head, also known as the curd, from the sun. Syngenta has used innovation to breed seeds to produce cauliflowers that are naturally resistant to sun damage. This saves farmers time, money, and eliminates food waste caused by sun damage.¹¹

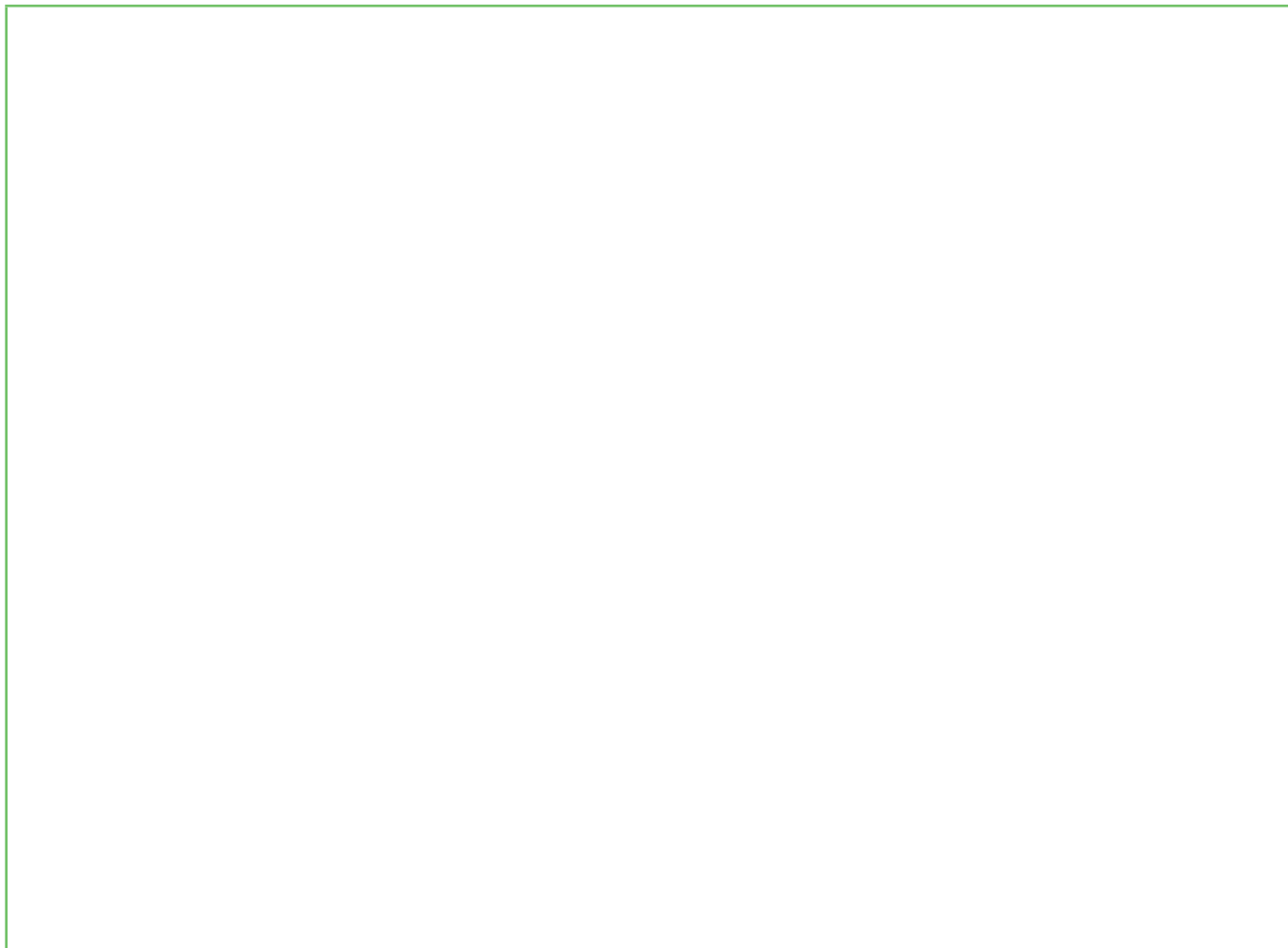
Think STEM (Science, Technology, Engineering, and Math)

Take your idea to the next level with the 4-H Canada Science Fair. 4-H members have turned their curiosity and passion for making the world a better place into innovative and creative science fair projects. Get more information about this national program at: 4-h-canada.ca/sciencefair.



