Grade 3 Learning Experiences: Growing a Garden Salad

Experience 1: What Is A Garden Salad?

Long Range Plan Grade 3 Model 1

This is the introduction to a series of learning experiences that will take students on a journey about plants, soils, and food literacy. They will experience the value and joy of growing salad ingredients while exploring and understanding the concepts of plants and soils. They will have the opportunity to apply their knowledge using technology in order to deepen their understanding of concepts. The learning experiences are a gradual progression from learning some foundational transferable skills while developing a sense of wonder and curiosity through observation.

Most of the experiences will be rooted from Strand B (Growth and Changes in Plants) and Strand E (Soils and the Environment).

Scientists need to record their thinking and records of their scientific processes for a number of different reasons. The series of learning experiences will refer to the use of a science journal to help students track their scientific thinking, make predictions, record processes, observations, and conclusions about scientific phenomena, and draft plans and prototypes that can solve real-world problems.

Overview of learning experiences – why these activities	These learning experiences are introductory, establishing the skills (e.g., critical thinking, inquiry, wondering, visible thinking, communication) necessary for the remainder of the activities. Students will gain a common understanding of what is a garden salad, along with their ingredients through an inquiry activity. Once they unpack the ingredients, they begin to wonder more about a garden salad and its relation to us in our diverse world. The activities will activate other subject areas to help deepen students' learning. There are many opportunities for students to discuss in class, building a safe and comfortable environment where they can share their ideas freely and learn from one another. Grade 3 Long Range Plan Model 1 | Ontario Elementary Science Curriculum

Prior Knowledge / Prior Skill Set(s)	**Background Knowledge and Concepts (Teacher)** ● Familiar with all the Considerations for program planning ● During consolidation, if using the high tech option, the teacher has prior knowledge and understanding of basic block-based coding concepts, platforms, functions and algorithms for software such as Scratch **Background Knowledge and Skills (Students)** ● There is no required background knowledge necessary since the learning experience will take into account that students may not be familiar with a garden salad and/or how to grow plants. ● 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. ● Prior knowledge of creating a tally chart and collecting data ● During consolidation, if using the high-tech option, students need to have prior knowledge and understanding of basic block-based coding concepts, platforms, functions, and algorithms for software such as Scratch
Strand A - STEM Investigation and Communication Skills	**A.1.1.Scientific Research**: use a scientific research process and associated skills to conduct investigations **A.1.5.Communication**: communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes **A.2 Coding and Emerging Technologies:** use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life. **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 will grow an understanding of how plants and humans have a reciprocal relationship. They will build their food literacy knowledge by knowing where their food comes from. Students will create a baseline of knowledge and skills for upcoming learning experiences. **Big Ideas** ● How do I observe plants so that I can protect and use them wisely? ● What impact do living things have on humans? ● How can technology help our plants and/or our understanding of plants? ● The relationship between plants and humans ● The relationship between plants and their natural environment **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 in a responsible way 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: **Transferable Skills/Global Competencies** ● I can make observations and thoughtful interpretations ● I can ask questions ● I can make connections ● I can communicate my ideas ● I can collaborate with others ● I can learn from others **MoE Key Points** ● Hands-on, Experiential Learning ● STEM SKills and Connections ● Coding ● Food Literacy ● Climate Change ● Skilled Trades
Learning Experience(s) **A.1.1, A.1.5, A3**	**Minds On (30 mins)** Purpose of the Minds On is to determine what prior knowledge students have about garden salad ingredients. 1. Have students organized in small groups (2-4). Distribute the images of garden salad ingredients to each group (see Appendix A: Images of Salad Ingredients). Explain to groups that they are receiving images of different plants. *Alternatively, if you have the means (and no allergies in the classroom) you could bring in real salad ingredients (e.g., tomato, cucumber, lettuce ..etc) so that students could have a realistic experience and tactile understanding of the ingredients (see, touch, smell). 2. Ask the groups to inquire about the items and create something or organize the images in some way. Ask groups to discuss: "What kind of plants are they?" "What can we do with these plants? Where do they come from? Feel free to write these questions on the board or chart paper for students to refer to them. 3. Students can glue their images onto another large piece of paper for their final response. Have the groups share what they came up with and explain *how?* and *why?* 4. Have a gallery walk where students can hear from each other about what

