

Long Range Model 1 - Grade 3

STRAND A: STEM Skills and Connections	 A1.1 Scientific Research	 A1.2 Scientific Experimentation	 A1.3 Engineering Design	 A1.4 Safety	 A1.5 Communication	 A2. Coding and Emerging Technologies	 A3. Applications Connections and Contributions
	<p>A1. STEM Investigation and Communication Skills: use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures</p> <p> A1.1 use a scientific research process and associated skills to conduct investigations</p> <p> A1.2 use a scientific experimentation process and associated skills to conduct investigations</p> <p> A1.3 use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems</p> <p> A1.4 follow established health and safety procedures during science and technology investigations, including wearing appropriate protective equipment and clothing and safely using tools, instruments, and materials</p> <p> A1.5 communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes</p> <p> A2. 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</p> <p>A2.1 write and execute code in investigations and when modelling concepts, with a focus on creating clear and precise instructions for simple algorithms</p> <p>A2.2 identify and describe impacts of coding and of emerging technologies on everyday life</p> <p> 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</p> <p>A3.1 describe practical applications of science and technology concepts in their home and community, and how these applications address real-world problems</p> <p>A3.2 investigate how science and technology can be used with other subject areas to address real-world problems</p> <p>A3.3 analyse contributions to science and technology from various communities</p>						

Term 1 - Overview, Guidelines, Assessment Ideas

This first block establishes the STEM skills and reviews and reinforces STEM skills previously taught. It also solidifies and builds a foundation in response to the question, “What is Science?” All four strands of PLANTS in Life Systems; FORCES in Matter and Energy; STRUCTURES in the Structures and Mechanisms and SOIL in the Earth and Space Systems strands are introduced so that educators and students get a sense of the year, what resources they have, and what may be needed and reasonably obtained from other sources and home situations. This all leads to a more scientifically and technologically literate student in our society.

Forces and Structures are a natural combination for Term 1 and students and educators will enjoy the safe, practical hands-on experiential learning of these open-ended questions and activity starters.

Assessment: learning skills, content, performance standards

- I can demonstrate an understanding of plants, forces, structures, soil, and safety by describing recognizing, and comparing using scientific research skills
- I can identify problems related to plant growth and building structures by using scientific experimentation skills
- I can solve problems related to plant growth and building structures by using engineering design principles
- I can transfer skills and solutions that include indigenous ways of knowing to new contexts such as food literacy

Month or Suggested Timeline	Big Ideas and Guiding Questions for an Inquiry Stance	STEM Skills and Connections (Strand A)	Strands and Expectations	Cross-Curricular Integration	Resources
<p>September October</p> <p>These foundational concepts are intended to be taught within the first 20 days of instruction to build capacity for subsequent concepts.</p>	<p>Big Idea:</p> <p>STEM skills are everywhere in our world</p> <p>Guiding Questions:</p> <p>What is science and what is technology?</p> <p>What experience do we have with science and the scientific process?</p>	<p> A1.1 Use first-hand direct observation as primary research to observe the difference between an artificial plant (technology) and a plant (natural science) students observe outside</p> <p> A1.2 Use your body to measure the temperature outside compared to inside. Use thermometers to test your</p>	<p>Observe the difference between an artificial plant and a living plant. For example, after comparing the artificial and living plant, design your own personal plant.</p> <p>B1. assess ways in which plants are beneficial to society and the environment and ways in which human activity has an impact on plants and plant habitats</p> <p>Use your body to measure the</p>	<p>Literacy: Compare a natural structure and a made structure and describe which one works best in your location</p> <p>Numeracy: Measure the effects of more and less of something with friction and magnetism</p> <p>Social Studies: What kind of plants do you grow? What kind of plants do you buy? What jobs are there in Ontario</p>	<p>STAO Safety in Elementary Science and Technology</p> <p>Science North’s Design a plant.</p> <p>Science North’s, Fly a flag</p> <p>Science North’s, Forces</p> <p>Science North’s, Natural and made pulley structures</p> <p>Science North’s, Why is it important to protect our</p>

