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| **Science- Kindergarten (Unifying Concept – Patterns)** | | | | |
| Big Ideas: | | Questions to support inquiry with students: (NOT MANDATED) | | |
| Plants and animals have observable features. | | * + How do the different features of plants and animals help them meet their basic needs?   + What basic needs do plants and animals have in common?   + What are your basic needs? | | |
| Humans interact with matter every day through familiar materials. | | * + What is matter?   + How do you interact with matter?   + What qualities do different forms of matter have? | | |
| The motion of objects depends on their properties**.** | | * + How can you make objects move?   + How does the shape or size of an object effect the object’s movement?   + How does the material the object is made of effect the object’s movement? | | |
| Daily and seasonal changes affect all life. | | * + What daily and seasonal changes can you see or feel?   + How are plants and animals affected by daily and seasonal changes? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATED) | | Content: | Elaborations: (NOT MANDATED) |
| **Questioning and predicting**   * Demonstrate curiosity and a sense of wonder about the world * Observe objects and events in familiar contexts * Ask simple questions about familiar objects and events   **Planning and conducting**   * Make exploratory observations using their senses * Safely manipulate materials * Make simple measurements using non-standard units   **Processing and analyzing data and information**   * Discuss observations * Represent observations and ideas by drawing * Experience and interpret the local environment   **Applying and innovating**   * Take part in caring for self, family, classroom and school through personal approaches * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving   **Communicating**   * Share observations and ideas orally * Express and reflect on personal and experiences of **place**. | Patterns are natural configurations, designs, arrangements or sequences.  Many patterns indicate an underlying scientific principle or unifying idea. Scientists identify patterns and look for relationships behind the patterns they find.  They use this information to extend their understanding  Key questions about patterns:   * What patterns do you see in plant life in your local environment? * What weather patterns can you observe?     Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity   * Key questions about place:   + What is place?   + What are some ways in which people experience place?   + How can you gain a sense of place in your local environment?   + How can you share your observations and ideas about living things in your local environment to help someone else learn about place? | | *Students are expected to know the following:*   * **Basic needs** of plants and animals * Features of local **plants** and **animals** that help them meet their basic needs * Aboriginal peoples’ uses of indigenous plants and animals      * **Properties** of **familiar materials** * **Effects of pushes/pulls on movement** * Effects of size, shape, and materials on movement * **Weather** changes * **Seasonal changes**      * **Living things change to accommodate daily and seasonal cycles** | * Include habitat — food, water, shelter, and space * Plants: features include roots, stems, leaves, flowers, seeds * Animals: features include shape, size, feet, teeth, body covering, eyes, ears * Oral history with Elder — plant and animal use (e.g., local berries or food, plants and animals, conservation of resources)      * Properties: Colour, texture (smooth or rough), flexibility (bendable or stretchable), hardness, lustre (shiny or dull), absorbency, etc. * Materials: fabric, wood, plastic, glass, metal/foil, sand, etc. * How things move (e.g., bounce, roll, slide) * Temperature: cold, hot, cool, warm * Cloud cover: clear, cloudy, partly cloudy, foggy * Precipitation: rain, snow, hail, freezing rain * Wind: calm, breezy, windy * Seasons: spring, summer, fall, winter * Plant life cycle * Living things may make physical and behavioural changes to survive in different conditions (e.g., migration, hibernation) |

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| **Science- Grade 1 (Unifying Concept- form and function)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| Living things have features and behaviours that help them survive in their environment. | | * How do local plants and animals depend on their environment? * How do plants and animals use their features to respond to stimuli in their environments? * How do plants and animals adapt when their basic needs are not being met? | | |
| Matter is useful because of its properties. | | * What makes the properties of matter useful? * How do the properties of materials help connect to the function of materials? | | |
| Light and sound can be produced and their properties can be changed. | | * How can you explore the properties of light and sound? * What discoveries did you make? | | |
| Observable patterns and cycles occur in the local sky and landscape. | | * What kinds of patterns in the sky and landscape are you aware of? * How do patterns and cycles in the sky and landscape affect living things? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATED) | | Content: | Elaborations: (NOT MANDATED) |
