Grade 3 Learning Experiences: Growing a Garden Salad

Experience 2: Where Does It Come From?

Long Range Plan Grade 3 Model 1

Overview of learning experiences – why these activities	Students will gain an understanding of where garden salad ingredients come from, how they are grown and harvested before they go to the market/store, and if the plants are native to the area. They will be able to expand on their learning by understanding and comparing how food travels in other cultures around the world. Students will become aware of how most food is transported while shifting their perspectives to locally grown food. They become critical thinkers when they compare how locally grown food has benefits and limitations. Students consolidate their learning by using the engineering design process to create/invent a solution of how to get fresh and healthy produce without negatively affecting the natural environment. Long Range Plan Grade 3 Model 1
Prior Knowledge / Prior Skill Set(s)	**Background Knowledge and Concepts (Teacher)** ● Familiar with all the Considerations for program planning ● Familiar with the Engineering Design Process ● Familiar with the UN Sustainable Development Goals **Background Knowledge and Skills (Students)** ● It is recommended that students have skills and knowledge from the previous learning experience (Experience 1: What is a Garden Salad?) ● Students' perspectives and prior knowledge about the topic are welcomed in the class so that everyone can benefit from the knowledge and experience of others. ● Familiarity with how scientists record their observations in notebooks and/or nature journaling ● Since this experience will apply political geography, it may be best to introduce and/or review with students the concept of a city, a province, and a country

	• An understanding of the engineering design process. Otherwise, take the time to introduce the process to them when it's time to use it within the activity.
Strand A - STEM Investigation and Communication Skills	**A.1.1. Scientific Research**: use a scientific research process and associated skills to conduct investigations **A.1.3. Engineering Design (builds)**: use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems **A.1.5. Communication**: communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes **A3 Applications, Connections and Contributions**: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences
Overview / Big Ideas/Fundamental Concepts	**Overview** Students begin to deepen their transferable skills by looking at their knowledge of salad ingredients from a global perspective. They think critically about how food impacts them and their environment. They extend that understanding with Indigenous perspectives. Their food literacy knowledge is deepened with climate, global and Indigenous education**.** **Big Ideas** • Where/how is food sourced around the world? • How is food transported from farm to table? • What are the benefits and limitations of locally grown food? • How are plants beneficial to society and the environment? • How does human activity impact plants and plant habitats? • What are environmentally friendly solutions to provide healthy foods to regions that don't have nearby agriculture?

	Fundamental Concepts ● **Automation** Automation involves implementing technologies to make systems run on their own, without further human intervention. Automation can facilitate and accelerate functions that are otherwise difficult, repetitive, or dangerous for human beings to perform. Coding and emerging technologies play an increasingly important role in controlling automated systems. ● **Sustainability and Stewardship** Sustainability is the concept of meeting the needs of the present without compromising the ability of future generations to meet their needs. Stewardship involves understanding that we need to use and care for the natural environment responsibly and making the effort to pass it on to future generations no less than what we have access to ourselves. Values that are central to responsible stewardship are as follows: using non-renewable resources with care; reusing and recycling what we can and switching to renewable resources where possible.
Learning Goals / Success Criteria	Suggested Success Criteria that can be co-created with students based on the activities presented within these learning experiences. These can also be used at the end (consolidation) as a self-reflection or self-assessment. ● I can think critically about the information presented ● I can communicate my ideas and questions ● I can infer ● I can form an opinion based on the information gathered (choosing local or non-local food) ● I can problem solve ● I can generate creative ideas ● I can use the engineering design process to help me create a solution ● I can demonstrate an understanding of diverse worldviews and perspectives **Ministry of Education Key Points** ● Engineering Design Process ● Hands-on, Experiential Learning ● STEM Skills and Connections

