

Science DRAFT Kindergarten to Grade 4 Curriculum

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Essential Understanding	Investigating change and the diversity of Earth’s systems helps us to develop understandings of the conditions necessary to sustain life.				
Guiding Questions	How are things in my environment alike and different?	How do living things interact with their environment?	How do living things grow and change?	How do the characteristics of living things help them to survive?	How do living things adapt to changes in their environment over time?
Learning Outcomes	Children investigate living and non-living things in the local environment.	Students investigate and compare how living things interact with the environment to meet basic needs.	Students investigate and analyze life cycles of different plants and animals.	Students investigate and explain how the characteristics of plants and animals contribute to survival.	Students explore and analyze how plants and animals have adapted to environmental change over time.
Conceptual Knowledge	<ul style="list-style-type: none"> plants and animals are living things the environment includes living, non-living, and human-made things living, non-living, and human-made things have places in the shared environment science involves asking questions about the world exploration of the environment involves wondering and observing living and non-living things in the environment need to be treated with respect information gained through observations and stories is important to First Nations, Métis, and Inuit understandings of the world 	<ul style="list-style-type: none"> the environment consists of both living and non-living things plants and animals are living things living things interact with the environment in a variety of ways to meet basic needs living things have basic needs for survival plants and animals have similar and different needs basic needs of most living things include air, water, food, shelter, space, and light the home (habitat) of living things helps to meet basic needs animals and plants depend on living and non-living things curiosity leads to questioning, observing, and exploring exploration of the local environment supports learning about the world living things need to be treated with respect and left undisturbed to be able to meet basic needs safety is an important part of investigating the needs of living things First Nations, Métis, and Inuit have relied and continue to rely on the environment to meet basic needs 	<ul style="list-style-type: none"> a cycle is a series of events that repeat over time life cycles of living things represent growth and change there are similarities and differences in the life cycles of plants and animals plants and animals meet basic needs for food, water, shelter and space in different ways during different stages of life cycles animals change in appearance and activities during different stages of life cycles plants have different parts, including roots, stems, leaves, and sometimes flowers scientific investigations involve asking questions, predicting, and collecting and recording data observations provide the information needed to answer a question being investigated observations of plants and animals can be made without disturbance to the environment safety is an important part of investigating different plant and animal life cycles First Nations, Métis, and Inuit have a unique awareness of the repeated cycles in nature 	<ul style="list-style-type: none"> suitable soil conditions, light, water, and air are needed for plants to grow and survive many living things depend on plants for food and oxygen some living things depend on plants for habitats animals have distinct characteristics related to sensing, eating, movement (locomotion), and protection to survive there is variety in plants (biodiversity) there is variety in animals (biodiversity) scientists use classification as a way of grouping plants and animals with similar characteristics plants and animals have a variety of ways to get what is needed to live and grow a scientific investigation provides a systematic way to answer questions about the world scientific investigations involve asking questions, predicting, collecting and analyzing data, making inferences, and sharing new learning scientists use a variety of methods, tools, and technologies to observe, measure, and collect samples safely with minimal disruption to the environment safety is an important part of investigating different characteristics of plants and animals First Nations, Métis, and Inuit use stories to share how the characteristics of plants and animals help with survival First Nations, Métis, and Inuit have a variety of methods for classifying plants and animals 	<ul style="list-style-type: none"> some plants and animals that lived in the past have adapted over time some plants and animals that have been unable to adapt to changes in the environment have become extinct plant and animal fossils provide evidence that some plants and animals have adapted to the changing environment over time adaptations to changing seasons supports plant and animal survival over time, new plants and animals have appeared throughout Earth’s ecosystems (biosphere) an ecosystem includes all plants and animals living within a common environment an ecosystem includes the ways in which living things interact with non-living things in the environment an ecosystem provides habitats that can meet the needs of a variety of plants and animals different plants and animals that have adapted to habitats within each ecosystem are better able to survive scientific inquiry involves a variety of methods, including controlled experiments and field studies a controlled experiment tests the effect that one variable has on another by keeping all other relevant variables constant variables are measurements or factors that can change in a controlled experiment scientific investigations involve asking questions, planning, predicting, collecting and analyzing data, making inferences, and evaluating processes scientific investigations of plant and animal adaptations requires consideration of