2. Select one of your ideas from above to explore further. Think about the next steps you can take:

- a. Design an image or advertisement of what your idea might look like and what it can do. Give it a product name, slogan, and logo.
- b. Draw a diagram to show how you might build your idea or create a model. Do you need to show its contents or describe a few steps of how it will work?
- c. Make a short video talking about your idea or record a commercial. What are the key features of your idea you want to highlight in your ad?



3. Share your ideas with fellow 4-H club members. Give constructive feedback to club members – what are the pros and cons of each new product or invention, and how could it become a reality?

Fill Your Plate: Idea Pitch Party

Take your ideas further and create a pitch for your new product, invention, or way of producing food. Present your pitch at your 4-H club meeting. Your 4-H leaders and special guests could be the review panel. Like the show “Dragon’s Den”, they can listen to the pitches, offer feedback on ways to take the ideas from concept to reality, and select a ‘winning’ idea.



ACTIVITY 3

Three Sisters Garden

In Indigenous communities, the planting of corn, squash, and beans together is called “Three Sisters”. This practice was widely used by Indigenous peoples in the Great Lakes – St. Lawrence Lowlands region of Canada.¹² These crops have a long history of being grown together because the plants benefit each other as they grow, supporting food security and sustainable agriculture. The cornstalks provide support for the pole beans, while the beans add nitrogen to the soil, and the squash provides ground cover to keep weeds away and conserve moisture. This method results in more food being grown. The corn, beans, and squash also provide a complete nutritional package, providing carbohydrates, amino acids, proteins, and fats. It increases food security so that if one type of plant fails because of pests or disease, the other plants still have a chance of survival. This agricultural system has been practiced by Indigenous peoples throughout the Americas. It is still used and practiced today providing a sustainable and nutrient-rich form of farming.¹³



Planting Your Three Sisters Garden

Work with your 4-H club or try your hand at planting it yourself! **Note** – save the seeds you received with this kit to begin this activity at the start of your planting season. Packaged seeds can be safely stored for a year.

Materials:

- Bean, corn, and squash seeds from your kit
- Compost or aged manure
- Shovels and gardening trowels
- Buckets of water
- Work gloves + hats + sunscreen
- Row markers (optional)

Fill Your Plate

The bounty of a Three Sisters Garden provides an abundance of food to enjoy. Look for recipes that allow you to use the corn, beans, and squash together, or on their own. Can you find recipes that allow your corn, beans, and squash to be the star of the show? Share your favourite recipes with your club members or family and friends.