	• Food Literacy • Climate Change • Skilled Trades • Emerging Technology • Contributions to Science and Technology
Learning Experience(s)  **A.1.1, A.1.5, A3**	**Minds On (35-50 mins)** The purpose of the Minds On is to determine what prior knowledge students have about where garden salad ingredients come from. Students should make connections to their own food and where they (their families) get their food. The activity is divided into two parts since the content may be heavy. **Part 1 (20-30 mins)** 1. Ignite students thinking about where food for a garden salad comes from by posing the question: Where do salad ingredients come from? How does your food get to your plate? Review a list of salad ingredients on chart paper if need be. Have students share their ideas. Write out a new list of ideas on chart paper. 2. Use a read aloud (non-fiction text) or short video that explains where salad ingredients come from such as this video from TVOkids. *Alternatively, contact a local farmer and ask them to be a guest speaker in the class. The farmer could show and talk about how they grow and harvest their crops. What technology do they use? *Alternatively, take students on a field trip to a local farm (suggestion Virtual Field Trips | Ingenium). Follow up questions: What is the journey of the seed to the vegetables on your plate? What is needed to make sure the vegetables grow healthy? (e.g., soil, weather) How important are plants for humans and animals? 3. Discuss with students how their families get their basic fruits and vegetables. Write a list of possible ideas on chart paper (e.g., farmer's market, grocery store, deliver from farm, grow in their yard). Pose the question: how does the climate where we live affect where we get our food and how? Does the price of fruits and vegetables change? How do

	other people around the world get their food? Do other countries grow their food the same way? How do Indigenous peoples here and around the world use plants for food, medicine, and shelter? (consult with an Indigenous lead in your district to learn about the Indigenous plants within your region). Learn about how native food in your region was cultivated, harvested, and used for a variety of purposes. How has Indigenous Peoples' food from the land changed? If students are ready and comfortable, you can discuss the history of colonial systems' impact on traditional Indigenous use of land (growing plants). **Part 2 (15-20 mins)** 4. Take the students on a trip around the world to see how people in different countries get their food. Do all countries have grocery stores? Do they use their food for other purposes? Does everyone in the world have access to the same foods? Why or Why not? How do people around the world grow their food? Do they use the plants for uses other than nutrition? Is there enough food to feed everyone on the planet? Use the following resources to find photos and articles as you explore these questions through the Global Goals: No Poverty (SDG 1); Zero Hunger (SDG 2) 5. Discuss what you discovered as a class. **Action (70-90 mins)**
 **A.1.1, A.1.5, A3**	**Part 1 (40-50 mins)** 1. Hand out student grocery store flyers where it is visible to see what country the vegetables are sourced from. If none exist, create one in advance, or show students grocery store websites or digital flyers and gather the data together. Teacher models where on the flyers you can find the name of a province or country. (If needed, take the time to introduce some political geography: what is a city, province, country). *Alternatively, based on the demographics of your classroom community, you can welcome students to ask their families to take note of where their produce comes from and bring that data to share in the classroom. (You can ask students to collect produce stickers too!) 2. Students can complete the Where are the vegetables sourced? (see

	Appendix A: Where Are Vegetables Sourced?). Have students record various examples of produce and where they come from. Students can complete it in pairs or groups. Model the first example. This can also be completed as a whole class (guided). 3. Depending on the season, students may have all foods locally grown in Ontario. If that's the case, then shift the discussion to what happens when winter arrives in Ontario. Where do we source our fruit and vegetables? How do northern Ontarians source their fruits and vegetables? 4. Use a large Ontario and/or World map to pinpoint the regions/countries where the food came from. What do students notice? What do students wonder? Gather observations of students' ideas for assessment as learning. **Part 2 'Food Supply Chain'** **Activity A (30-40 mins)** 5. Review as a class how food travels from the farm to your table. Introduce the concept of the food supply chain. How far did the food travel? Write out the definition on chart paper: e.g., the food supply chain is how food from a farm ends up on our plates. The entire journey (process) includes production (farm) → processing/packaging → distribution → retail/grocery → consumption (table) and you may include disposal. This process may vary. If possible, write out this process on chart paper and include visuals to accompany the words. Use culturally relevant drawings/images that represent the students within your classroom. See Appendix B: Food Supply Chain for an example. 6. Have students create an actual "chain link" out of paper to represent the food supply chain. Each chain can have a drawn or glued-on image that represents each stage of the food supply. You can use a piece of paper with lines drawn out and students can write down the name of the stage and draw an image. Alternatively, you can have the strips cut out ahead of time. Students can then cut and glue the circle one at a time, making sure they wrap the 2nd, 3rd, 4th, 5th, and 6th paper around the previous circle to create a chain link.