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					safety and the impact on both living and non-living things • observations and lived experience are an important aspect of First Nations, Métis, and Inuit understandings of the world
Procedural Knowledge	<ul style="list-style-type: none"> collect information about living, non-living, and human-made things respectfully, responsibly, and safely ask questions about what is being observed compare observations about plants and animals in the local environment represent observations in a variety of ways, including orally and through illustrations and graphics represent a plant or animal in the space that it uses, including its activities and its interactions with other things, through actions, pictures, or models integrate new vocabulary related to science investigations practise safe and appropriate use of simple tools, including magnifying devices listen to First Nations, Métis, or Inuit stories about plants and animals 	<ul style="list-style-type: none"> explore how living things meet needs in the environment, respectfully and responsibly compare how the specific places where plants and animals live help them to meet basic needs for air, water, food, shelter, space, and light investigate answers to questions asked represent observations of the interactions of living things with the environment in a variety of ways, including orally and through illustrations and graphics illustrate how plants and animals depend on each other and non-living things to survive describe the connection between where plants and animals live (the environment) and how basic needs are met follow simple procedures safely access new vocabulary to describe how living things meet basic needs in the environment practise safe and appropriate use of digital and simple tools, including magnifying devices and digital cameras listen to stories about how First Nations, Métis, and Inuit have relied and continue to rely on traditional knowledge of the environment to meet their basic needs 	<ul style="list-style-type: none"> investigate the life cycles of selected living things examine plants and animals at various stages of development propose questions that could be investigated predict results of an investigation record observations of plants and animals at various stages of life cycles identify patterns in recorded observations represent life cycles through illustrations, diagrams, or models compare life cycles of different plants and animals use appropriate science vocabulary in oral, written, and graphic communications follow a procedure safely observe plants and animals safely and responsibly with minimal disruption practise safe and appropriate use of digital and non-digital tools, including still-image recording and magnifying devices 	<ul style="list-style-type: none"> generate questions that can be investigated record detailed observations of plant and animal characteristics using digital and non-digital technologies carry out a scientific investigation related to how characteristics of plants and animals enable survival analyze characteristics that enable plants to obtain the resources needed for survival and growth, including plant shape, root systems, leaf arrangements, leaf shapes, and texture classify plants and animals according to distinct characteristics use appropriate science vocabulary when communicating about characteristics of plants and animals investigate the environment safely and responsibly with minimal disruption to plants and animals practise safe and appropriate use of digital and non-digital tools, including still-image, video-recording, and magnifying devices classify plants and animals according to First Nations, Métis, or Inuit methods 	<ul style="list-style-type: none"> compare plant and animal life from two or more ecosystems infer possible environmental changes affecting survival based on fossil evidence and information from a variety of sources investigate change that has occurred within one ecosystem over time relate science activities to methods of scientific inquiry select a testable question formulate a prediction with an explanation collect data, including detailed observations, accurate measurements, and samples record observations in tables, graphs, diagrams, or other representations using digital or non-digital technologies analyze results and inferences from an investigation use appropriate science vocabulary when communicating about plant and animal adaptations over time perform an experiment safely investigate ecosystems safely and responsibly with minimal disruption to living and non-living things practise safe and appropriate use of digital and non-digital tools, including digital applications and still-imaging, video-recording, and magnifying devices
Competencies	<ul style="list-style-type: none"> Managing Information 	<ul style="list-style-type: none"> Managing Information Problem Solving 	<ul style="list-style-type: none"> Managing Information Critical Thinking 	<ul style="list-style-type: none"> Managing Information Problem Solving 	<ul style="list-style-type: none"> Managing Information Problem Solving

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	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Literacy	<ul style="list-style-type: none"> • Develop Questions • Access • Vocabulary • Comprehension Strategies • Modes and Media 	<ul style="list-style-type: none"> • Access • Vocabulary • Comprehension Strategies • Clarity • Modes and Media 	<ul style="list-style-type: none"> • Develop Questions • Vocabulary • Comprehension Strategies 	<ul style="list-style-type: none"> • Develop Questions • Vocabulary • Comprehension Strategies • Clarity • Modes and Media 	<ul style="list-style-type: none"> • Vocabulary • Comprehension Strategies • Modes and Media
Numeracy	<ul style="list-style-type: none"> • Collection of Data • Interpretation and Representation of Spatial Information • Methods or Tools 	<ul style="list-style-type: none"> • Collection of Data • Spatial Visualization • Interpretation and Representation of Spatial Information • Methods or Tools 	<ul style="list-style-type: none"> • Patterns and Relationships • Collection of Data • Interpretation and Representation of Spatial Information • Methods or Tools 	<ul style="list-style-type: none"> • Organization of Data • Collection of Data • Methods or Tools 	<ul style="list-style-type: none"> • Purpose • Collection of Data • Interpretation of Data • Interpretation and Representation of Spatial Information • Methods or Tools
Guiding Questions	In what ways does the environment around me change?	How do changes in weather affect people and other living things?	How does water impact living things in the environment?	How is the water cycle connected to the weather?	How does soil support living things?
Learning Outcomes	Children explore the seasonal changes in the local environment.	Students investigate changes in the weather and describe how people and other living things respond to these changes.	Students investigate characteristics of water and its importance to living things in the environment.	Students explain the water cycle and its relationship to weather.	Students analyze the composition of soil and its abilities to support living things.
Conceptual Knowledge	<ul style="list-style-type: none"> • each season has unique characteristics • people and other living things are affected by the seasonal changes • nature changes, including the seasons, land, plants, and animals • living things are affected by seasonal changes • science involves asking questions about the world • senses help to gather information from the world • exploration of the environment involves wondering and observing • exploration of the environment needs to be done safely and respectfully • information gained through observations and stories is important to First Nations, Métis, and Inuit understanding of the local environment 	<ul style="list-style-type: none"> • the Sun is Earth’s primary source of heat and light • cycles in sunlight result in changes to weather • weather changes occur in seasonal cycles • weather, including temperature, wind, clouds, and rain or snow (precipitation), can change over the course of a day • living things prepare for and respond to changes in the weather • changes in the weather can affect the appearance and activities of plants and animals in both indoor and outdoor environments • changes in weather can affect the interactions between plants and animals in the environment • people plan for changes in the weather by how they dress and in the activities that they choose to do • curiosity leads to questioning, observing, and exploring • living things need to be treated with respect and left undisturbed • investigation of changes in the weather needs to be done safely and with consideration for the environment • traditional First Nations, Métis, and Inuit knowledge about changes in the weather affect how they live 	<ul style="list-style-type: none"> • water is a natural resource that is found in oceans, lakes, ponds, rivers, streams, wetlands, and glaciers • clean fresh water has no taste, colour, or smell • water covers most of Earth’s surface, making it a unique planet in the solar system • almost all of the water on Earth is salt water that is not drinkable by many animals • much of Earth’s fresh water is in the form of ice and snow at the north and south poles, found in glaciers, or stored underground (groundwater) • most living things on Earth are found near water because water is essential for life • freshwater habitats are found in rivers, ponds, lakes, and wetlands • freshwater habitats are home to a variety of plant and animal life (biodiversity) • saltwater habitats are found in oceans and seas • saltwater habitats are home to a variety of plant and animal life (biodiversity) • water returns to the environment through rain, snow, sleet, and hail (precipitation) • scientific investigations involve asking questions, predicting, and collecting and recording data 	<ul style="list-style-type: none"> • Earth’s water is constantly being recycled as it moves between rivers, lakes, oceans, the atmosphere, and the land • a cycle is a series of events that repeat over time • the water cycle is driven by the Sun and includes processes of evaporation, condensation, precipitation, and collection • heat from the Sun causes water to turn from a liquid to a gas state (evaporation) • evaporated water collects in the sky as clouds • as water vapour in clouds cools, water changes from a gas to a liquid state (condensation) • water falls from the sky in the form of rain, snow, hail, or sleet (precipitation) • water that has fallen collects in rivers, lakes, and oceans and soaks into the ground (collection) • surface runoff is water that reaches land directly and may flow across the ground and collect in rivers, lakes, and oceans • the water cycle is connected to weather as water returns to the environment through rain, snow, sleet, and hail (precipitation) • scientific investigations involve asking questions, predicting, collecting and analyzing data, making inferences, and sharing new learning 	<ul style="list-style-type: none"> • Earth’s surface is made up of a variety of rocks and soils • soils are made up of living things, matter from recently living things (organic matter), rock particles, air, and water • the composition of soils varies depending on location • different ecosystems may have different soils • healthy soils contain nutrients that support plant and animal life • soils provide a home for many living things • living things affect the health of soil • when living things die and decompose, nutrients are added to the soil • soils provide a base for forests, fields, farms, and gardens • weathering is the process in which rock is dissolved or broken down into smaller pieces • weathering can be caused by plant roots breaking up rock, chemicals from plants dissolving rock, and by heating and freezing • after rock has been broken down by weathering, erosion can happen when rock is moved by ice, water, wind, or gravity • First Nations, Métis, and Inuit traditional knowledge informs ways that rocks and soils can be used, including as significance