	<p>What is “STEM”?</p> <p>Where do we see STEM in our natural and in our built/made world?</p> <p>What supplies can come from caregivers for planting, building, and counting safely?</p> <p>Where and how can students observe plants and structures at home?</p> <p>How do we protect our eyes as we observe?</p>	<p>ability to predict temperatures to engage all students in the experimentation process</p> <p> A1.3 Make something simple to test the direction of the wind because the wind is the great equalizer of the atmosphere as it transports heat, moisture, seeds, soil, etc.</p> <p> A1.4 Discuss when you should/could wash your hands during the day. What about at home?</p> <p>  A1.5 Describe what the science, technology, engineering, and math were in your plant, temperature, wind, and hand washing activities to your family or a ‘reading’ buddy in kindergarten. For example, how did the artificial plant help you design your personal plant based on real plant structures? How did you record your temperatures so you could compare inside and outside temperatures? How can you measure the</p>	<p>temperature of outdoor things (soil, sand, objects) compared to indoor things (furniture, window, small objects). Use a thermometer. Compare. Temperature is a factor in plant populations. For example, plants are the primary source of food for insects and animals - let’s have a look at bees!</p> <p>E2. demonstrate an understanding of the composition of soils or different types of soils and of processes and practices that can affect the health of the soil.</p> <p>What might we create to test the direction of the wind? For example, the force of wind affects soil, make a simple machine that measures wind. See ‘Fly a flag’ resource.</p> <p>C1. assess the impacts of various forces on society and the environment.</p> <p>How might we observe with models, the difference between natural and made structures found inside and outside? Use coding examples of different backdrops where forces are</p>	<p>that connect the plants?</p> <p>Visual Arts: Demonstrate ways in which people, from various cultures around the world including Indigenous peoples, use plants for food, shelter, medicine, and clothing.</p> <p><u>Combined Grades:</u></p> <p>Safety in Elementary Science and Technology, (Gr. 2), section 4.3.2 (Chemicals safety with solids and liquids)</p> <p>Safety in Elementary Science and Technology, (Gr. 4), section 4.3.4 (Using Electrical Energy Safety with light sources)</p>	<p>plant population? Collection, sorting, and ‘swap shop’ where students have specimens or models/drawings of specimens to compare or place in small containers or labeled bags to swap with willing participants.</p> <p>Meteorology station with simple measurements of rainfall, temperature, and humidity</p> <p>Plan regular outside time for collecting specimens and develop a code of ethics for observing science and technology indoors and outdoors</p> <p>Measuring station: rulers, thermometers, measuring tape, calculator, measuring cups, string, scissors</p> <p>Simple Building station: Building Materials including, but not limited to straws, spools, toilet paper tubes, wooden skewers, wooden craft sticks, clothespins, paperclips, pencils, plastic or paper cups, boxes, cardboard, craft foam or</p>
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		force of the wind by what it can move? When working with soil, specimens, and building materials, when should we clean our hands?	<p>applied for natural and made structures. See 'Forces' resource.</p> <p>D1. assess the importance of form, function, strength, and stability in structures to society and the environment.</p> <p>For example, pulleys can be found in nature in the body and can be found in made structures like flag poles and elevators. See 'Natural and made pulley structures' resource.</p>		<p>construction paper, string, scissors, tape, and glue</p> <p>Next Steps: Collect different seed cones from cone-bearing trees and shrubs such as pine for February's study of plants. Notice the structure of a pinecone.</p>
November	<p>Big Idea: Forces and Structures</p> <p>If I was a _____ (skilled trade career/creature), how would I make a strong and stable structure? C1.</p> <p>Guiding Questions:</p> <p>How do strength and stability impact the purpose, and form and function of a structure?</p> <p>What kind of structure is a boat or something that floats?</p> <p>How do I test a structure to improve it using form and</p>	<p> A2.1 Use Scratch Jr to sequence the building of a structure.</p> <p> A2.2 What does SMART mean in smart technology?</p>	<p>What natural and human-made structures exist in your classroom, in your home? How do they hold a load?</p> <p>D1.1 assess the effects on society and the environment of strong and stable structures. Ask the custodial staff how often chairs need to be replaced or purchased. Keep track of the chairs in your classroom.</p> <p>D2.1 describe a structure as a supporting framework that holds a load and has a definite size, shape, and function, and identify structures in the natural environment and in the built environment</p>	<p>Social Studies What structures did people in the past in Canada create for shelter? How did they handle different weather conditions? How do these structures compare to the structures we use for shelter in Canada today?</p> <p>Oral Communication Work in small groups to create models of structures from the past and prepare a presentation.</p> <p>Reading Read informational non-fiction texts about people from the past in Canada</p>	<p>Scientific Inquiry using the 7 E's (pg 104 Power on the Land)</p> <p>Environment How does the question connect to the land?</p> <p>Engage What do you already know? What do you want to know about the question?</p> <p>Explore Find out more details about the question.</p> <p>Elder How does the question relate to Traditional Knowledge? Consult an Elder if you can.</p>

