Long Range Model 1 - Grade 2

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

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

 A1.1 use a scientific research process and associated skills to conduct investigations

 A1.2 use a scientific experimentation process and associated skills to conduct investigations

 A1.3 use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems

 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

 A1.5 communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes

 **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

A2.1 write and execute code in investigations and when modelling concepts, with a focus on creating clear and precise instructions for simple algorithms

A2.2 identify and describe impacts 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

A3.1 describe practical applications of science and technology concepts in their home and community, and how these applications address real-world problems

A3.2 investigate how science and technology can be used with other subject areas to address real-world problems

A3.3 analyse contributions to science and technology from various communities

Term 1 - Overview, Guidelines, Assessment ideas
In term one students will connect with science and technology in their immediate surroundings. They will first explore their natural environments, changes, and cycles that occur focussing on both the life systems (animals), solids and liquids, and air and water in the weather by regular observations and questioning. Their observations will be the basis for further inquiry on changes and cycles of air and water in the environment.

Later through culinary explorations, students will also investigate liquids and solids and simple machines in the kitchen and through a series of experiments.
Coding activities with block programming are integrated into the plan for students to communicate their understanding of steps in cycles, experiments, or changes in states.

Depending on the seasons in your locality and potential fasting or food restriction of your students and families you may wish to extend, shorten and/or move some of the activities to different months.

When planning for your assessments, consider the STEM skills such as student observations, predictions, revisions of designs, and communication through coding.

Month or Suggested Timelines	Big Ideas and Guiding Questions for an Inquiry Stance	STEM Skills and Connections (Strand A)	Strands and Expectations	Cross-Curricular Integrations	Resources
September	**Our Environment** **Big Idea:** We are all scientists who can observe and question what surrounds us. **Guiding questions:** What can we see, hear, smell, and touch outside? How can we record our observations? What animals can we find outside? What do we see in the sky and the land?	**Observational journal**  **A1.2** Students explore and practice their observation skills through regular visits to the schoolyard or green spaces surrounding the school, looking at the land and sky for animals, solids, liquids, clouds, and precipitation. Even small patches of grass and garden boxes will have insects to observe. Be attentive to student questions as they can be the basis for further	**Growth and Changes in Animals** **B2.1** compare physical characteristics of various animals, including characteristics that are constant and those that change **B2.5** describe adaptations, including physical and/or behavioural characteristics, that allow various animals to survive in their natural environment **Properties of Liquids and Solids** **C2.1** identify various types of matter in natural and built environments as liquids or solids **C2.2** describe the properties of	**Mathematics** Counting and estimating the number of objects and animals during an observation period (eg. 45 ants). **Health and Physical Education** Active Participation - walking and exploring safely the outdoor spaces that surround us. **Language** Communicating written form in the science journal and orally to the teacher and the class. Reading about animals. **Visual Arts** Create 2D and 3D works of art that	STAO Safety in Elementary Science and Technology Child Nature Alliance: Setting up for Success. for the success of all when learning outside. Has guidelines to ensure the safety of students. Let's Talk Science - Precipitation

	What liquids and solids are found outside? What questions do you have about what you see? How can we continue to observe when we are not there? (e.g. measuring precipitation with a cup in the yard, while we are inside or at home).	experiments, engineering design, and inquiry.  **A1.5** Communicating with visuals and words in the science journal.  **A1.4** Review safety rules when visiting and observing nature. Respecting nature, not disturbing ecosystems, washing hands, etc. See notes in resources.  **A3** By observing and connecting with the real-world environment in which students live (e.g. animals, sky, liquids, and solids in the schoolyard) and noting the observations in the science journal, students are preparing themselves to identify a problem and seek a solution in later months. **Building observation devices**  **A1.3** Students are invited to build devices to observe animals, solids,	liquids and solids	are inspired by observations in nature and expert examples of nature-based art **Grade 1** Science: Needs and Characteristics of Living Things The Sun is Earth's principal source of energy, including how it warms the air, land, and water; it is a source of light for Earth; and makes it possible for plants to grow **Grade 3** Science: Growth and Changes in Plants Soils in the Environment The same observation process can be used with grades 1 and 3. Changing the focus: Living/non-living things and the action of the sun in grade 1 and plants and soil in grade 3	