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			<ul style="list-style-type: none"> • observations of living things can be done with minimal disturbance to the environment • investigation of water in the environment needs to be done respectfully and safely • First Nations, Métis, and Inuit have a sense of place and identity that is connected to water 	<ul style="list-style-type: none"> • scientists use a variety of methods, tools, and technologies to observe, measure, and collect samples safely and with minimal disruption to the environment • investigation of the water cycle needs to be done safely and with consideration for the environment • seasonal activities of First Nations, Métis, and Inuit communities are affected by weather and the water cycle 	<ul style="list-style-type: none"> • markers, tools, shelter construction, heat transfer, and to support growth • scientific inquiry involves a variety of methods, including controlled experiments and field studies • a controlled experiment tests the effect that one variable has on another by keeping all other relevant variables constant • variables are measurements or factors that can change in a controlled experiment • scientific investigations involve asking questions, planning, predicting, collecting and analyzing data, making inferences, and evaluating processes • investigation of soils and living things needs to be done respectfully and safely
Procedural Knowledge	<ul style="list-style-type: none"> • collect information about the environment respectfully, responsibly, and safely • record observations of seasonal changes to the local environment • represent seasonal changes through actions, pictures, or models • compare the unique characteristics of each season • explore seasonal changes in the immediate environment • connect how land, plants, and animals change with each season • investigate how seasonal changes affect where animals live • describe how people dress for comfort and safety during each season • ask questions to find out about the environment • integrate new vocabulary related to science investigations • practise safe and appropriate use of simple tools, including magnifying devices and paper and pencil 	<ul style="list-style-type: none"> • investigate potential answers to questions asked • collect information about the weather • represent observations of changes in weather, including temperature, wind, clouds, and rain or snow, in a variety of ways, including orally and through illustrations and graphics • relate changes in appearance and activities of animals to changes in weather • relate changes in appearance and activities of plants to changes in weather • investigate changes in the interactions between plants and animals in the environment as weather changes • connect the changes in the daily weather to the way people modify activities and dress for different conditions • investigate how changes in the weather might affect animals, including pets, animals that hibernate, or animals that migrate • access new vocabulary to describe how changes to weather can impact living things • explore the environment with respect and care • follow simple procedures respectfully, responsibly, and safely • practise safe and appropriate use of digital and simple tools, including a still-image 	<ul style="list-style-type: none"> • propose questions that could be investigated • predict results of an investigation • investigate different life forms found in freshwater and saltwater habitats • identify patterns in recorded observations • compare sources of Earth’s water • use the five senses to describe the characteristics of water • explain the importance of water to living things • describe the significance of water to the environment • use appropriate science vocabulary in oral, written, and graphic communications • follow a procedure safely • explore the environment safely with respect and care • practise safe and appropriate use of digital and non-digital tools, including still-image or video-recording devices, magnifying devices, binoculars, and paper and pencil • represent how water gives a sense of place and identity to First Nations, Métis, and Inuit communities 	<ul style="list-style-type: none"> • generate questions that can be investigated • describe the water cycle in relation to water moving between rivers, lakes, oceans, the atmosphere, and the land • explain the water cycle in terms of the four processes of evaporation, condensation, precipitation, and collection • represent the water cycle through illustrations, diagrams, or models • investigate what happens to precipitation when it falls on different outdoor surfaces, both natural and human-made • explain the runoff of water • describe the relationship between the water cycle and weather • use appropriate science vocabulary when communicating about the water cycle and its relationship to weather • investigate the environment safely and responsibly with minimal disruption • practise safe and appropriate use of digital and non-digital tools, including a still-image or video-recording device, a magnifying device, a water gauge, and paper and pencil 	<ul style="list-style-type: none"> • compare and contrast the components of different types of soils • analyze soil in the local community and infer how soil helps living things survive • analyze composition of soils from different locations • investigate different soils to determine effectiveness in supporting life • relate science activities to methods of scientific inquiry • select a testable question • formulate a prediction with an explanation • collect data, including detailed observations, accurate measurements, and samples • record observations in tables, graphs, diagrams, or other representations using digital or non-digital technologies • investigate the environment with sensitivity while attending to safety guidelines • perform an experiment safely • analyze results and inferences from an investigation • use appropriate science vocabulary when communicating about soil and its abilities to support living things • practise safe and appropriate use of digital and non-digital tools, including still-image recording devices, digital applications, and magnifying devices