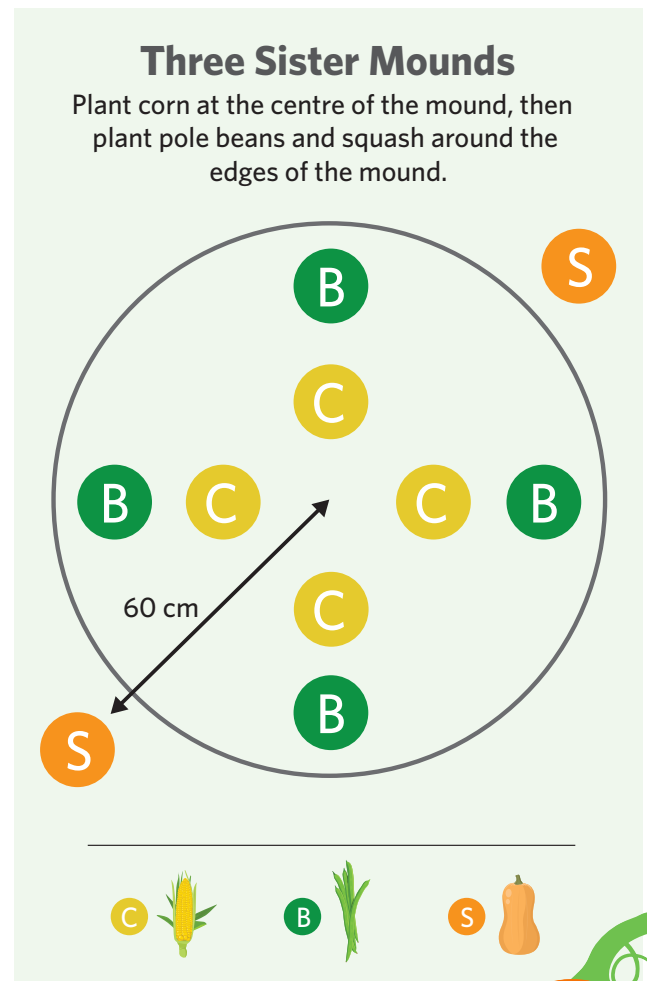


Instructions:

When there is no longer a risk of frost, find a location for the garden where there is enough room (at least 1.5 meters square) for these three crops to grow. Whichever space you choose, make sure it has well-draining soil and lots of sunlight.¹⁴

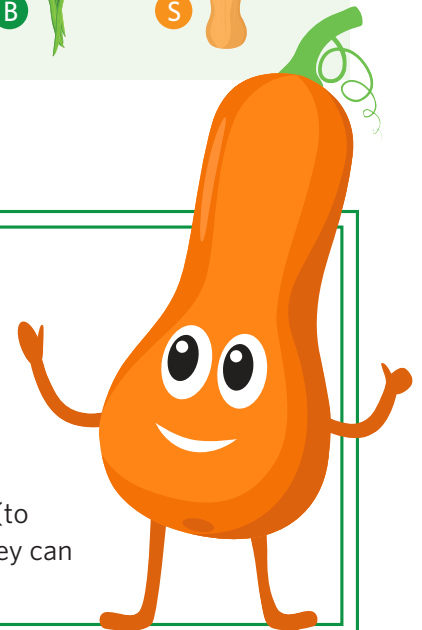
If you received a club kit, the seeds in the packets will need to be shared between club members. A full packet of seeds per person isn't needed for success.

1. Prepare the soil by tilling/digging 30 cm deep and removing any stones or debris. If you can plant the seeds in an already established field or garden, this will be much easier.
2. Spread a layer of compost or aged manure over the soil and work it into the top 20 cm of soil.
3. Create a mound of soil in the middle of the plot, 20-25 cm tall and 30-45 cm in diameter. Create a well in the middle (it should look like a mini volcano) to help with drainage. Water thoroughly and keep moist until the plants are established.
4. Follow the Three Sisters Garden Calendar for when to plant and harvest and follow the instructions on each seed packet for more information.



Fill Your Plate!

Scout your Three Sisters Garden! Keep an eye out for bugs, weeds, and diseases. All three can affect the quality and quantity of your beans, corn, and squash. These pests are relatively easy to control in your small garden. Imagine if your garden was the size of several soccer fields? You would need help! Farmers often rely on plant science innovations like products from Syngenta to produce healthy, top-quality fruits and vegetables. Herbicides (to stop weeds), fungicides (to prevent disease) and insecticides (to keep bugs away) protect plants to ensure they can grow strong and healthy.



Connecting Communities

Talk with your 4-H club leader about inviting a local Indigenous Knowledge Keeper or Elder to your 4-H club meeting to share their traditions and stories of agriculture and food. Your club can then share what they've learned about SDG 2, so the experience is one of shared learning and appreciation. This is an opportunity to build connections and foster mutual understandings.

Learn more about the local Indigenous territories close to you at native-land.ca/native-land.ca.