	<p>function?</p> <p>How do different societies use materials to support a load?</p>		<p>Ask family members how they decide what furniture is needed inside and outside of the structure. Take inventory of your family structures indoors and outdoors.</p> <p>D2.3 identify the strength of a structure as its ability to support a load and describe ways to increase the strength of structures, including ways to increase the strength of different materials used to build them.</p> <p>Use cylinders from various materials (e.g., paper, newsprint, paper straws) to build a table to hold the weight of an action figure, then continue to add weight until there is structural failure.</p> <p>D1.2 assess the environmental impact of structures built by various animals including structures built by humans</p> <p>Compare a schoolyard tree holding birds vs a schoolyard play-apparatus holding students</p> <p>D2.2 demonstrate an understanding of the relationship between form and function for various structures</p>	<p>Dramatic Arts Engage in process drama to solve the problem of how to construct a shelter with materials available in the past</p> <p>Activism: Design Challenge: Investigate a natural disaster that has occurred in the world. How might you design a structure to withstand that force of nature?</p> <p>Design Challenge: Compare two building materials (e.g., plasticine and foil paper) to build similar size boats and measure how long they stay afloat at a desk station.</p>	<p>Explain Record your observations and research findings. Plan how you are going to present the answer to your question.</p> <p>Elaborate What other questions come out of your research? Complete your project.</p> <p>Evaluation: How did you do? Were you satisfied with the answer to your question?</p> <p>Science North Grade 3 Structures and Forces resources</p>
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			<p>Go on a nature walk in your schoolyard and look for bird nests that have been abandoned. Compare this to a 'bird's eye view of the students' living space and the structures within this space. How do the forces of nature affect the nests and the human living spaces?</p> <p>D2.4 describe the stability of a structure and its ability to keep its shape, maintain balance, float/and or stay fixed in one spot when a force is applied to the structure, and provide ways to improve a structure's stability.</p> <p>Use an aquarium and note the difference in floating beverage containers with liquid inside.</p> <p>D2.5 identify properties of materials that need to be considered when building structures.</p> <p>Perform a timed build for a triangle-based structure using popsicle sticks vs pasta vs pipe cleaners</p> <p>D2.6 describe ways in which different forces can affect the</p>		
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			<p>shape, balance, or position of structures.</p> <p>Compare different physical poses indoors and outdoors on a windy day or on different levels of terrain.</p>		
December	<p>Guiding Questions:</p> <p>What is a structure and how are they used in different societies?</p> <p>What is a force and how might its magnitude impact a structure?</p>	<p> A3.1 Sustainable development goals, SDG, what are they and do they apply to small and large-scale structures?</p> <p> A3.3 Traditional knowledge keepers have practices that address structures and climate and food scarcity. Industry partners have practices that address structures and climate and food sustainability</p> <p> A2.1 Use Scratch Jr to code the magnitude and direction of various natural and human-made forces impacting a structure</p>	<p>D2.3 identify the strength of a structure as its ability to support a load and describe ways to increase the strength of structures, including ways to increase the strength of different materials used to build them</p> <p>Investigate different types of materials for constructing a place to sleep or rest</p> <p>C2.4 identify ways in which forces are used in their daily lives.</p> <p>What forces can collapse/deform a wall in a tent, an ice hut, a North American style house, or a Southern Hemisphere style house</p> <p>How do forces cause motion and changes in motion? For example, compare different pulley systems culminating in watching a block and tackle system.</p> <p>C2.3 describe how different forces applied to an object, including</p>	<p>Literacy: Organize and compare information about structures that exist in different societies</p> <p>Dance: Communicate the relationship between human impact and animals using creative movement</p> <p>Activism: Make a “Tiny Town” as a possible municipal response to homelessness. Safe, efficient structures should be strategically placed within the community and contribute to the larger society</p>	<p>Newton Spring scales</p> <p>Use of a weight scale and effects of gravity.</p> <p>Organize gym time for use of space for a large ‘unplugged’ grid to demonstrate how a natural or made force impacts a building</p>