A1.1, A.1.3, A.1.5, A3	7. Discuss with students what types of jobs/careers are found in each stage of the food supply chain (e.g., farmer, sales representative, distribution centre associate, manager, transportation worker, etc.). If time and resources permit, have a guest speaker from one or more of these careers. **Activity B** **Mapping (30-40 mins)** 8. Using a map of North America or a World map, show the distances of some foods you have information about. You can introduce the concept of 'food miles'. By visually looking at the map, students can determine which food traveled the longest distance. Discuss what that means for the food. What happens when food must travel a long distance? What happens to your food when it travels in your backpack from home to school? How do your parents/guardians/families transport food? Have students think-pair-share before sharing with the rest of the class. 9. As a class, model the calculations of distances of the different foods and organize that data within a table created on chart paper. Have students use that data to create a graph. Students can create a bar graph or another type of graph that they are focusing on in mathematics. Students can work on graph paper, journals, or another medium (e.g., computer software). Depending on the profile of the classroom, feel free to give students a chance to choose the medium of how they would like to demonstrate the data. 10. Once the graphs are complete, have students analyse and give summaries of which foods travel the farthest vs shortest and why? Students can write a short summary in their books or explain orally. Have a class discussion about your students' discoveries. 11. Continue the rich discussion about what kind of impacts humans have on the environment when food is transported (e.g., transportation creates pollution). How does the taste of the food change when it is traveled vs when it is locally sourced? Are there other factors that affect the growth of plants? How does the soil affect the produce? Does pollution affect the soil? Create a list on chart paper for students to see and refer to. This discussion will give 'food for thought' for the consolidation.

Consolidation

Part 1 (30-40 mins)

12. Present the final question: how can we find a way to eat healthy foods without having to negatively impact the natural environment? How is technology and innovation helping people eat healthy food? This question can lead to an extension of exploring vertical gardens, hydroponic gardens, etc. (innovation of growing plants, emerging tech). Give Students the opportunity to share their ideas in groups before sharing them with the class.
    Students may answer that the best way to eat healthy without negatively impacting the natural environment would be to eat local foods.
    If possible, have a guest speaker (e.g., a nutrition professional for public health or someone who knows about locally grown food, a farmer, or a climate specialist) talk about the benefits and limitations of eating locally grown food. It is recommended to have more than one perspective on this topic. If you can have more than one guest speaker, this would help students deepen their knowledge and understanding.

13. Have students consolidate their learning about locally grown food at a table. In pairs or groups, have students discuss the benefits and limitations (advantages and disadvantages) of locally grown food. Students can use the information from guest speakers and web resources (see additional supporting resources). Below is an example:

Advantages	Disadvantages
● Reduce transportation distance ● Less air pollution ● Fewer trucks on the road ● Helps the natural environment ● Food tastes better ● Food has more nutrients ● Helping farmers	● Not a variety of food ● More expensive ● The food does not last as long (less or no preservatives) ● More locations to travel to ● Sometimes the food may not be good (food safety)

14. In their journals, have students explain if they choose locally grown food or not locally grown and why? Encourage alternative ways for students to communicate their thinking (e.g., drawing, orally, computer software).

Part 2 (30-40 mins + additional time as required)
Engineering Design

15. Introduce the Engineering Design process or the Design Thinking process. Have the steps of the process written on chart paper or a large poster so that students can refer to it as an anchor chart. A printout of the process is also ideal for students to have close by as a reference. Explain to students how engineers use these processes to help them solve problems and come up with a solution.
    Have students follow the Engineering Design process (or the Design Thinking Process) to create a solution to the big question: how can we, who live in Ontario, or people who live up North, receive fresh and healthy produce to eat during the winter months? Students can work in pairs or in groups.
    What can they create? What can they invent? What materials will they need?
    Co-create with students a success criteria for their solution and add to these criteria as necessary:

-Sustainable -Environmentally friendly (creates no pollution) -Will provide fresh, nutritious produce -The produce will be affordable to customers -The produce will be accessible

Research and Understand the Problem

16. If required, model how to research using various forms of mediums (e.g., text, books, internet). Have the big question written out and visible in the classroom for students' reference. To help students' understanding, feel free to bring in an expert to speak with people who live up North about their food availability during cold months (or where there is no nearby agriculture).