Planting Instructions



CORN

- Plant first to grow tall above other items.
- Plant four seeds in the centre of the well 15 cm apart, 2-3 cm deep.



BEANS

- Plant two-three weeks after corn when it is at least 10 cm tall.
- Allow bean tendrils to climb corn.
- Plant four seeds halfway down sides of mound at least 8 cm from corn and 2-3 cm deep.



SQUASH

- Plant one week after the beans (beans should be poking through the soil) to avoid large leaves overshadowing young corn and beans.
- Plant two seeds 50 cm from the centre of the mound on opposite sides.

- As the plants grow, encourage the bean vines to grow up the corn stalk and keep an eye on the beans so that they don't overcrowd the corn (you may need to thin them by removing a bean plant or two).
- Encourage the squash vines to grow outward away from the corn and beans. If needed, put wooden stakes/sticks in the soil to hold the vines in place.
- The corn will provide a structure for the beans to climb, and the squash will provide ground cover and shade the soil, helping conserve moisture.
- Water the plants regularly and try to keep the area weed-free.
- Harvest the beans, corn, and squash when ripe in the fall.



ACTIVITY 4

Zero Waste Recipes

Get creative in the kitchen and reduce food waste by making recipes using ingredients that would otherwise be thrown away or composted. Dishes can range from simple sides to hearty main courses, and everything in between! These types of recipes typically use ingredients that are past their prime, such as overripe fruits and veggies, stale bread, and food scraps. You can reduce food waste and its environmental impact, while still creating delicious, nutritious meals.



Can you think of some food items that often go to waste in your home, or what foods could be turned into something else? Brainstorm with your fellow 4-H members or your family.

Here are some items to get you started:

- Stale bread – could become... croutons, French toast, bread pudding
- Broccoli stalks – could become...

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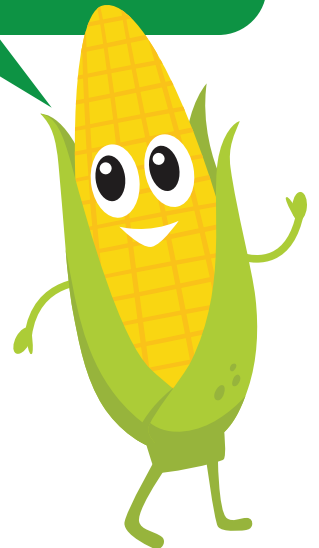
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Love your leftovers...

It's common to put leftover ingredients, meals, or other perishable food in the fridge and forget about it after a few days. To help you and your family reduce food waste and keep track of what's in your fridge, try posting a magnetic dry erase board and marker on the fridge. Whenever you put something into the fridge that has a shorter shelf life, make a note of it on the board.



You can get creative and make your own recipes or use these tips for locating and trying “Zero Waste” recipes:

- Find recipes online, at home, or at your local library that use the ingredients you have on hand, but also look for recipes that sound appealing to you and your family.
- Give your favourite one (or two) a try. How did it turn out? What would you do different next time?
- Write out your favourite recipe on the recipe card included in your kit.

Share your recipe with your 4-H club. Discuss why these recipes are good for reducing food waste. With everyone sharing one or two recipes, you’ll each get a variety of recipes to try!

Planting ideas

There are many ways to preserve food and prevent it from spoiling including:



FREEZING

Freezing stops the growth of bacteria as the water that bacteria need to grow goes from liquid to solid. Frozen meals and leftovers will stay good for months in the freezer! Freezing also doesn’t change the nutrients in food.



CANNING

Canning involves sealing food in a jar and then boiling it. The heat from the boiling kills the bacteria and helps keep the food in the jar fresh for a longer period. The process of canning is often used for jam, salsa, and pickled vegetables.



DEHYDRATION

Dehydration is a process of removing water from food. Since bacteria needs water to grow, this process makes it more difficult for bacteria to grow, so food lasts longer. You can dehydrate food in a dehydrator, a low-temperature oven, or by using simple methods like hanging it in the sun, or air drying.