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		recording device, magnifying devices, a thermometer, and paper and pencil • relate First Nations, Métis, or Inuit stories to descriptions of weather and the seasons			• acquire relevant information about First Nations, Métis, and Inuit selection of rocks and soils for specific purposes
Competencies	• Managing Information	• Critical Thinking • Managing Information	• Critical Thinking • Cultural and Global Citizenship	• Critical Thinking • Communication	• Managing Information • Critical Thinking
Literacy	• Develop Questions • Access • Vocabulary • Text Organization • Comprehension Strategies • Clarity • Modes and Media	• Access • Comprehension Strategies • Background Knowledge • Vocabulary • Clarity	• Develop Questions • Access • Vocabulary • Comprehension Strategies • Clarity	• Develop Questions • Access • Vocabulary • Clarity • Modes and Media	• Access • Vocabulary • Comprehension Strategies • Clarity • Modes and Media
Numeracy	• NKU1d.K: Patterns and Relationships • Collection of Data • Interpretation and Representation of Spatial Information • Methods or Tools	• Patterns and Relationships • Collection of Data • Interpretation and Representation of Spatial Information • Methods or Tools	• Patterns and Relationships • Collection of Data • Communication • Methods or Tools	• Purpose • Patterns and Relationships • Collection of Data • Interpretation and Representation of Spatial Information • Methods or Tools	• Purpose • Organization of Data • Collection of Data • Interpretation of Data • Methods or Tools

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Essential Understanding	Investigating matter and energy facilitates understandings of natural phenomena and can inspire discovery and innovation.				
Guiding Questions	What affects the movement of living things and objects?	In what ways can we make a physical change to everyday materials?	How can magnets show the forces of push and pull?	How does matter change its form?	How does energy flow through an ecosystem?
Learning Outcomes	Children investigate the connection between the movement and the characteristics of living things and objects.	Students investigate physical changes to everyday materials.	Students investigate the factors that influence the force of a magnet.	Students investigate the states of matter and describe the interactions of matter and energy.	Students demonstrate how food energy transfers within an ecosystem.
Conceptual Knowledge	<ul style="list-style-type: none"> objects can be sorted by characteristics, including size, shape, and heaviness it is easier to compare sorted objects than to compare unsorted objects living things or objects can move or be moved in a variety of ways energy is needed to make living things or objects move science vocabulary describes movement, including pushing, pulling, lifting, bouncing, rolling, and sliding science involves asking questions about the world curiosity leads to questioning, observing, exploring, and learning living and non-living things in the environment need to be treated with respect safety is an important part of investigating the environment 	<ul style="list-style-type: none"> materials can be living, non-living, and human-made materials can be physically changed in a variety of ways, including bending, twisting, stretching, cutting, mixing, breaking, shredding, crushing, and moulding physical changes to materials may involve change to shape, size, colour, and texture physical changes to an object do not change what the object is physical changes to an object do not result in a new object being created physical changes to materials may be observed or measured curiosity leads to questioning, observing, and exploring safety is an important part of handling materials, objects, and simple tools traditional First Nations, Métis, and Inuit teachings support treating all things on Earth with respect 	<ul style="list-style-type: none"> forces that push and pull can cause objects to move upward, downward, backward, or forward magnets can push and pull other magnets magnets can pull on some metal objects without touching them magnets have North and South poles like poles of magnets push away (repel); opposite poles pull toward each other (attract) forces that push and pull can change the direction and speed of objects stronger forces that push or pull have a greater effect on the speed of objects than weaker forces strength of a magnetic force lessens with distance magnets have different strengths the force of a magnet can act through certain materials magnets attract and magnetize some metals the position of an object can be described using the terms above, below, behind, in front, beside, and between magnets can be used to make useful things scientific investigations involve asking questions, predicting, collecting data, and sharing new learning magnets need to be handled safely 	<ul style="list-style-type: none"> all matter is made up of tiny particles (molecules) matter can exist in solid, liquid, or gas states solids, liquids, and gases have different characteristics related to shape liquids and gases have different characteristics related to flow particles in solids are very close together and usually have a fixed pattern particles in liquids are somewhat close together with no regular pattern particles in gases are far apart and have no regular pattern matter in a liquid or gas state takes the shape of its container matter can change from one form to another when heated or cooled solids, liquids, and gases can change temperature with heating and cooling; these are physical changes that could be reversed the boiling point is the temperature at which a liquid begins to boil and changes to a gas state the melting point is the temperature at which a solid changes to a liquid state the freezing point is the temperature at which a liquid changes to a solid state some solids dissolve in liquids, and this may cause a physical change that can be reversed scientific investigations involve asking questions, predicting, collecting and analyzing data, making inferences, and sharing new learning matter in different forms needs to be handled safely, including hot water, steam, and ice 	<ul style="list-style-type: none"> all living things need energy to survive the Sun is an important source of energy that is needed for plants and animals within an ecosystem to grow a food chain represents the transfer of food energy in an ecosystem different food chains are represented in different ecosystems food chains include producers, consumers, and decomposers that each have different roles within an ecosystem plants are producers resulting in food sources for animals, including grasses, leaves, seeds, and berries primary consumers are animals that eat plants secondary consumers are predators; they eat other animals that are known as prey decomposers include bacteria, fungi, earthworms, and beetles decomposers feed on waste from consumers and on dead producers and consumers changes to any level of a food chain can impact the transfer of food energy for the entire ecosystem a food web is a model for showing how food energy flows through an ecosystem scientific inquiry involves a variety of methods, including controlled experiments and field studies a controlled experiment tests the effect that one variable has on another by keeping all other relevant variables constant variables are measurements or factors that can change in a controlled experiment scientific investigations involve a variety of methods, including asking questions, planning, predicting, collecting and