		liquids, water, and air when we are not present. For example, a device to measure precipitation. The design could be built, or simply designed on paper (like a series of cameras to capture animals at night). The choice of design can be inspired by student questions during visits outside and conversations in class. *Note: if revisiting in winter students can look for tracks in the snow as a way to observe when they are not there.* **Scientific Research** **A1.1** Once animals in the environment are identified (ants, worms, robins, red squirrels) research can be done to name the animals and find basic facts. The questions for research can be student-led. Additional research on our identified animal friends will continue through the year. A picture of each animal can be posted in class and information can be added later.			

October	**Our Environment - Changes** **Big Idea:** Our environment, specifically animals, solids, liquids, air, and water, changes over time. We can be an agent of change. **Guiding Questions:** Students continue observation and now make predictions (hypothesis): What are the changes we can observe? (Precipitation accumulation, precipitation evaporation, Animals migrating, hiding). What happens to rain once it has fallen? Where are the animals if we can't see them? What changes could help promote the well-being of the animals (minimize negative impacts) in our environment? What can we design and build to improve our environment?	**Observational journal**  **A1.2** Students continue observing, now making predictions (hypotheses) on changes and reflecting back on what was observed earlier. Student questions can lead to experiments and inquiry. **Design for a real-world problem**  **A1.3** Design a plan to help promote the well-being of animals in our environment  **A3** Propose scientific and engineering solutions to real-world problems with the animal wellbeing plan. The plan can be built or be a proposal. Students can come up with a variety of solutions by themselves or with the collaboration of community experts. Example: beehives, bird feeders, water bath, worm garden, insect conservation area.	**Growth and Changes in Animals** **B1.1** examine impacts that animals can have on society and the environment, and describe some ways in which any negative impacts can be minimized **B1.2** assess impacts of various human activities on animals and the places where they live, and describe practices that can minimize negative impacts **Properties of Liquids and Solids** **C2.2** describe the properties of liquids and solids **C2.3** describe properties of liquid water and solid water, and identify the conditions that cause changes from one state to the other **Air and Water in the Environment** **E2.1** demonstrate an understanding of the key properties of air and water **E2.5** describe ways in which living things, including humans, depend on air and water	**Language** Communicating written form in the science journal and orally to the teacher and the class. Reading about animals. **Dance** Creating short dance phrases that communicate the changes in the environment; reflecting on the dance phrases of others, making connections to animals in the environment **Grade 1 Science:** Needs and Characteristics of Living Things, C2.2 **Grade 3 Science:** Growth and Changes in Plants	**Indigenous connection:** Observations of changes over seasons and years is crucial to the Indigenous way of knowing. Connect and build relationships with local communities and knowledge keepers to learn more about nature in your community. Let's Talk Science Design and Build a Bee House