| **Questioning and predicting**   * Demonstrate curiosity and a sense of wonder about the world * Observe objects and events in familiar contexts * Ask questions about familiar objects and events * Make simple predictions about known objects and events   **Planning and conducting**   * Make and record observations * Safely manipulate materials to test ideas and predictions * Make and record simple measurements using informal or non-standard methods   **Processing and analyzing data and information**   * Experience and interpret the local environment * Sort and classify data and information using methods such as drawings or provided tables * Compare observations with predictions through discussion * Identify simple patterns and connections   **Evaluating**   * Compare observations with others * Consider some consequences of their actions on the environment   **Applying and innovating**   * Take part in caring for self, family, classroom and school through personal approaches * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving   **Communicating**   * Communicate observations and ideas using oral or written language, drawing, or role play * Express and reflect on personal experiences of **place.** | Questioning and Predicting:  Form and function: Form and function refers to something being designed, structured or shaped in a way that will help it perform a certain function or functions. For example, the fins of fish help them propel themselves through the water. The human skeleton provides protection for organs, and support for muscles, and allows people to stand upright. Science recognizes this important relationship between form and function.  Key questions about form and function:   * What structural features of plants and animals in your local environment help those plants and animals to function well? * How do the properties of natural materials (e.g., wood) help determine useful functions for the materials?   **Place** is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.   * Key questions about place:   + What is place?   + What are some ways in which people experience place?   + How can you gain a sense of place in your local environment?   + How can you share your observations and ideas about living things in your local environment to help someone else learn about place? | | * The **classification** of living things * **Structural features** of living things in the local environment * **Behavioural adaptations** of animals in their area      * **Specific properties** of materials connect to the function of the materials * **Natural and artificial sources of light** **and sound** * **Properties of light** and **sound** depend on their source and the objects they interact with * **Common objects in the sky** * **Aboriginal knowledge of the sky and landscape** * **Local patterns** of events that occur on the Earth and in the sky | * Plants or animals, living or non-living * Structural features: Stems, roots, leaves, skeleton or no skeleton or exoskeleton, lots of legs, few legs, eyes, etc. * Hibernation, nesting, migration, catching food, camouflage (stick bugs), mimicry (fly that looks like bee), territorialism (squirrels fighting) * Solids keep shape; liquids and gases flow * Properties of local materials determine use by Aboriginal people (local examples: cedar for canoes, mountain goat horns used as spoons) * Natural light (sun), artificial light (light bulbs), natural sound (crickets), artificial sound (car horns) * **Properties of light:**    + E.g. brightness, colour   + Objects are made visible by radiating their own light or being illuminated by reflected light   + Interactions of light with different objects create images and shadows   + Light interactions- can make plants grow, make shadows or cause sunburn depending on the source and location (seasons depend on light from the sun and how spread out the sun’s rays are)   + Plants grow towards light * **Properties of sound**   + E.g. pitch, tone, volume * Ways of making, recording, and transmitting sound * Common objects in the sky:   + the appearance of the Moon and stars at night   + sunrise/set, moon rise/set   + the sun and the moon are important in different cultures, with respect to customs and traditions   + oral history with Elder explaining origins and local stories related to big ideas * Local patterns: the relationship of local weather to the four seasons in terms of temperature, cloud cover, precipitation and wind |

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| **Science- Grade 2 (Unifying Concept – Cycles)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| All living things have a life cycle. | | * Why are life cycles important? * How are the life cycles of local plants and animals similar and different? | | |
| Materials can be changed through physical and chemical processes. | |  | | |
| Forces influence the motion of an object. | |  | | |
| Water is essential to all life and cycles through the environment. | | * Why is water important for all living things? * How does water cycle through the environment? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATED) | | Content: | Elaborations: (NOT MANDATED) |
| **Questioning and predicting**   * Demonstrate curiosity and a sense of wonder about the world * Observe objects and events in familiar contexts * Ask questions about familiar objects and events * Make simple predictions about known objects and events   **Planning and conducting**   * Make and record observations * Safely manipulate materials to test ideas and predictions * Make and record simple measurements using informal or non-standard methods   **Processing and analyzing data and information**   * Experience and interpret the local environment * Sort and classify data and information using methods such as drawings or provided tables * Compare observations with predictions through discussion * Identify simple patterns and connections   **Evaluating**   * Compare observations with others * Consider some consequences of their actions on the environment   **Applying and innovating**  **Communicating**   * Communicate observations and ideas using oral or written language, drawing, or role play * Express and reflect on personal experiences of **place.** | Cycles are sequences or series of events that repeat/reoccur over time.  A subset of pattern, cycles are looping or circular (cyclical) in nature. Cycles help scientists make predictions and hypotheses about the cyclical nature of the observable patterns.   * Key questions about cycles: * How do First Peoples use their knowledge of life cycles to ensure sustainability in their local environments? * How does the water cycle impact weather?   **Place** is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.   * Key questions about place:   + What is place?   + What are some ways in which people experience place?   + How can you gain a sense of place in your local environment?   + How can you share your observations and ideas about living things in your local environment to help someone else learn about place? | | * **Metamorphic** and **non-metamorphic** life cycles of different organisms * Differences and similarities between **offspring and parent** * **Aboriginal ecological knowledge of life cycles**      * **Physical ways of changing materials** * **Chemical ways of changing materials** * Types of forces * **Local water sources** * Water is a limited resource * The water cycle | * **M**etamorphic life cycles: body structure changes (e.g., caterpillar to butterfly, mealworm transformation, tadpoles to frog) * **N**on-metamorphic life cycles: organism keeps same body structure through life but size changes (e.g., humans) * Offspring and parent: A kitten looks like cat and a puppy looks like dog but they do change as they grow; salmon change a great deal as they grow and need fresh and salt water environments to survive * Sustainable fish hatchery programs often run by local First Peoples * Stewardship: sustainably gathering plants and hunting/fishing in response to seasons and animal migration patterns * Physical ways of changing materials: Warming, cooling, cutting, bending, stirring, mixing * Materials may be combined or physically changed to be used in different ways ( e.g. plants can be ground up and combined with other materials to make dyes) * Chemical ways of changing materials: Cooking, burning * Contact forces and at-a-distance forces: * different types of magnets * static electricity * Balanced and unbalanced forces: * the way different objects fall depending on their shape (air resistance) * the way objects move over/in different materials (water, air, ice, snow) * the motion caused by different strengths of forces   Local water sources:   * Oceans, lakes, rivers, wells, springs * The majority of fresh water is stored underground and in glaciers * fresh water is not being replaced at the same rate as it is being used * the water cycle is driven by the sun and includes evaporation, condensation, precipitation, run off * the water cycle is a major component of weather (e.g. precipitation, clouds) |

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| **Science- Grade 3 (Unifying concept: cause and effect)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| Living things are diverse, can be grouped, and interact in their ecosystem. | | * + What is biodiversity?   + What is the relationship between observable characteristics of living things and biodiversity?   + How does Aboriginal knowledge of living things honour interconnectedness? | | |
| All matter is made of particles. | | * + Why is matter known as the material of the universe?   + What is an atom? What are its parts? | | |
| Thermal energy can be produced and transferred. | | * + What are the sources of thermal energy?   + How is thermal energy transferred between objects? | | |
| Wind, water and ice change the shape of the land. | | * + How is the shape of the land changed by environmental factors?   + What are landforms?   + What landforms do you have in your local area? | | |
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| Curricular Competencies: | Elaborations: | | Content: | Elaborations: |
| **Questioning and predicting**   * Demonstrate curiosity about the natural world * Observe objects and events in familiar contexts * Identify questions about familiar objects and events that can be investigated scientifically * Make predictions based on prior knowledge   **Planning and conducting**   * Suggest ways to plan and conduct an inquiry to find answers to their questions * Consider ethical responsibilities when deciding how to conduct an experiment * Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate * Make observations about living and non-living things in the local environment * Collect simple data   **Processing and analyzing data and information**   * Experience and interpret the local environment. * Sort and classify data and information using methods such as drawings or provided tables * Use methods such as tables and simple bar graphs to represent data and show simple patterns and trends * Compare results with predictions, suggesting possible reasons for findings   **Evaluating**   * Make simple inferences based on their results and prior knowledge * Reflect on whether an investigation was a fair test * Demonstrate an understanding and appreciation of evidence * Identify some simple implications of their and others’ actions on the environment   **Applying and innovating**   * Contribute to care for self, others, school, and neighbourhood through personal or collaborative approaches * Co-operatively design projects * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving   **Communicating**   * Represent and communicate ideas and findings in a variety of ways such as diagrams and simple reports, using digital technologies as appropriate * Express and reflect on personal or shared experiences of place. | Cause and effect is the basic principle that an action will result in a consequence. In science, this concept is closely related to the concepts of pattern and change. However, cause and effect may or may not have a predictable outcome   * Key questions about cause and effect: * What are some causes of biodiversity in BC’s wetlands? * What is the effect of wind on mountains?     Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.   * Key questions about place: * How does what you know about place affect your observations, questions, and predictions? * How does understanding place help you analyze information and recognize connections and relationships in your local environment? * How does place connect with stewardship? * How can you be a steward in your local environment? | | * Biodiversity in the local environment * Aboriginal knowledge of ecosystems * Energy is needed for life * atoms or molecules as particles of matter * the **properties of materials** are related to the particles they consist of      * + **Sources of thermal energy**   + **Ways of transferring thermal energy** * major **landforms** in their area * erosion and deposition by wind, water, and ice cause observable changes in the local environment | * Biodiversity is the variety of different types of living things in an ecosystem * Characteristics of **plants, animals, and fungi** * The interconnection between living and non-living things in the environment * Populations: All the members of the same type of living thing (species) in an area. * Communities: Different populations in an area living together. * Energy is needed for life: Producers (plants), consumers (animals), decomposers (bacteria and fungi) respond to their environment in energy pyramids (energy flow from the sun in the community. * Food chains: The flow of food energy from one organism to another (grass to rabbit to lynx) * Food webs: Interconnecting food chains (a rabbit may be eaten by a lynx or a wolf) * Atoms are the building block of matter * (e.g., density, viscosity, buoyancy, electrical conductivity) are related to the particles that make up the materials * Sources of thermal energy: thermal energy is be produced by chemical reactions (eg/ hand warmers), friction between moving objects, the sun * Thermal energy can be transferred by   + conduction (touching, hold an ice cube)   + convection (current, why do we hang mittens over a heat source) and   + radiation (through space by a wave, heat from the sun)   + Thermal energy transfer causes weather * Landforms: mountains, hills, plateaus, valleys, riverbeds, deltas, glaciers, etc. |

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| **Science- Grade 4 (Unifying concept: Order)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| All living things and their environment are interdependent. | | * How do living things sense, respond, and adapt to stimuli in their environment? * What evidence is there of interdependence between living and non-living things in ecosystems? | | |
| Matter has mass, takes up space, and can change phase. | | * How can you explore the phases of matter? * How does matter change phases? * How does heating and cooling affect phase changes? | | |
| Energy comes in a variety of forms that can be transferred from one object to another. | | * What is energy input and energy output? * What is energy conservation? * What is the relationship between energy input, output, and conservation? | | |
| The motion of the Earth and moon cause observable patterns that affect living and non-living systems. | | * How do seasons and tides affect living and non-living things? * What changes are caused by the movements of Earth and the moon? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATED) | | Content: | Elaborations: (NOT MANDATED) |
| **Questioning and predicting**   * Demonstrate curiosity about the natural world * Observe objects and events in familiar contexts * Identify questions about familiar objects and events that can be investigated scientifically * Make predictions based on prior knowledge   **Planning and conducting**   * Suggest ways to plan and conduct an inquiry to find answers to their questions * Consider ethical responsibilities when deciding how to conduct an experiment * Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate * Collect simple data   **Processing and analyzing data and information**   * Experience and interpret the local environment * Sort and classify data and information using methods such as drawings or provided tables * Use methods such as tables and simple bar graphs to represent data and show simple patterns and trends * Compare results with predictions, suggesting possible reasons for findings   **Evaluating**   * Make simple inferences based on their results and prior knowledge * Reflect on whether an investigation was a fair test * Demonstrate an understanding and appreciation of evidence * Identify some simple implications of their and others’ actions on the environment   **Applying and innovating**   * Contribute to care for self, others, school, and neighbourhood through individual or collaborative approaches * Co-operatively design projects * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving   **Communicating**   * Oral narrative * Represent and communicate ideas and findings in a variety of ways such as diagrams and simple reports, using digital technologies as appropriate | Order is a pattern that can be recognized as having levels—big to small, simple to complex—or being a process with a sequence of steps.   * Key questions about order: * How is order apparent in the adaptations of forest animals in BC? * How does the order of seasons impact local plants and animals?   **Place** is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.   * Key questions about place:   + What is place?   + What are some ways in which people experience place?   + How can you gain a sense of place in your local environment?   How can you share your observations and ideas about living things in your local environment to help someone else learn about place? | | * The **ways organisms sense** and respond to their environment * **Solids, liquids, and gases as matter** * the effect of temperature on pressure in a gas * **energy has various forms and is conserved** * **devices that transform energy** * **Earth’s axis, rotation and orbit cause changes locally** * Features of **biomes** * **The relationship between the Earth and the moon** | * The structures and functions of the body parts associated with each of the five senses * Environmental interdependence and adaptation: * structural (e.g., how plants adapt in the desert) and behavioural adaptations (e.g., migration) * responses to changes in habitat (e.g., ecosystem, watershed) * Aboriginal worldview with respect to the environment (e.g., the interconnectedness of all things and the responsibility to care for them) * solids, liquids, and gases change with heating (e.g., boiling point, melting point [melting chocolate]) and cooling (e.g., freezing point [making ice cream]), and these physical changes are reversible * 10 forms of energy: light, sound, thermal, elastic, nuclear, chemical, magnetic, mechanical, gravitational and electrical * The law of conservation of energy: energy cannot be created or destroyed but can be changed * Devices that transform energy: devices can change input energy into a different output energy (e.g. glow sticks (chemical to light), wind-up toy (elastic to mechanical), flashlight (electrical to light) * Earth’s axis, rotation and orbit cause changes locally: * Day and night: Animals are nocturnal (active at night) and diurnal (active during day) * Annual seasons: Plants and animals respond to the seasons (drop leaves, change colour) * Phases of the moon, tides, etc. * Tides affect living organisms * Biomes: * Biomes are regions grouped by similar temperature and precipitation (e.g. climate: long term weather patterns) * Terrestrial and aquatic/marine * Local Aboriginal teachings and stories about the Sun and the Moon |