	they have created. Next, have a class discussion about their responses. Some other inquiries may present themselves and this would be an opportunity to write them down and pursue them later. The ideas shared during the gallery walk and class discussion are ideal to capture as an assessment for learning. 5. Hopefully students came up with a garden salad response. If not, the teacher can suggest combining all the images into one to make a garden salad. 6. Begin the discussion on what is a salad? More specifically, what is a garden salad? What are the ingredients of a garden salad? Do you eat this type of salad? Is it important for us to eat these ingredients? How do you know and why? Is everyone able to purchase or grow these plants? Are there other salads that you and your family eat? Where are these ingredients grown? What climate?
A.1.1, A.1.5, A3	**Action (30-40 mins)** Students will be able to make their thinking visible about a garden salad and its ingredients. 1. Have students use the *See, Think, Wonder* chart (see Appendix B: See Think Wonder Activity Guide) to jot down ideas for a garden salad. The teacher can have a photo of a garden salad that students can refer to while they are filling out their chart. ● "What do you see?" ● "What do you think?" ● "What do you wonder?" Feel free to model some of the answers to these questions or show students some sentence starters to get students thinking and writing ideas on their charts. Students can use words, phrases, sentences, numbers, or pictures to communicate their thinking. (e.g., I see a salad. I think the salad is yummy. I wonder where the ingredients came from? I wonder who grows these plants? How many tomatoes are there? I eat some of these ingredients once a day.) 2. As a whole class discussion, ask students to share what they see, think, and wonder. Continue the discussion as necessary
A.1.1, A.1.5, A2., A3.	**Consolidation (30-40 mins)** 3. Begin co-creating a "working" definition of a garden salad. Write the class definition on chart paper so that students can refer to it as an anchor

	chart. You may also wish to write down some students' questions, from the discussion, on chart paper. These questions can be answered by students in their journals at a later time. 4. Introduce students to the career of a chef at a restaurant and how chefs create salads for customers. Consider bringing in a chef as a guest speaker (in person or virtually) to discuss how they create a salad. What inspires them? Feel free to add any new information back to the working definition of a salad. 5. **Further learning:** As a whole class, take the time to go over the fraction of ingredients within a salad. Model that fraction on chart paper. Alternatively, If you have the real ingredients, these can be chopped up and measured and/or weighed. Refer to the math expectations to extend the learning as you feel necessary. 6. Students can make a note in their journal of what they learned during this activity: what connections did they make? What kinds of salads do they and their family eat at home? They can draw their favourite salad. What ingredients are they grateful for and why? How do other cultures eat similar ingredients? How do other cultures define a salad? (*It is important for students to have a chance to express their ideas before they communicate with their peers)* **Tally Activity** 7. Have students interview each other about their favourite salad ingredients and create a tally. a. **No Tech Option:** use graph paper, or create a table for their tally on paper. b. **High Tech Option:** Create a tally using Scratch: Have students paint their Sprites to represent an ingredient. Each Sprite can use the score variable. Rename the variable to the proper ingredient (e.g., tomato). When the Sprite is clicked, the score can change by 1. Do this for every ingredient (Sprite). Here is a project sample created in Scratch named, Favourite Salad Ingredients. See *Additional Supporting Resources* for an example of the block coding algorithms.

	Matching Activity (optional) (30-40 mins) 8. Students can use coding skills to demonstrate their understanding of matching the garden ingredient (e.g., tomato) to the plant within the garden. This can be used in a grid format with the Bee Bot (programmable robot) or other robots. Use the suggested images (see Appendix C: Matching Food to Plant) to place on the grid (the food along one side and the plants on the other - or mix it up). The BeeBot must be programmed to move from the plant to the food it produces. Students can research in advance to help them understand what food comes from what type of plant. This activity can be done in groups of 2 or 3 students. *See image below as a suggestion.* 
Science and Technology Expectations	**B1. Relating Science and Technology to Our Changing World** B1.1 assess ways in which plants are important to humans and other living things, considering different perspectives, and identify ways in which humans can protect native plant species and their habitats B1.3 assess the benefits and limitations of locally grown food **B2. Exploring and Understanding Concepts** B2.1 describe the basic needs of plants, including the need for air, water, light, heat, nutrients, and space, and identify environmental conditions that may threaten plant survival 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

Science and Technology Vocabulary	• ingredients • nutrients • climate • species • habitat
Equipment and Materials	• chart paper, marker(s) • images of salad ingredients (see Appendix A: Images of Salad Ingredients) or create your own, or have actual vegetables for students to see and touch • pencils • photocopies of the following chart: *See, Think, Wonder* (see Appendix B: See Think Wonder Activity Guide) • journal (optional) • computer for coding using the application, Scratch (optional) • graph paper, or plain paper and pencil for tally charts (optional) • BeeBot (or other programmable robots) including grid (can be made using poster board (optional) • BeeBot coding cards (see Appendix C: Matching Food to Plant) for BeeBot activity (optional)