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					<ul style="list-style-type: none"> analyzing data, making inferences, and evaluating processes scientific investigations of ecosystems in the environment require consideration of safety and the impact on both living and non-living things First Nations, Métis, and Inuit have a unique understanding of the interconnections of living things and how food chains depict the circle of life
Procedural Knowledge	<ul style="list-style-type: none"> ask questions about what is being explored explore how animals and objects can move or be moved in a variety of ways describe how characteristics are used to sort objects explore how living things move while being respectful and careful compare the ways that different objects, such as balls, blocks, and other toys, move describe the direction of movement with terms, including over, under, beside, below, away, and towards describe kinds of movement, including pushing, pulling, lifting, bouncing, rolling, and sliding demonstrate how different objects and animals move describe how different living things move depending on shape, size, and heaviness compare the ways objects with similar shapes but different sizes or heaviness move integrate some new vocabulary related to science investigations practise safe and appropriate use of simple objects and tools 	<ul style="list-style-type: none"> sort objects by physical properties of shape, size, colour, and texture investigate potential answers to questions asked follow a simple procedure safely explore materials in the environment with respect and care experiment with actions that physically change everyday materials, including bending, twisting, stretching, cutting, mixing, breaking, shredding, crushing, and moulding investigate how primary colours can be combined to create secondary colours experiment with intensity of colour record observations of physical changes that occur during investigations using diagrams or illustrations access new vocabulary to describe how everyday materials can be physically changed investigate use of dyes by First Nations, Métis, and Inuit practise safe and appropriate use of simple materials, objects, and tools 	<ul style="list-style-type: none"> propose questions that could be investigated predict results of an investigation explore the push and pull of magnets investigate the interaction of magnets with a variety of materials from the local environment distinguish between materials that are affected by magnets and those that are not test the strength of a magnet by varying the distance between the magnet and the object that it attracts or repels test the effects of one magnet on another to determine polarity represent the forces of push and pull using diagrams or other illustrations use new vocabulary to describe the factors that influence the force of a magnet identify patterns in recorded observations use appropriate science vocabulary in oral, written, and graphic communications follow a procedure safely and responsibly explore magnets safely with respect and care practise safe and appropriate use of digital and non-digital tools, including digital applications, magnets, and a variety of magnetic and non-magnetic materials and objects 	<ul style="list-style-type: none"> generate questions that can be investigated investigate states of matter safely and responsibly classify matter as solid, liquid, or gas investigate physical changes of matter investigate how solids, liquids, and gases respond to changes in temperature predict how matter may change state when heated or cooled compare the flow rates of different liquids use representations to illustrate changes to states of matter record observations using digital or non-digital technologies use appropriate science vocabulary when communicating about states of matter and the interactions of matter and energy practise safe and appropriate use of digital and non-digital tools, including still-image and video-recording devices and digital applications investigate how First Nations, Métis, and Inuit use heated rocks for many purposes 	<ul style="list-style-type: none"> gather information from a variety of sources to investigate a food chain or food web for a selected ecosystem illustrate a food chain or food web to represent relationships between producers, consumers, and decomposers investigate the impact of change in one part of an ecosystem on other parts of the same ecosystem investigate the environment with sensitivity while attending to safety guidelines relate science activities to methods of scientific inquiry select a testable question formulate a prediction with an explanation collect data, including detailed observations, accurate measurements, and samples record observations in tables, graphs, diagrams, or other representations using digital or non-digital tools, including digital applications, still-image recording devices, and paper and pencil analyze results and inferences from an investigation use appropriate science vocabulary when communicating about energy flow in an ecosystem perform an experiment safely describe interconnections among living things as identified by First Nations, Métis, and Inuit traditional knowledge
Competencies	<ul style="list-style-type: none"> Managing Information Critical Thinking 	<ul style="list-style-type: none"> Managing Information Critical Thinking 	<ul style="list-style-type: none"> Managing Information Critical Thinking 	<ul style="list-style-type: none"> Managing Information Critical Thinking 	<ul style="list-style-type: none"> Managing Information Critical Thinking

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Literacy	<ul style="list-style-type: none"> • Develop Questions • Vocabulary • Comprehension Strategies • Clarity 	<ul style="list-style-type: none"> • Access • Vocabulary • Comprehension Strategies • Clarity • Modes and Media 	<ul style="list-style-type: none"> • Develop Questions • Vocabulary • Comprehension Strategies • Clarity • Modes and Media 	<ul style="list-style-type: none"> • Develop Questions • Access • Vocabulary • Clarity • Modes and Media 	<ul style="list-style-type: none"> • Develop Questions • Access • Vocabulary • Text Organization • Comprehension Strategies • Clarity • Intent • Modes and Media
Numeracy	<ul style="list-style-type: none"> • Organization of Data • Spatial Visualization • Location and Direction • Communication • Methods or Tools 	<ul style="list-style-type: none"> • Organization of Data • Spatial Visualization • Interpretation and Representation of Spatial Information • Communication • Methods or Tools 	<ul style="list-style-type: none"> • Task Analysis • Patterns and Relationships • Collection of Data • Communication • Strategies • Methods or Tools 	<ul style="list-style-type: none"> • Organization of Data • Collection of Data • Management of Space • Interpretation and Representation of Spatial Information • Communication • Methods or Tools 	<ul style="list-style-type: none"> • Purpose • Patterns and Relationships • Collection of Data • Interpretation of Data • Interpretation and Representation of Spatial Information • Communication • Strategies