November	**Our Environment - Cycles** **Big Idea:** Changes in our environment often follow cycles, such as an animal's life cycle or the water cycle. **Guiding Questions:** What changes come back regularly? What cycles can we observe, specifically related to animals and air and water in the environment? What happens if a cycle is broken? Students use their observations to anchor their understanding of cycles and express their understanding in a variety of ways including coding.	**Cycle observation experiments** **A1.2** Examples of cyclical experiments: Water cycle in a bag, Mealworms growth cycle. *Note: if revisiting in spring there is the possibility of observing the Monarch's life cycle and then releasing the butterflies in the wild.* **A1.4** Review safety guidelines when handling live animals (mealworms) and organic materials (washing hands, respectful handling of the animals). **Coding a cycle** **A2** Students can choose to code a cycle: water cycle, or life cycle (e.g., butterfly) using block programming, with a focus on creating clear and precise instructions for simple algorithms. **A1.5** Communicating a cycle through coding	**Growth and Changes in Animals** **B2.3** describe the life cycle of a variety of animals, including insects, amphibians, birds, and mammals **B2.4** compare changes in the appearance and behaviour of various animals as they go through a complete life cycle **Air and Water in the Environment** **E2.1** demonstrate an understanding of the key properties of air and water **E2.2** identify sources of water in the natural and built environments **E2.3** describe the stages of the water cycle, including evaporation, condensation, precipitation, and collection **E2.4** identify the three states of water in the environment, and describe how temperature changes affect the state of water within the water cycle	**Language** Communicating sequences of events through coding **Mathematics** Coding a cycle Data tracking and measurement and weighing of the mealworms. **Dance** Create verb chains (movement words with actions in a sequence) to represent stages of a cycle; reflect on the work of others **Visual Arts** Critically examine examples of life cycle and metamorphosis paintings. **Consider the use of Indigenous representations of this art concept* **Grade 1 Science:** Changes in the sun, seasons What are the needs of living things and how living things serve as food for others can also be expressed through a coding story. **Grade 3 Science:** Coding the plant cycle	Let's Talk Science - Water Cycle Tape a sealed plastic bag with a few spoonfuls of water to a window. The water will evaporate and be trapped in the bag, condensing and precipitating. Mealworms can be purchased at a local pet store. Mealworm beetles go through four distinct stages of development: egg, larva, pupa, and adult. The amount of time it takes the insects to go through these stages depends on the temperature of their environment and the availability of food. Have a plan to donate the mealworms once the experiment is complete. ScratchJr is an example of block programming that is accessible to primary students.
December	**Nutritious Science**	**Finding liquids, solids, and machines indoors**	**Growth and Changes in Animals**	**Language**: reading with a purpose, researching what animals	Science North - grade 2 -

	Big idea: We are surrounded by liquids, solids, and simple machines that have a direct impact on our daily lives. Changes of states, properties of liquids and solids, and using simple machines help us feed ourselves. **Guiding Questions** We continue our introduction to the properties of solids and liquids, and simple machines focusing on the kitchen and safety practices with tools and storage of materials. What liquids and solids do we eat? How do we combine them to create more complex foods? (e.g., melting, cutting, mixing, etc.) What tools do we use? (e.g., knives, mixers, nutcrackers, etc.) What do our identified animals eat? How are they adapted to eating (e.g., with their mouth, mandible, beak, etc.)? Note that their mouths are like simple machines.	**A1.1** Identify, name, and research the liquids, solids, and simple machines (e.g. knives, nutcrackers, mixers, rolling pins, etc.) used in our kitchens. This can also be done as a photo safari. Consider culturally relevant foods. **Liquid and solid foods and animals** **A1.1** Research the food eaten by our identified animals and their adaptation to eating. These can be animals identified in the observational journal or the study of cycles previously. **Culinary Experiments** **A1.2** Experiment with mixing liquids and solids, melting solids solidifying liquids in a safe and sanitary fashion. The experiments can be student-led stemming from their questions. Use small quantities to avoid food waste.	**B2.1** compare physical characteristics of various animals, including characteristics that are constant and those that change **B2.5** describe adaptations, including physical and/or behavioural characteristics, that allow various animals to survive in their natural environment **Properties of Liquids and Solids** **C1.1** assess practices related to the use, storage, and disposal of liquids and solids in the home in terms of the effects on personal health and safety and on the environment, and suggest ways to improve these practices **C1.2** assess the impacts of changes of state of liquids and solids on humans and on environments **Properties of Liquids and Solids** **C2.1** identify various types of matter in natural and built environments as liquids or solids **C2.2** describe the properties of liquids and solids **C2.3** describe properties of liquid water and solid water, and identify the conditions that cause changes	eat and reading recipes. **Social Studies** Compare some traditions and celebrations that use solids and liquids (.eg. for meal preparation) **Health and Physical Education** D1.2 Food allergies D2.1 Healthy eating patterns D2.2 Food choices (snacks, meals) **Mathematics**: Coding steps. Data tracking and measurement of time for recipes **Drama:** Exploring role play regarding food collection and food creation (e.g., processes for food creation using tableau); examining cultural contexts for foods through dramatic role play **Grade 1:** Food as a need for living things Identify food as a source of energy for living things D1.1 Minimizing waste **Grade 3:** Forces exerted on and with cooking utensils	Simple Machines Let's Talk Science - Simple Machines - Levers Let's Talk Science - Environmental Impact of Food Waste ScratchJr is an example of block programming that is accessible to primary students.