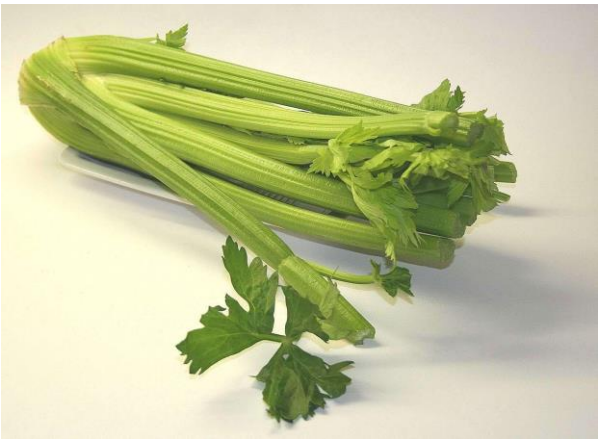
Timeline and Preparation	Times can be shortened or extended based on student's level of engagement, interest, and inquiry.
	
	• **Minds On** (30 mins) Preparation (5-10 mins)
	• **Action** (30-40 mins) Preparation (5 mins)
	• **Consolidation** (30-40 mins) Preparation (10 mins)
	  ○ Classroom Definition (15 mins)
	  ○ Tally activity (25 mins)
	  ○ Scratch coding (30-45 mins)
	  ○ BeeBot Matching activity (30-40 mins) Preparation (10 mins)

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: • STAO Safety in Elementary Science and Technology • OCTE SafeDocs • Program Planning and Cross-Curricular and Integrated Learning in Science and Technology

Opportunities For Assessment	**Assessment FOR Learning** ● Observations of students' conversations during inquiry activity and the information they share during the gallery walk **Assessment AS Learning** ● See, Think Wonder chart ● Observations of student sharing ideas, asking questions, communicating with peers ● Collecting data (tally) **Assessment OF Learning** ● Journal entry ● Classification (*further opportunities)* ● Success Criteria (*as suggested above*) can be used as a self-evaluation of the student at the end (suggested Single Point Rubric that can be used by student or teacher, see Appendix D: Single Point Rubric).
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 and 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 close proximity to a bulletin board/anchor charts) ● Scribing for students when necessary
Additional Supporting Resources	**Scratch Coding** Appendix E: Scratch Coding Favourite Salad Ingredients
Cross-Curricular Opportunities	**Math** Represent the fractions of ingredients in a salad. *(Number Sense)* Using code to generate a tally for data collection. Execute code to match the plant with its appropriate fruit/vegetable. *(Coding)* Collect data on other students' favourite salad ingredients. *(Data Literacy)* If using real salad ingredients, measure and weigh the food using proper units. Have students compare and estimate the food ingredients. *(Measurement)* **Language Arts** Journal entries; See Think Wonder chart Making connections from the visuals of salad ingredients **Health and Physical Education** Discussion about the value of eating salad ingredients and its effect on human health.
Future Opportunities / Next Steps	**Further Opportunities:** ● Classify the salad ingredients into different food groups: e.g., is a tomato a vegetable or a fruit? What category is lettuce? cucumber, radishes, carrots, etc. Which plants would be root vegetables and why? In addition, you can discuss the nutritional values of the different foods when consumed based on the Canada food guide. Discuss further: ***How do scientists determine the nutritional value of certain foods? What technology do they use? Who are nutritionists?*** ● Journal Sketching: have students sketch different plants in their journals in detail. Introduce to students how many individuals have contributed to science through drawing/sketching, helping them learn more (e.g., Beatrix Potter, Gregor Mendel, George Washington Carver, Indigenous Peoples contribution, Agnes Arber)

Appendix A: Images of Salad Ingredients



Appendix B: See Think Wonder Activity Guide

See (*I see?*)	Think (*I think?*)	Wonder (*I wonder?*)

Appendix C: Matching Food to Plant

Appendix D: Single Point Rubric

Bright Spots (Tickled Pink)	"I Can" Targets (Goals)	Feedback (Green to Grow)
	I can make observations and thoughtful interpretations I can ask questions I can make connections I can communicate my ideas I can collaborate with others I can learn from others	

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Appendix E: Scratch Coding Favourite Salad Ingredients

Scratch Coding: Favourite Salad Ingredients