Ideate and generate possible solutions

17. Give plenty of time for students to brainstorm their ideas. You can model, using a web map on the board, with the big question in the middle and begin generating some ideas for possible solutions from the students. After coming up with 4-5 ideas on the board, have students, in groups,

	come up with more ideas/solutions. Give them the opportunity to research during this stage as well. Students can communicate their ideas on a larger piece of paper (one for each group) using words, pictures, numbers, etc. Circulate among the groups and guide their discussions. If noticing that students need more guidance, regroup the class to have further discussion on the topic. Bring in experts to provide more information as needed (e.g., transportation workers, people who work up North and know about the high cost of food). Show current ways society is transporting food from warmer climate regions to cooler climate regions, or other technological solutions such as vertical/smart gardens, greenhouses, etc. An example may be 'Bill Nye Saves the World S03E03' or other appropriate videos. **Select an option and develop a prototype** 18. Have students (within their groups) circle the idea (on their large piece of paper) that they all agree upon to proceed and create their prototype. 19. When drawing a prototype, have students use blue paper or construction paper. Have frequent conversations during the process to guide students with their work. Use materials as needed (e.g., recycled materials) **Test the Prototype** 20. Allow students to go back and forth revising their work to model the iteration process. Give feedback as needed. If possible, have an expert provide feedback as well. **Communicate the Solution** 21. Once students have completed their final product, have them present to others in the class, outside the class, the principal, etc. Have them use a medium of their choice (e.g., Google Slides, video commercials, etc.). Students can have a “pitch” as a persuasive text to sell or present their solution. 22. Assess students on the co-created success criteria (see Appendix C: Sample Criteria for Access to Fresh Produce During Winter). The teachers can also assess other language arts strands (e.g., oral, media).

Science and Technology Expectations	**B. Life Systems** **Growth and Changes in Plants** B1.1 assess ways in which plants are important to humans and other living things, taking different perspectives into consideration, and identify ways in which humans can protect native plant species and their habitats B1.2 assess ways in which human activities have an impact on plants and plant habitats, and identify personal actions that they could take to minimize harmful effects and enhance positive ones B1.3 assess the benefits and limitations of locally grown food B2.6 describe ways in which people, including Indigenous peoples, from various cultures around the world use plants for food, shelter, medicine, and clothing B2.7 describe various plants used for food, including those grown by First Nations, Métis, and Inuit, and identify local settings where these plants are grown or found B2.8 describe ways in which plants and animals, including humans, depend on each other **E. Earth and Space Systems** **E1. Relating Science and Technology to Our Changing World** **Soils in the Environment** E1.1 assess the importance of soils for society and the environment E1.2 assess the impact of human activity on soils, and describe ways in which humans can improve the quality of soils and/or lessen or prevent harmful effects on soils
Science and Technology Vocabulary	● ingredients ● local ● climate ● harvest ● crop ● produce ● source ● food supply chain ● sustainable

Equipment and Materials	• chart paper, marker(s) • large Ontario, North America or World Map to be placed on the classroom wall • student science journal • large paper (e.g., legal) for students' group brainstorming) • certain materials for creating a solution to the problem task (e.g., recycled materials) • blue paper/construction paper for blueprint • graph paper to create a bar graph (feel free to use another means of graphing) • computer (for internet research and final task if choosing a digital application for sharing persuasive text

Timeline and Preparation	Times can be shortened or extended based on student level of engagement, interest, and inquiry.
	
	• **Minds On** (35-50 mins total)
	  ○ Part 2 (15-20 mins)
	  ○ Part 1 (20-30 mins)
	
	• **Action** (70-90 mins total)
	  ○ Part 1 (40-50 mins)
	  ○ Part 2 'Food Supply Chain'
	  ■ Activity A (30-40 mins)
	  ■ Activity B 'Mapping' (30-40 mins)
	
	• **Consolidation**
	  ○ Part 1 (30-40 mins)
	  ○ Engineering Design Activity (30-40 mins) (can take up many class periods)

Safety Considerations	There are no high-risk activities or experiments within these learning experiences. Always refer to the following documents when considering safety for the teacher and the students: • Safety in Elementary Science and Technology (STAO) • Safe Activity Foundations in Education Document (SAFEdoc) Science and Technology, Grades 1-8 (OCTE)