	Note: this is a good opportunity to also address food scarcity and how not to be wasteful.	 **A3** Explore real-world applications of science specifically in the kitchen. For example, popping popcorn in the microwave which uses water droplets in kernels (a small solid containing a liquid), or Indigenous use of corn kernels.  **A1.4** Review safety guidelines in the kitchen, including the use of knives, heating elements, storage and disposal of ingredients, hand washing, etc. Look at the meaning of international symbols that give us information on the safety of substances Consider food allergies and intolerances, and cultural guidelines. **Design with edible liquids and solids**  **A1.3** Design and build a healthy dessert/treat. This can be done in class, or the design can be on paper or digital.	from one state to the other **C2.4** identify conditions in which the states of liquids and solids remain constant and conditions that can cause their states to change **C2.5** describe some ways in which liquids and solids can be combined to make useful mixtures **C2.7** explain the meaning of international symbols that give us information on the safety of substances **Simple Machines and Movement** **D1.1** assess the impact of simple machines on the daily lives of people in various communities **D2.4** describe ways in which each type of simple machine is used in daily life to make tasks easier		

		 **A1.4** Review safety guidelines similar to the experiments above. **Coding and prescriptive language**  **A2** Code a recipe that illustrates each step and a change of state (melting cheese for example), using block programming, with a focus on creating clear and precise instructions for simple algorithms. This could also be done as a comic strip for an unplugged alternative.			
January	**What will happen?** **Big Idea:** We are scientists that can design experiments to answer questions **Guiding questions:** Through a series of experiments on solids and liquids and simple machines students discover the properties of materials that surround us. Students are involved in developing the experiments. For example	**Experiments testing what will happen**  **A1.2** As a thought-provoking study, students can be presented with a variety of materials and simple machines. The teacher can record what questions students may have related to simple machines, liquids, and solids. Students note their predictions (hypothesis), observations, and conclusions in a “lab book”,	**Properties of Liquids and Solids** **C2.6** classify solid objects and materials in terms of their buoyancy and in terms of their ability to absorb or repel water **Simple Machines and Movement** **D2.3** identify the six basic types of simple machines: lever, inclined plane, wedge, pulley, wheel, and axle, and screw **D2.5** compare, qualitatively or quantitatively, the force required to move an object using various simple machines to the force	**Language:** Communicating observations, predictions, and conclusions. Filming outcomes and explaining them on camera. **Grade 1:** Everyday Materials, Objects, and Structures **Grade 3:** Strong and Stable Structures Though the experiments can be different for each grade, the focus on observation, prediction, and explanation of results would be the same. The same key sentences can be used by all grades (I think that I will see…, this means	Science North- Grade 2 - Will it Float Let’s Talk Science - What Happens When You Mix Liquids Let’s talk science - Is it a Solid or a Liquid?

	Will this sink/float? Will it absorb or repel water? Will it melt or not? Will it be easier to pull up with a pulley or not? Will it be easier to push with wheels or not? Will it be easier to split a ball of dough with a plastic knife? For these activities, the teacher and students will need to gather a variety of solids, liquids, and simple machines from the school and the kitchen.	a class book in digital format (slides) by taking pictures or recording their observations in audio/video format. Further experiments can be designed based on student conclusions and further questions they may have. **A1.4** Review safety guidelines when doing experiments. **A1.5** Communicating results with visuals and words, using appropriate verbs and vocabulary in written form or orally. Key sentences can be given to help students formulate their thoughts (*I think that ____ will happen because ____. If _____ then I will see*_____.) **Design an experimental setup** **A1.3** Students design and build their own experiment from a visual template that is fillable.	required to move the object without using a simple machine	that…).	