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Essential Understanding	Applying logical thought and creativity enables us to achieve outcomes, solve problems, and develop computational thinking skills.				
Guiding Questions	How can we use science methods and creativity to make something new?	How can we use science methods and creativity to construct an object for a specific purpose?	How can we use science methods and creativity to construct a device that moves a load?	How can we use science methods and creativity to construct a structure?	How can we use science methods and creativity to construct simple machines?
Learning Outcomes	Children create an object using science methods, imagination, and a variety of everyday materials.	Students create an object for a specific purpose using science methods, inventiveness, and a variety of materials.	Students use science methods, ingenuity, and variety of materials to design and construct a device capable of moving a load.	Students use science methods and innovation to design and build a structure that has stability and strength.	Students use science methods and resourcefulness to design and build a device demonstrating the benefits of a simple machine.
Conceptual Knowledge	<ul style="list-style-type: none"> objects and materials from both indoor and outdoor environments can be used for a variety of purposes responsible use of objects and materials means using only what is needed and not being wasteful useful objects can be made from a variety of materials the same type of object can be made from different materials people use natural and human-made materials to make a variety of objects that serve a variety of purposes simple materials and tools need to be used carefully and safely during procedures First Nations, Métis, and Inuit communities believe in taking only what is needed when making objects and materials so as to live in harmony with the natural world 	<ul style="list-style-type: none"> the purpose of an object influences the choice of materials that are used to construct it objects are made from one or more materials different materials have different characteristics characteristics of materials help to determine how they can be used there are a variety of ways (methods), tools, and materials that can be used for joining materials together some ways, tools, and materials for joining materials may be better than others when building an object for a specific purpose different materials and designs can be used to build objects for the same purpose a procedure outlines steps needed to complete a task the order of steps can be important when completing a task materials and tools need to be used safely during procedures materials from nature have been respectfully used by First Nations, Métis, and Inuit communities to create objects for a variety of purposes 	<ul style="list-style-type: none"> the shape of an object affects how easily it moves an object that is round can be moved more easily than an object with flat sides wheels are round objects and need an axle in order to work together to move a load designs can be modified for different purposes and situations a force is a push or a pull forces that push and pull can change the direction and speed of objects stronger forces that push or pull have a greater effect on the motion of objects than weaker forces different surfaces can require different strengths of forces to move an object sequencing is important when accomplishing a task that requires multiple steps materials, objects, and tools need to be used safely during construction of a device that moves a load First Nations, Métis, and Inuit use technology in a variety of ways to haul loads 	<ul style="list-style-type: none"> structures in the community are built to withstand forces, including wind, load, and vibration forces are acting on a structure even if it is not moving structures can fail when forces are strong enough First Nations, Métis, and Inuit have built traditional structures to withstand a variety of forces the design of a structure needs to consider shape, purpose, strength, and stability purpose, strength, stability, and the amount of material used need to be considered when selecting suitable materials to build a structure the methods, tools, and materials best suited for joining materials together will affect both strength and stability broadening the base of a structure increases stability changing the position of heavier parts of a structure affects stability creativity can help generate new ideas a variety of ideas helps to identify possible ways to design and implement a plan research can be helpful in designing a structure testing materials and trying out different joining methods are important steps in building a structure that is strong and stable some materials and construction activities present safety risks materials, objects, and tools need to be used safely during construction and testing of a structure 	<ul style="list-style-type: none"> simple machines are used to reduce the effort needed to lift or move objects examples of simple machines include scissors, staplers, can openers, hammers, screwdrivers, stairs, rolling pins, and pulleys on blinds simple machines are used to change the direction or strength of a force there are six basic types of simple machines: wheel and axle, pulley, lever, inclined plane, wedge, and screw devices that use simple machines can be designed, built, or modified to perform a task objects can be moved using contact and non-contact forces contact forces include push and pull from direct contact non-contact forces include gravity and magnetism research can be helpful in designing a device to lift or move objects design involves an iterative process of testing and refining a complex machine is a device made up of two or more simple machines working together materials, objects, and tools need to be used safely during construction and testing of a device First Nations, Métis, and Inuit use devices, simple machines, and tools for a variety of tasks