	• Ontario Curriculum Program Planning – Health and Safety
Opportunities For Assessment	**Assessment FOR Learning** • Classroom discussions **Assessment AS Learning** • Classroom discussions • Table: Where are the vegetables sourced? • Observations of students sharing ideas, asking questions, communicating with peers • Food Supply Chain paper link • Data analysis (graph) • group web brainstorming of ideas to a big question during Engineering Design Process activity **Assessment OF Learning** • Journal entry • Advantages and Disadvantages chart • Engineering Design solution (Success Criteria) • Final presentation of solution
Instructional Strategies and Adaptability	This learning experience makes use of a variety of instructional strategies based on Considerations for program planning. Please review these considerations for program planning while you implement, adapt or change strategies within daily classroom practice, based on the students' profiles. Strategies that can support learning in your classroom: • Leveraging digital (e.g., digital journal, record voice memos) • Giving student voice and choice (options for communicating their learning, tools for learning, and options to work in different learning environments/spaces around the school) • Pulling from students' lived experience (e.g., what gardening, farming looks like in other countries or in their homes) • Building vocabulary collaboratively (e.g., use of images and creating an interactive word wall) • Offering visuals to support language learning • Using assistive technology to access texts (E.g., Google Read&Write)

	• Offering multiple ways of showing understanding or communicating their ideas (e.g., drawing pictures, taking pictures, recording videos, etc.) • Using the triangulation of data (e.g., observations, conversations, and products). • Prompt students as required. Simplify resources and support as required. Enhance learning opportunities with extension activities where required. • Providing resources (e.g., students benefit from having vocabulary and definitions on a handout sheet close to them or proximity to a bulletin board/anchor charts) • Scribing for students when necessary
Additional Supporting Resources	**Books** • Where Do Vegetables Come From? (From Farm to Fork: Where Does My Food Come From?) by Linda Staniford **Web Sites/site webs** • Foodland Ontario • Why buy local? | Foodland Ontario
Cross-Curricular Opportunities	**Math** Using the data of various distances of food (e.g., food miles), graphing and drawing conclusions. (Data Literacy) **Language Arts** Gather information from a variety of sources (e.g., TVO, special guest: farmer) and make connections to their own lives about where food comes from. Being able to share their ideas with the teacher and peers. Creating a persuasive text for the final design. **Health and Physical Education** Students understand the origins of food (e.g., where the food is grown and harvested). (Healthy Eating) **Social Studies** Compare how people (communities) at the beginning of the nineteenth century got their food. Describe the relationship between the communities and the land. (Heritage and Identity)

	Understand the interrelationship between Ontario's natural lands (growing of crops), its use, and employment opportunities. (People and Environments)
Future Opportunities / Next Steps	• Discuss and research the origin of vegetables. Are the vegetables we eat native to our region? What plants are native to our region? Use a world map to show students where food originated. A Map Of Where Your Food Originated May Surprise You: The Salt: NPR Ask an Indigenous Community member that specializes in native plants, or a professional that knows about native plant species that can be a guest speaker and talk about the plants in your region. What are the native plants that Indigenous Peoples used in your region? How were/are they being used by Indigenous Peoples? • Discuss, research, and compare organic foods vs non-organic foods. Why is organic more expensive? • Compare the process of a food supply chain that may exist in other countries. How do other cultures engage with their food growth?

Appendix A: Where Are Vegetables Sourced?

Plant	City, Country
 tomato	Ontario

Appendix B: Food Supply Chain

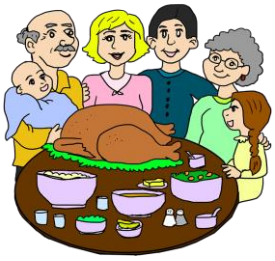
Food Supply Chain

Production

Processing/ Packaging

Distribution

Retail/ Grocery



Consumption

Disposal

Appendix C: Sample Criteria for Access to Fresh Produce During Winter

Criteria	Met	Not yet met	Feedback
-Sustainable -Environmentally friendly (creates no pollution) -Will provide fresh, nutritious produce -The produce will be affordable to customers -The produce will be accessible			