Term 2 - Guidelines, Assessment ideas

Term two focuses on movement and then on water and water ecosystems. The exploration of movement in animals and through the help of simple machines is done through a series of experiments and build opportunities as well as coding motion. The class is also invited to learn about new technologies and innovations in machine design by connecting to members of the community. Students then later go back to the observational journal of our community as we observe changes in water in the springtime and aquatic ecosystems. They will look at the usage of water in our homes, community, and the world and explore ways they can have an impact on becoming a water protector.

Depending on your climate and seasons you may wish to shorten, lengthen and/or move blocks to different months.

When planning for your assessments, consider the STEM skills such as student observations, predictions, revisions of designs, and communication through coding.

Month/ Suggested Timelines	Big Ideas and Guiding Questions for an Inquiry Stance	STEM Skills and Connections (Strand A)	Strands and Expectations	Cross-Curricular Integrations	Resources
February	**Movement - Animals** **Big Idea:** Animals are adapted for a variety of movements **Guiding Questions:** How do our identified animals move? How are they adapted to motion? (legs. wings, flexible body…) Do similar movements (flying) have similar adaptations (wings)?	**Research Animal Motion** **A1.1** Research the locomotion of one of the identified animals (going back to the science journal from the beginning of the year). For example, ants, crows, and worms). There is also the option of choosing animals from Indigenous stories or from other culturally relevant sources. **Build a model of an animal** **A1.3** Build a model of an animal that can move and present key characteristics and adaptations about that animal (e.g. legs, feet, wings, articulation, underside for gliding, etc.).	**Growth and Changes in Animals** **B2.1** compare physical characteristics of various animals, including characteristics that are constant and those that change **B2.2** describe the locomotion of various animals **Simple Machines and Movement** **D2.1** describe different ways an object can move **D2.2** identify ways in which the position of an object can be changed **D2.4** describe ways in which each type of simple machine is used in daily life to make tasks easier	**Arts** Reproducing animal movement and characteristics through dance or mime. **Mathematics** Coding motion Location and Movement **Dance** Use dance structures such as mirroring and/or flocking to explore animal movement **Grade 1**: Coding living and nonliving things **Grade 3:** Forces and Motion	**Indigenous connection:** What are local Indigenous stories that express animal characteristics, what do they teach us about animals, humans, and our relationships? Examples: Ojibwe winter stories (Fawn, porcupine, bear). Anishinabe: Ko-Ko-Ko, The Owl Mi'kmaq- Thunders and the mosquito - Warrior podcast Rabbit and Bear Paws Sacred 7 by Chad Solomon Rabbit's Snow Dance by Joseph & James Bruchac The Raven and the Loon by Rachel & Sean Qitsualik-

		A variety of materials can be used (e.g., pipe cleaners, empty tubes, straws, tissue paper, etc.). **Coding Motion**  **A2** Code the motion of different animals with a focus on decomposing problems into smaller steps (e.g., crawling on the ground moving left, climbing up a tree moving up, flying in an arc "up/down").  **A1.5** Communicate the understanding of motion through coding.			Tinsley Turtle's Race with Beaver by Joseph & James Bruchac ScratchJr is an example of block programming that is accessible to primary students.
March	**Movement - Simple machines** **Big Idea:** Simple machines help humans move themselves and move loads. **Guiding questions:** Students explore the machines that exist in our world and their impact on our environment How can simple machines	**Experimenting with simple machines**  **A1.2** Experiment with simple machines specifically with motion. What is easiest? Test with a newton meter (spring scale).  **A1.5** Communicate the results of their experiments.	**D1.1** assess the impact of simple machines on the daily lives of people in various communities **D1.2** assess the impact on the environment of technologies that use simple machines to facilitate movement **D2.1** describe different ways an object can move **D2.2** identify ways in which the position of an object can be	**Language/Art** Design and build, create a poster as publicity for the park **Mathematics** Taking measurements with the newton meter (spring scale), Measurement of length to build the design (using a centimeter ruler or measuring tape). **Grade 1:** Identifying materials, testing materials	Science North - grade 2 - Simple Machines Let's Talk Science - Simple Machines Let's Talk Science - Simple Machines - Levers