ACTIVITY 5

Act on Food Security

As you've been learning and working through this activity book and its activities, you've become a champion of SDG 2, Zero Hunger. Global goals like the SDGs are most successful when people are aware of them and work together to achieve them... this is your opportunity to make that happen! Share what you've experienced as part of this activity book - either individually or as a club - by hosting a community event. This creates a ripple effect - a way for you to pass on what you've learned and teach others how they can make positive change too!



Use these questions to get you thinking about what you might like to share with people who attend your event:

- What is the most important part of this issue for you?
- What is your favourite thing you've learned?
- What was something that made you feel excited to take part in and make positive change?
- How can you share this experience with others?

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Use your responses to guide the planning of your event.

The following are some ideas and ways to create a community event about SDG 2. Brainstorm more ideas with your club to make this event unique and meaningful to you.



Community Dinner

- Consider serving your sourdough pizza or one of the Zero Waste recipes you came up with. Explain to attendees why you selected the menu and how it relates to SDG 2.
- See what local ingredients you can include and highlight those items/producers during the event.
- Hang chart paper on the wall for people to write or draw on and share their thoughts about the importance of food security.



Speakers

- You! – You and your fellow 4-H members have learned a lot about SDG 2. Share with everyone what you’ve learned, why it’s important to you, and what you want to change in the world when it comes to food security and Zero Hunger.
- Local producers – could speak about food production and innovative agricultural processes that promote sustainability.
- Members of the community – could share what they’re doing to address this issue.
- Food scientist, agronomist, or other food industry expert – could talk about processes used to increase crop yields, boost nutrition, and innovate food production methods.
- Local food bank or food centre – could speak about food security issues in your community and how to support their work.



Share Information

- Create posters with SDG 2 information on them and hang them up at your event or school.
- Create “Did you know?” cards that can be included on each table at your event, in a library, or on cafeteria tables that include interesting information about SDG 2 and food security.
- Ask your local food bank or food centre for educational materials they can provide for you to share.



Act!

- Collect donations for a local food bank/centre. Be sure to find out what types of donations are most helpful.
- Have attendees make a Zero Hunger pledge and commit to doing something to support SDG 2.
- Come up with a plan for leftovers to reduce food waste, keeping in mind safe food handling guidelines.
- Invite local media to come to the event. Look online for instructions about how to write an effective media release.
- We love to see 4-H members supporting the SDGs! Share the work you’ve done with 4-H Canada on Twitter, Facebook, Instagram or LinkedIn and tag us [@4HCanada](#). Don’t forget to use the hashtag [#4HFoodForThought](#).



ZERO HUNGER CHALLENGE

Syngenta Canada launched its **Zero Hunger Challenge**, a commitment to raise awareness and take action to address food insecurity. Syngenta Canada encourages employees and other companies to learn more about the issue of food security – just like you’re doing with this activity book. They are also asking them to act by volunteering, donating, and getting innovative about how they can make a difference.

Reflection

You have just completed a series of activities about food and food security and we hope you feel like you've achieved the goals outlined in the introduction. When we learn and do something new, it is important to reflect at the end of it all... how did it go? What did you achieve? What would you do differently next time?

Consider the following questions and see how they align with the skills you've developed in Food For Thought.

REFLECTION QUESTIONS	OUTCOMES
How have you advocated for food security or supported others in their learning?	<i>Leadership development</i>
What skills have you learned by going through these activities?	<i>Skill mastery</i>
What positive change can you make by supporting the Zero Hunger SDG?	<i>Positive values</i>
What responsibility do you feel you have in supporting food security efforts?	<i>Responsibility</i>

What goals have you set for yourself to continue to learn about and support SDG 2?

Planning and decision making

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How will you make your mark as a member of your community and as a global citizen?

Sense of purpose

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What was the most fun part of this kit? What was something you learned in a hands-on way? Did anyone help you with your learning? Thank them here.