			<p>forces of varying magnitude, can cause the object to start, stop, or change its direction, speed, or shape.</p> <p>Design an experiment using a ball, a puck, and a natural object from outside with a safe force of student choice to measure how quickly the object stops, starts, or changes direction, speed, or shape</p> <p>C1.2 assess harmful effects of forces that may result from various human activities, and describe how health and safety devices can minimize these effects.</p> <p>Harmful effects of water quantity on structures from rain to flooding.</p> <p>D2.4 describe the stability of a structure as its ability to keep its shape, maintain balance, float, and/or stay fixed in one spot when a force is applied to the structure, and describe ways to improve a structure's stability.</p> <p>Use found materials to construct a structure then share it with the class.</p>		
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<p>January</p>	<p>Guiding Questions:</p> <p>How do I experiment with contact and noncontact forces so that they can be used safely in everyday life?</p>	<p> A1.2 Use a drop test for structural strength</p> <p> A1.3 Use a bird's eye view and a side view to design a structure. Draw a bird's eye view of your learning space.</p> <p> A1.4 Discuss when you should/could wear PPE (personal protective equipment) during the day. What about at home?</p>	<p>What forces are natural and what forces are built or made?</p> <p>C2.1 describe different types of contact forces and non-contact forces.</p> <p>C1.1 assess the effects of the action of forces from natural phenomena on natural and built environments, and identify ways in which human activities can reduce or enhance these effects. Experiment with various made and natural containers to protect fragile contents</p> <p>C2.4 Identify ways in which forces are used in their daily lives. Perform an inventory of the shell structures in the refrigerator and compare strength and function</p> <p>What is the role of struts and ties under load?</p> <p>D2.7 Explain the role of struts and ties in structures under load. Develop a clever way to remember the difference between a strut and a tie and look for examples of struts and ties in the school area</p> <p>C2.2 Describe different ways a</p>	<p>Media Literacy Create an advertisement for the structure they created (e.g., their "shoe" from the art activity below)</p> <p>Visual Arts Create a prototype of a structure that withstands a specific force (e.g., design a shoe)</p>	<p>Building station with building materials. Have a theme material that can be easily accessed: straws, craft sticks, snow, LEGO, or found objects of various sizes that can be repurposed as building materials</p> <p>Visit the makerspace in the library or learning commons and work with teacher librarians and library clerks to access resources on large machines that use made forces to build structures</p> <p>Science North's Contact and Non-Contact Forces</p>
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			<p>force can be exerted on an object. Go outside on the tarmac or inside a gym space and show all the forces on a tennis ball and /or using a skipping rope- pushing, pulling, friction, gravity other</p> <p>C1.2 Assess harmful effects of forces that may result from various human activities, and describe how health and safety devices can minimize these effects.</p>		
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Term 2 - Guideline and Assessment ideas

PLANTS and SOILS form the inquiry for term 2 and provide timely research and experiment opportunities