	help us raise a heavy object? Which machine is best suited for which task? Is it easier to move an object with a simple machine (ramp, pulley, wheel) or without? What other machines do we have in our world, and how does it affect our environment? What new machines are being designed and created today?	Review safety guidelines when using building tools such as scissors, adhesives, cardboard, screwdrivers, hammer, etc. **Building machines that affect us** **A1.3** Students build a model of useful machines from recycled material (e.g. model playgrounds or amusement parks). **A1.5** Students explain their designs to others. **Researching machines, innovation, and their impact** **A1.1** What other machines do we have in our world, and how does it affect our environment (e.g., travel, mining, etc.)? This research could be done by interviewing a guest speaker and asking, *"What are new machines in your field?"*, with field trips or with	changed **D2.5** compare, qualitatively or quantitatively, the force required to move an object using various simple machines to the force required to move the object without using a simple machine	**Grade 3:** Forces and Motion	

		a variety of digital or print material. Examples of potential fields are agriculture, manufacturing, robots, mining, drilling, and construction.  **A2** Identify new technologies that allow the development of machines.  **A3** Explore the impact of machines on our environment.			
April	**Revisit Our Environment** - **Water** **Big ideas:** Our environment (animals, air, and water) changes over time. Water in the environment changes state. Ice melts at different rates depending on various factors. **Guiding questions:** What are the changes in the spring? When can we see our animals?	**Observational Journal**  **A1.2** Students revisit their outdoor environment to observe water and animals in the spring and note changes.  **A1.5** Communicate observations, predictions, and results using sentences and visuals. **Ice/Snow Experiments**	**C2.3** describe properties of liquid water and solid water, and identify the conditions that cause changes from one state to the other **C2.4** identify conditions in which the states of liquids and solids remain constant and conditions that can cause their states to change **E2.3** describe the stages of the water cycle, including evaporation, condensation, precipitation, and collection	**Mathematics** Data and Measurement (measuring the size of ice patches) **Grade 1:** Minimizing waste - How we can protect our environment minimizing waste that ends up in our land and water **Grade 3:** Soils in the Environment - how can we protect soil?	Science North - The Three States of Water

	How can ice or snow (or ice cubes) melt faster? (e.g., on dark pavement, split up in smaller chunks, In a glass of water, In a glass of salty water) What happens if we add road salt on ice? What is the impact of road ice on the environment?	**A1.2** Students observe the various factors that affect the melting of ice. Note: depending on the weather, the experiments can be done earlier or later in the season or using ice cubes or frozen water trays. **A1.4** Review safety surrounding water, ice, and snow (avoiding falls). **A3** Students connect with the real-world safety issues of ice and snow on walkways and structures.			
May	**Water Around Us - Caring for Water** **Big Ideas:** Water is life. Drinking water is a precious resource we need to protect. **Guiding Questions:** Besides the rain and snow, where does water come from? What do we use it for? What could we do if we didn't	**Water Journal** **A1.2** Students note how often they use water in a week and for what purpose **A3** Students connect with the real-world issue of water conservation.	**C2.3** describe properties of liquid water and solid water, and identify the conditions that cause changes from one state to the other **C2.5** describe some ways in which liquids and solids can be combined to make useful mixtures **C2.6** classify solid objects and materials in terms of their buoyancy and in terms of their	**Language** Communicate orally and in written form the design and revision process **Art** Make water-related art **Math** Gathering and analysing data **Social Studies**: Strand B. People and Environments: Global	**Indigenous Connection:** Warrior Kids Podcast: Water is life episode Odawa/Ojibwe Knowledge Keeper, Edna Manitowabi - Water Teaching AFN - Honoring water **We Are Water Protectors** Author: Written by Carole Lindstrom; illustrated by