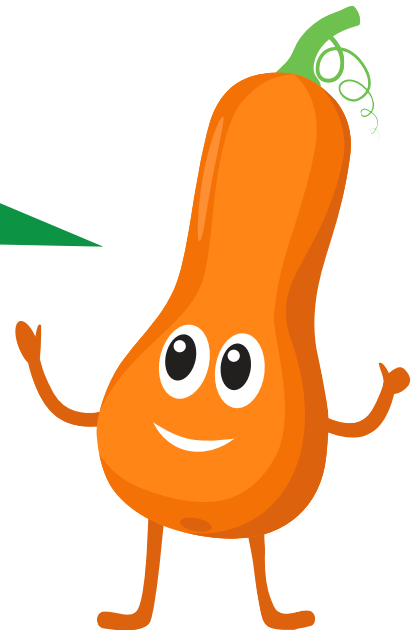
Learn To Do By Doing

Fun

Supportive adults

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Thank you for joining 4-H Canada and 4-H members across the country in learning more about food security, gaining skills, and having fun with food as you explored Food For Thought. We look forward to seeing what you've accomplished and hope you'll try out some of the other opportunities available through 4-H Canada! Remember to share it with us on social media and tag us @4HCanada. Don't forget to use the hashtag #4HFoodForThought.



References

<https://sdgs.un.org/goals>
<http://www.fao.org/hunger/en/>
<http://www.fao.org/state-of-food-security-nutrition/2-1-1/en/>
<https://secondharvest.ca/>
<https://changeforchildren.org/learn-teach/food-security/>
<https://www.gvicanada.ca/blog/what-is-food-security-and-how-can-you-contribute-towards-it/>
<https://changeforchildren.org/wp-content/uploads/2016/06/Food-Security-vs-Food-Sovereignty.pdf>
<http://www.foodwastemovie.com/quiz-js/>
<http://itsgoodcanada.ca/good-links/>
<https://www.farmfood360.ca/>
<https://lovefoodhatewaste.ca/>

Photos and illustrations

Shutterstock, www.shutterstock.com

Endnotes

- 1 <https://www.un.org/sustainabledevelopment/hunger/>
- 2 <https://www.un.org/sustainabledevelopment/hunger/>
- 3 <https://secondharvest.ca/news/more-than-half-of-all-food-produced-in-canada-is-lost-or-wasted-report-says/>
- 4 <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update/what-is-food-security>
- 5 <https://aitc-canada.ca/DesktopModules/EasyDNNNews/DocumentDownload.ashx?portalid=0&moduleid=567&articleid=88&documentid=204>
- 6 https://communityfoundations.ca/wp-content/uploads/2022/03/CFC_Factsheet_SDG-2_EN.pdf
- 7 <https://blog.secondharvest.ca/2022/02/19/everything-you-need-to-know-about-best-before-dates/>
- 8 <https://blog.secondharvest.ca/2022/02/19/everything-you-need-to-know-about-best-before-dates/>
- 9 [https://cerealscanadaannualreport.ca/ Cereals Canada Annual Report English – Crop Protection & Agriculture](https://cerealscanadaannualreport.ca/Cereals%20Canada%20Annual%20Report%20English%20-%20Crop%20Protection%20&%20Agriculture)
- 10 <https://alexandracoops.com/2020/05/01/simple-sourdough-pizza-a-step-by-step-guide/>
- 11 <https://www.syngentagroup.com/en/making-food-better-and-longer-lasting#:~:text=Normally%2C%20as%20cauliflower%20matures%20and,with%20the%20leaves%2C%20by%20hand>
- 12 <https://agriculture.canada.ca/en/news-agriculture-and-agri-food-canada/scientific-achievements-agriculture/three-sisters-optimizing-value-and-food-potential-ancestral-indigenous-crop-system>
- 13 <https://agriculture.canada.ca/en/news-agriculture-and-agri-food-canada/scientific-achievements-agriculture/three-sisters-optimizing-value-and-food-potential-ancestral-indigenous-crop-system>
- 14 <https://www.nativeseeds.org/blogs/blog-news/how-to-grow-a-three-sisters-garden>

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