Assessment: learning skills, content, performance standards

- I can demonstrate an understanding of plants, forces, structures, soil, and safety by using specific concept definitions obtained using critical thinking skills
- I can identify problems related to plant growth and building structures by researching how plants are used in smart buildings
- I can solve problems related to plant growth and building structures by researching emerging technologies in agriculture
- I can transfer skills and solutions that include indigenous ways of knowing to new contexts such as food security

Month or Suggested Timeline	Big Ideas and Guiding Questions for an Inquiry Stance	STEM and Engineering Skills (Strand A)	Strands and Expectations	Cross-Curricular Integration	Resources
February	<p>Big Ideas: Life Systems Earth and Space Systems</p> <p>Guiding Questions: If I was a _____ (career, skilled trade), how would I contribute to plant growth in</p>	 <p>A3.2 Compare urban vs rural farming practices</p> <p>Food literacy: what is it and how do various communities deal with food storage, shelf</p>	<p>Compare different plant types by season to find out what grows.</p> <p>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</p>	<p>Reading WWF Learn the Five Seasons of Ojibwe SEASONS Automne, fall, hiver, winter printemps, spring (early and late) and l'ete summer dagwaagi biboon ziiqwan/minookimi niibin</p>	<p>Safety in Elementary 4.1.3 Studying Plants pg 50-52</p> <p>Science North's Pine tree comparison</p> <p>Science North's Growth in different soils.</p>

	<p>soil?</p> <p>Humans and Living Things are Interconnected</p>	<p>life, and preservation? For example: how do FNMI communities use traditional knowledge for the smoking of fish as a preservation technique vs liquid smoke flavour vs SFOA 2017 as it pertains to emergent technology of E-cigarette vaporizer (Smoke-Free Ontario Act - 2017)</p>	<p>humans can protect native plant species and their habitats.</p> <p>What do we harvest so that it can be used in the winter? Where does food come from in different seasons?</p> <p>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.</p> <p>Go grocery shopping with a family member and note where food comes from in the world</p> <p>B1.3 assess the benefits and limitations of locally grown food. Review flyers for the week from local food providers</p> <p>What do various communities do in preparation for spring planting?</p> <p>E1.1 assess the importance of soils for society and the environment.</p> <p>Investigate the difference between soil, earth, dirt, sand, loam, clay, rock, stones, pebbles,</p>	<p>Social Studies:</p> <p>Living and Working in Ontario Use the social studies inquiry process to investigate some aspects of the interrelationship between people and different natural and built features of their local community, with a focus on significant short and long-term effects of this interrelationship Consider the occupations in Ontario that rely on land use. How is the land and natural environment connected to jobs in Ontario?</p> <p>Dance Modify the movements of animals, snow falling to the ground, ice melting, plants growing; connect a series of insect-like movements together to make a phrase</p> <p>Activism Have students examine the impact of development on natural areas. This could mean local housing developments or a scenario in which the “ecosystems” they plant are threatened by a hypothetical developer.</p>	<p>Food containers and labeled resources can be read for ingredient preparation directions. Inventory lunch bags for ingredient lists.</p> <p>Source gardening tools or growing containers or areas around the classroom, school, and at home.</p> <p>Plan an outdoor garden and start growing seedlings inside to transplant.</p>
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			<p>and aggregate</p> <p>E1.2 identify the living and non-living components of soil, and describe the characteristics of healthy soil.</p> <p>Use the daily growth journal to generate research questions about different soil types and corn, beans, and squash as the Three Sisters.</p>		
March	<p>Guiding Questions:</p> <p>What impact do humans have on living things?</p> <p>How do I work with soil safely and respectfully, especially with composting?</p>	<p> A3.3 Relate to SDG sustainable development goals and soil erosion and plant growth. (SDG#15)</p> <p> A2.1 Use Scratch Jr to sequence how an animal would find its food.</p> <p>Code a simple tally chart for organic food and personal preferences.</p>	<p>How do animals get their food?</p> <p>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. Perform a survey of the plants that families have at home or have seen before. Use a graphing tool to display results and see how numbers change in June as knowledge of plants increases.</p> <p>Where do animals live in nature vs on a farm or animal facility?</p> <p>B1.2 assess ways in which human activities have an impact on plants and plant habitats, and</p>	<p>Pick a plant and turn it into a superhero by identifying strengths and weaknesses as powers and poisons for defense or to enhance the powers of others</p>	<p>Decide on class composting procedures or survey practices at home for litterless lunches.</p> <p>Science North's Composting Inventory</p> <p>Suggested Read Aloud Books:</p> <p>Compost Stew</p>