	have access to potable water? How can we be caretakers of water? Who are the water protectors in Canada and the world (such as Anishinaabe human rights activist Autumn Pelletier, Josephine Mandamin, Nemonte Nenquimom, Mari Copeny)	**Purifying water** **A1.1** Where does drinking water come from? Explore a map of the world showing freshwater vs salty water. **A1.2** Experiment on cleaning water that may be “contaminated” with solids (rocks and paper bits) and liquids (cooking oil) using simple filters (paper filter, sieve, tissue paper) and what has been learned on the properties of solids and liquids. **Designs for water protectors** **A1.1** Research current water protectors such as Anishinaabe human rights activists Autumn Pelletier, Josephine Mandamin, Nemonte Nenquimom, and Mari Copeny.	ability to absorb or repel water **Air and Water in the Environment** **E1.1** assess the impact of human activities on air and water, taking various perspectives into consideration, including those of First Nations, Métis, and Inuit, and plan a course of action to protect the quality of the air and/or water in the local community **E1.2** assess their personal and household uses of water, and create a plan to use water responsibly **E1.3** examine the availability of fresh water and drinking water around the world, and describe the impact on communities **E2.1** demonstrate an understanding of the key properties of air and water **E2.2** identify sources of water in the natural and built environments **E1.3** examine the availability of freshwater and drinking water around the world, and describe the impact on communities	Communities - looking at water accessibility, usage, and systems around the world **Grade 1**: Energy audit and energy conservation Minimizing waste **Grade 3**: Soils in the Environment - how can we protect soil?	Michaela Goade WWF - Freshwater **Ottawa River Keepers Videos:** Protect our watershed from its source, of course!

		A1.3 What can we do/build/design/plan to be water protectors? For example, design a container to collect water for a garden, and a trash bin that informs users of the importance of not littering so it does not end up in waterways. **A1.5** Communicate designs through annotated drawings, and the revision process (what they would change and why). **A3** Students connect to real-world water issues and the variety of communities affected. They propose scientific and engineering solutions to real-world problems.			
June	**Water Around Us - Caring for Animal Life Under Water** **Big Idea:** Aquatic habitats are teaming with life and need to be	**Observing life in and around water** **A1.2** Potentially plan a field trip or virtual field trip to observe different aquatic life	**Growth and Changes in Animals** **B1.1** examine impacts that animals can have on society and the environment, and describe some ways in which any negative impacts can be minimized	**Language** Communicating what is found in an aquatic system through coding. Communicating an action plan to protect animals in an aquatic system.	UN Sustainability Goals Let's Talk Science Introductions to Lakes and Ponds

	protected. **Guiding questions:** What animals can we find in our lakes, rivers, and ocean? How does protecting water protect animal life as well? How does the protection of water help the animals in the ecosystems? Note: this can be done at the same time as the May block but extended over a longer period.	 **A2** Using block programming students can choose to code an example of aquatic life including background, plants, and animals, with a focus on creating clear and precise instructions for simple algorithms. Alternative modes of presentation can also be offered (e.g., choreographing a dance of moving aquatic life, drawing a comic strip, etc.). **Designs for Protecting Aquatic Animal Life - improving our plan**  **A1.1** Many organizations protect animal life underwater, such as the UN sustainable goals or local organizations.  **A1.3** In our water protector plans, what animal life is affected/defended? How can we improve our plan by taking all the animals into account (e.g., insects in the garden that is watered by	**B1.2** assess impacts of various human activities on animals and the places where they live, and describe practices that can minimize negative impacts **Air and Water in the Environment** **E1.1** assess the impact of human activities on air and water, taking various perspectives into consideration, including those of First Nations, Métis, and Inuit, and plan a course of action to protect the quality of the air and/or water in the local community **E1.2** assess their personal and household uses of water, and create a plan to use water responsibly **E2.1** demonstrate an understanding of the key properties of air and water **E2.2** identify sources of water in the natural and built environments	**Grade 1:** Needs and Characteristics of Living Things **Grade 3**:Growth and Changes in Plants (aquatic plants, or plants around water)	Let's Talk Science - Introductions to Streams and Rivers

		rainwater, river animals that will not consume plastic if it is disposed of properly)?  **A3** Students connect to real-world water issues of protection of aquatic life and propose scientific and engineering solutions to real-world problems.			