Science DRAFT Kindergarten to Grade 4 Curriculum

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Procedural Knowledge	<ul style="list-style-type: none"> experiment with a variety of materials to create an object describe the order of steps to create an object from everyday materials describe what has been built and how it might be used demonstrate ways that materials can be reused integrate new vocabulary related to science investigations of objects and materials follow simple guided procedures for the safe and appropriate use of materials, objects, and simple tools practise safe and appropriate use of everyday materials, objects, and simple tools explore First Nations, Métis, and Inuit teachings about living in harmony with nature 	<ul style="list-style-type: none"> experiment with a variety of materials to create an object for a specific purpose describe the order of steps to create an object for a specific purpose compare objects of similar purpose in terms of design and materials identify possible improvements to the design or process used access new vocabulary to describe how an object can be created for a specific purpose practise safe and appropriate use of materials, objects, and simple tools 	<ul style="list-style-type: none"> generate ideas using background knowledge to achieve a goal design and construct a device for carrying a load using a variety of materials investigate ways in which a wheeled device could be used to help move a load apply problem solving when troubleshooting and refining the design explore ways to adapt the moving device for different purposes and situations represent the forces that push and pull using diagrams or other illustrations describe how things move as a result of a force being applied test different strengths of force on a device and infer how the strength of force impacts the motion predict how the application of a given force will move the constructed device measure the resulting distance travelled by a constructed object when forces of different strengths are applied to it use appropriate science vocabulary in oral, written, and graphic communications practise safe and appropriate use of materials, objects, and tools during construction and use of a device designed to move a load 	<ul style="list-style-type: none"> outline a plan with multiple steps that follow a logical order design a structure for a purpose while considering predetermined criteria propose alternative solutions as part of the development of problem-solving skills select materials that best suit the purpose and design of the structure modify the design of the structure to increase stability relate forces to effects on structures refine the design to improve a structure's ability to withstand forces modify the structure according to predetermined criteria in order to improve the design evaluate the design of the structure according to predetermined criteria use appropriate science vocabulary when communicating about design, stability, and strength test materials and try out different joining methods in building a structure that is strong and stable practise safe and appropriate use of a variety of materials, objects, and tools during the construction of a structure 	<ul style="list-style-type: none"> explore how simple and complex machines are used in everyday life gather information from a variety of sources to inform the construction of a simple device apply the benefits of a simple machine to the design of a device describe the six basic types of simple machines using new vocabulary explain how simple machines work to reduce the effort needed to lift or move objects propose criteria for assessing the effectiveness of the created device refine the design of the device to improve ability to lift or move objects use appropriate science vocabulary when communicating about simple machines practise safe and appropriate use of a variety of materials, objects, and tools when building and testing a device
Competencies	<ul style="list-style-type: none"> Creativity and Innovation Managing Information 	<ul style="list-style-type: none"> Creativity and Innovation Critical Thinking 	<ul style="list-style-type: none"> Creativity and Innovation Problem Solving 	<ul style="list-style-type: none"> Creativity and Innovation Problem Solving 	<ul style="list-style-type: none"> Creativity and Innovation Problem Solving
Literacy	<ul style="list-style-type: none"> Access Vocabulary Comprehension Strategies Clarity 	<ul style="list-style-type: none"> Vocabulary Comprehension Strategies Clarity 	<ul style="list-style-type: none"> Background Knowledge Vocabulary Comprehension Strategies Clarity Modes and Media 	<ul style="list-style-type: none"> Vocabulary Comprehension Strategies Clarity 	<ul style="list-style-type: none"> Access Vocabulary Clarity
Numeracy	<ul style="list-style-type: none"> Task Analysis Spatial Visualization Time Strategies Methods or Tools 	<ul style="list-style-type: none"> Task Analysis Using Numbers Spatial Visualization Strategies Methods or Tools 	<ul style="list-style-type: none"> Task Analysis Patterns and Relationships Collection of Data Spatial Visualization Measurement Interpretation and Representation of Spatial Information Communication Strategies Methods or Tools 	<ul style="list-style-type: none"> Personal Insight Task Analysis Spatial Visualization Communication Strategies Methods or Tools 	<ul style="list-style-type: none"> Task Analysis Spatial Visualization Communication Strategies Methods or Tools

Science DRAFT Kindergarten to Grade 4 Curriculum

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Essential Understanding	Exploring connections strengthens our understandings of relationships to help us make meaning of the world.				
Guiding Questions <i>STSE</i>	What are our connections to nature?	What is the relationship between our personal actions and the environment?	What is the connection between science and environmental protection?	How can connections among science, technology, and the environment contribute to our conservation efforts?	How can connections among science, society, and the environment contribute to our stewardship efforts?
Learning Outcomes	Children explore nature and describe personal connections to it.	Students describe the relationship between personal actions and the environment.	Students make connections between science and environmental protection.	Students examine ways that personal and community actions can support water conservation.	Students investigate community actions that support stewardship of the land.
Conceptual Knowledge	<ul style="list-style-type: none"> • food, water, and clean air found in nature help to meet basic needs of many living things • fruits, vegetables, and nuts are kinds of foods that are grown on farms, in gardens, and in wilderness areas • water is found in rivers, lakes, ponds, and oceans • there is a source of water in the community • plants help to keep air and water clean • spending time outdoors with nature can be enjoyable • nature can be enjoyed indoors when caring for plants or small animals • nature needs to be treated with care and respect • safety is an important part of exploring nature 	<ul style="list-style-type: none"> • science knowledge helps inform how personal actions can have an effect on the environment • caring for nature includes being responsible for placing garbage in proper containers • reusable cloth bags help to cut down on the number of plastic bags that go to the landfill • recycling cans, plastic bottles, milk containers, and juice boxes allows these items to be made into new things, keeping them out of the landfill • some garbage can be recycled through composting • walking and cycling are ways of travelling through the community that allow for time outdoors while reducing car exhaust (air pollution) • safety is an important part of recycling and composting 	<ul style="list-style-type: none"> • scientists observe and study plants and animals to learn more about how living and non-living things interact in different environments • national and provincial parks were created as safe spaces for plants and animals to live in their natural habitats • national and provincial parks allow people to respectfully explore, learn about, and enjoy Canada’s natural spaces • scientists monitor environments in a variety of areas, including national and provincial parks, to understand changes resulting from natural causes and human activity • natural spaces in the local community can be studied through observation and scientific investigations in ways similar to how national and provincial parks are studied • the study of natural spaces in the local community can provide insights into how to keep the spaces clean and healthy • safety is an important aspect of exploring natural spaces • First Nations, Métis, and Inuit traditional knowledge considers all things on Earth as being connected and as having equal importance 	<ul style="list-style-type: none"> • water is one of Earth’s most important natural resources • all living things need water to survive • water conservation involves using less water or recycling used water • scientists have developed simple technologies to help save water at home • disposing of dangerous liquids, such as chemicals, motor oil, cleaners, paint, and medicines (hazardous or toxic waste), into indoor or outdoor drains can pollute water • dangerous liquids, such as chemicals, motor oil, cleaners, paint, and medicines (hazardous or toxic waste), that are disposed of on the ground can pollute groundwater • many communities have eco-stations that accept chemicals, motor oil, cleaners, paint, and medicines for safe and environmentally friendly disposal • safety is an important part of handling dangerous materials 	<ul style="list-style-type: none"> • stewardship of the land includes taking care of the quality of soil • topsoil holds most of the nutrients needed for healthy growth of crops and other plants • soil erosion occurs when the topsoil is removed and transported, thereby reducing the quality of the soil • most soil erosion happens through flow of water and by wind blowing over dry soil • soil that is made up of smaller particles is more easily eroded • eroded soil that is carried to water sinks and becomes sediment that can leave water muddy and affect water quality • soil erosion by water is often greater on sloped ground than on flat ground • root systems of trees and other plants help to reduce soil erosion because they work to keep soil moist and in place • soil contamination happens when chemicals get into the soil from industrial activity, fertilization, and improper waste disposal • soil conservation involves reducing soil erosion, soil contamination, and overuse • windbreakers, crop rotation, and cover crops help reduce erosion and maintain soil quality • people can support soil conservation by using biodegradable products, avoiding the use of pesticides, and by storing and disposing of liquid chemicals in safe and environmentally friendly ways • composting biodegradable material and mixing it with soil is an environmentally friendly way to support soil quality • safety is an important part of soil conservation