			<p>identify personal actions that they could take to minimize harmful effects and enhance positive ones.</p> <p>What plant material do animals eat in nature vs on a farm vs animal-based facility?</p> <p>What is organic food?</p> <p>B1.3 assess the benefits and limitations of locally grown food. Find recipes from different ethnicities or school ethnic groups that use food grown from those regions. A visit to a multi-cultural food market or farmer's market might be possible in the spring</p> <p>How do we integrate compost into our soils and food growth practices?</p> <p>E1.1 assess the importance of soils for society and the environment. Perform a shade survey of the trees in your schoolyard and assess the soil around the trees</p> <p>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.</p>		
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April	<p>Guiding Questions:</p> <p>How do I observe local plants so that I can protect and use them wisely?</p> <p>What impact do living things have on humans?</p>	 A2.1 Use Scratch Jr to tally favorite salad ingredients.	<p>Where do salad ingredients come from and what parts of a plant go into a salad?</p> <p>For example Farming Interactive Scratch game</p> <p>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.</p> <p>Grow bean plants from seeds (again!) and design an experiment that changes one variable (water, light, heat, nutrients, or space) and measure height, leaves, or successful germination</p> <p>B2.2 identify different parts of plants, including the root, stem,</p>	<p>Literacy: Examine examples of advocacy campaigns. Create an advocacy/social media campaign about protecting a natural space</p> <p>Combined Grades: (Gr.2) Examine impacts that animals can have on plants and soils in society and the environment and describe some ways in which negative impacts can be minimized.</p> <p>Assess the impact of human activities on air and water as they pertain to plants and soils of First Nations, Metis, and Inuit, and plan a course of action to protect the quality of air and water in the local community.</p>	<p>Know your Learners: If appropriate, source a refrigerator for perishable items that will be studied. In order to be sensitive to food scarcity in your community, you could check out sources from school food or lunch programs</p> <p>Visit a local community garden and determine what grows there. Ask students, “How does this community garden support the people who live near here?”</p> <p>Example: Toronto Community Garden</p> <p>Additional Supporting Resources:</p>

			<p>flower, stamen, pistil, leaf, seed, cone, and fruit, and describe how each part contributes to plants' survival within their environment.</p> <p>Science North's, The importance of Chlorophyll using leaves from house plants.</p> <p>What are some invasive plant species in your area?</p> <p>B2.3 Describe changes that different plants undergo in their life cycles.</p> <p>Research the life cycle of invasive species and make a google slide show of Not Wanted posters</p> <p>B2.4 Describe ways in which a variety of plants adapt and/or react to their environment and to changes in their environment. Do a respectful walking tour of local gardens or neighbourhood flower beds</p> <p>What plant fibers do you wear?</p> <p>B2.6 Describe ways in which people, including Indigenous peoples, from various cultures around the world use plants for food, shelter, medicine, and clothing.</p>		<p>Learning for a Sustainable Future</p> <p>Natural Curiosity</p> <p>Ontario Invasive species</p>
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			<p>Collect clothing labels for fibers such as cotton, flax, hemp, bamboo, sisal, and jute. From creatures, we get wool, silk, angora, and mohair.</p> <p>Plan and prepare aspects of a specific cultural dish and compare it to aspects of an FNMI meal</p> <p>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.</p> <p>Where does your food come from?</p> <p>Choose a meal from a favourite fast food restaurant</p> <p>B2.8 Describe ways in which plants and animals, including humans, depend on each other. Consider showing excerpts of the Lion King 1994, 2019</p>		
May	<p>Guiding Questions:</p> <p>What technology can be used to support living things in healthy soil? E1.</p>	 <p>A3.1 What is soil acidity?</p>	<p>Is soil alive?</p> <p>E2.1 identify the living and non-living components of soil, and describe the characteristics of healthy soil</p>	<p>Combined Grades (Gr.4)</p> <p>Describe the relationship of organisms in a food chain and classify plants as producers.</p>	<p>Designate areas around the school as possible observation areas that will have students taking inventory of what is living and nonliving in a personal</p>