Science DRAFT Kindergarten to Grade 4 Curriculum

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Procedural Knowledge	<ul style="list-style-type: none"> collect information from a variety of sources about how food, water, and clean air are found in nature, meeting basic needs investigate sources of food within the community responsibly and safely investigate the community's source of water responsibly and safely demonstrate care and respect for living things by tending to the needs of plants within the classroom express personal connections to nature through words or illustrations integrate new vocabulary related to personal connections to nature science investigations 	<ul style="list-style-type: none"> collect information about local ways to recycle and compost collect information about the local landfill program explain how personal actions can affect nature develop a personal plan to be more environmentally friendly, including planning for safe and responsible actions access new vocabulary to describe how personal actions can affect the environment practise safe and appropriate use of simple technologies, including composters discuss First Nations, Métis, or Inuit teachings about living in harmony with nature 	<ul style="list-style-type: none"> gather information about national and provincial parks and how they serve to protect wildlife and plants gather information about how national and provincial parks provide opportunities for scientific study and enjoyment investigate natural spaces in the local community propose questions that could be investigated in local natural areas record observations of living and non-living things in local natural spaces with minimal disruption represent ideas about maintaining or improving the cleanliness and health of local natural spaces through illustrations, diagrams, or models use appropriate science vocabulary in oral, written, and graphic communications practise safe and appropriate use of digital and non-digital tools, including still-image and video-recording and magnifying devices describe the ways that First Nations, Métis, and Inuit respect and care for plants and animals as part of community 	<ul style="list-style-type: none"> gather information from a variety of sources to investigate eco-stations or other local solutions to safe disposal of dangerous liquids describe the role of technology in water conservation at home and in the community evaluate personal use of water at home or at school develop a personal plan to conserve water at home or at school use appropriate science vocabulary when communicating about water conservation practise safe and appropriate use of non-digital tools, including technologies used to support water conservation identify key teachings about the importance of water conservation from First Nations, Métis, or Inuit stories 	<ul style="list-style-type: none"> investigate local soil conservation activities gather information from a variety of sources to investigate soil conservation relate soil quality to healthy growth of crops and other plants investigate ways composting improves soil quality use appropriate science vocabulary when communicating about soil conservation explain ways to help prevent soil loss and maintain soil quality through oral communication or through visual representations describe possible consequences of soil contamination practise safe and appropriate use of digital and non-digital tools, including digital applications and still-image, video-recording, and magnifying devices consider First Nations, Métis, or Inuit stories or teachings that reflect stewardship of the land
Competencies	<ul style="list-style-type: none"> Managing Information Communication 	<ul style="list-style-type: none"> Managing Information Cultural and Global Citizenship 	<ul style="list-style-type: none"> Managing Information Cultural and Global Citizenship 	<ul style="list-style-type: none"> Managing Information Cultural and Global Citizenship 	<ul style="list-style-type: none"> Cultural and Global Citizenship Managing Information
Literacy	<ul style="list-style-type: none"> Access Background Knowledge Clarity 	<ul style="list-style-type: none"> Access Vocabulary Clarity Intent 	<ul style="list-style-type: none"> Develop Questions Access Vocabulary Comprehension Strategies Clarity Modes and Media 	<ul style="list-style-type: none"> Access Vocabulary Comprehension Strategies Clarity Intent 	<ul style="list-style-type: none"> Access Vocabulary Comprehension Strategies Clarity
Numeracy	<ul style="list-style-type: none"> None Identified 	<ul style="list-style-type: none"> None Identified 	<ul style="list-style-type: none"> Methods or Tools 	<ul style="list-style-type: none"> Methods or Tools 	<ul style="list-style-type: none"> Methods or Tools