		<p> A2.1 Use Scratch Jr to graph an aspect of soil ecosystems.</p>	<p>Take soil samples and use a magnifying glass and newsprint to classify soil components</p> <p>E2.2 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.</p> <p>Examine store-bought soil samples and use a magnifying glass and newsprint to classify components</p> <p>How is soil made by nature by humans?</p> <p>E2.4 explain the process of erosion, including its causes and its impact on soils.</p> <p>Students examine the bottoms of their shoes for indications of erosion and then look for similar patterns in the schoolyard</p> <p>E2.5 identify various strategies used to maintain and improve soil health in Ontario. Design an experiment to measure water retention in pea gravel, sand, soil, and grass using a coffee filter to hold the gravel and</p>	<p>Explain geological processes that result in the formation of igneous, sedimentary, and metamorphic rocks using the rock cycle with reference to soil formation.</p>	<p>space area (i.e. classroom, playground)</p>
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			pouring 50 mL of water through it so that you measure what is held and what flows through		
June	Guiding Questions: How do plants and humans safely use the sun?	<p> A1.1 What is the difference between soil, earth, dirt, sand, clay, loam, and gravel, and how are they used safely and respectfully</p> <p> A1.2 Use your body to measure a personal space of grass or tarmac or some outside surface. Take an inventory of how light affects all the items or aspects in this personal space</p> <p> A1.3 What might we create to test the heat of the sun?</p> <p> A1.4 Discuss when you should/could wash your hands during the day. What about at home?</p> <p>  A1.5 Describe what the science, technology, engineering, and</p>	<p>Observe the difference between an artificial plant and a plant student have learned about this year and how the sun affects them during daytime hours</p> <p>B1. relating Science and Technology to Our Changing World: assess ways in which plants are beneficial to society and the environment, and ways in which human activity has an impact on plants and plant habitats.</p> <p>Use your body to measure a personal space of grass or tarmac or some outside surface. Take an inventory of how light affects all the items or aspects in this personal space</p> <p>E2. Exploring and Understanding Concepts: Demonstrate an understanding of the composition of soils, of different types of soils, and of processes and practices that can affect the health of soil.</p> <p>How might we observe the difference between natural and artificial light found inside and</p>	<p>Literacy Use spoken word poetry to communicate ideas about the purpose of the sun</p> <p>Visual Arts Examine mixed media examples of art that promote sustainability and environmentalism</p> <p>Combined Grades: (Gr.4) Identify the impact of erosion on living things</p>	<p>Source sunscreen and PPE for safe sun practices</p> <p>Safety in Elementary Science and Technology, section 4.4.1 (Nature Study, pages 96-97)</p> <p>Science North's Water Forces</p> <p>Explore homemade solar cookers for camping foods.</p> <p>Explore shadows and artificial and natural light sources.</p> <p>Explore greenhouse growing.</p>

		<p>math were in your plant, temperature, wind, and hand washing activities to your family or a 'reading' buddy in kindergarten.</p>	<p>outside structures and the shadows they make or temperatures they generate?</p> <p>C1. Relating Science and Technology to Our Changing World: Assess the impacts of various forces on society and the environment</p> <p>What might we create to test the balance of natural and built/made objects?</p> <p>D1. Relating Science and Technology to Our Changing World: assess the importance of form, function, strength, and stability in structures to society and the environment</p> <p>Design a playground area that uses natural plants as landscaping, recycled materials as safe structural sources, and play areas with various digging mediums and structures to measure human-generated forces such as jump distances, squeezing strength, and twisting speed</p>		
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