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| **Science- Grade 5 (Unifying concept: systems)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| Multi-cellular organisms have organ systems that enable them to survive and interact within their environment. | | * + How do organ systems interact with one another?   + How do organ systems interact with their environment to meet basic needs? | | |
| Solutions are homogeneous mixtures. | | * + What are homogeneous solutions?   + What are their uses? | | |
| Machines are devices that transfer force and energy. | | * + How do machines (natural and human-made) transfer force and energy?   + What natural machines can you identify in your local environment? | | |
| Human use earth materials as natural resources. | | * + How do we interact with water, rocks, minerals, soils, and plants?   + Why is Earth considered a closed material system? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATED) | | Content: | Elaborations: (NOT MANDATED) |
| *Students are expected to be able to do the following:*  **Questioning and predicting**   * Demonstrate a sustained curiosity about a scientific topic or problem of personal interest * Make observations in familiar or unfamiliar contexts * Identify questions to answer or problems to solve through scientific inquiry * Make predictions about what the findings of their inquiry will be   **Planning and conducting**   * Explore and pose questions that lead to investigations * With support, plan appropriate investigations to answer their questions or solve problems they have identified * Decide which variable should be changed and measured for a fair test * Choose appropriate data to collect to answer their question * Observe, measure, and record data, using appropriate tools, including digital technologies * Use equipment and materials safely, identifying potential risks   **Processing and analyzing data and information**   * Experience and interpret the local environment * Construct and use a variety of methods, including tables, graphs, and digital technologies as appropriate, to represent patterns or relationships in data * Identify patterns and connections in data * Compare data with predictions and develop explanations for results * Demonstrate an openness to new ideas and a consideration of alternatives   **Evaluating**   * Evaluate whether their investigations were fair tests * Identify possible sources of error * Suggest improvements to their investigation methods * Identify some of the assumptions and given information in secondary sources * Demonstrate an understanding and appreciation of evidence * Identify some of the social, ethical, and environmental implications of the findings from their own and others’ investigations   **Applying and innovating**   * Contribute to care for self, others, and community through personal or collaborative approaches * Co-operatively design projects * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving   **Communicating**   * Communicate ideas, explanations, and processes in a variety of ways * Express and reflect on personal, shared or others' experiences of place. | * **S**econdary sources of evidence could include anthropological accounts of First Peoples of BC, news media, archives, journals, etc. * Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.   Key questions about place:   * How does place influence your ability to plan and conduct an inquiry? * How does your understanding of place affect the ways in which you collect evidence and evaluate it? * How do the place-based experiences and stories of others affect the ways in which you communicate your findings and other information? * What does ways of knowing mean? * What are the connections between ways of knowing and place?   Ways of knowing: Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge. | | *Students are expected to know the following:*   * basic structures and functions of body systems * **digestive** * **excretory** * **respiratory** * **circulatory** * **solutions** **and** **solubility** * the properties of **simple machines** determine their **force effects** * machines can be **constructed** as well as found in **nature** * **power** is the rate at which energy is transformed * **types of earth materials** in the local area * **the rock cycl*e*** * **Aboriginal concept of interconnectedness** * the nature of **sustainable practices** around **BC’s living and non-living resources** | * Digestive: mouth, stomach, intestines, etc. * Excretory: urinary * Respiratory: lungs * Circulatory: heart, blood, blood vessels * Solutions and solubility:   + Homogeneous: uniform solution (e.g. apple juice, coffee); Separation of solutions: distillation, evaporation, crystallization   + Solubility of solids, liquids, and gases: salt (solid), honey (liquid), Carbon dioxide (gas in water makes pop)   + Properties: concentration, pH   + Dissolving: process of forming a solution * Simple machines: levers, wedge, inclined plane, wheel and axle, pulley, and screw * Force effects: Force effects include changing direction and multiplying force. * Constructed: combinations of simple machines form complex machines * The lever is the basis of nearly every aspect of the musculoskeletal system * Power is the rate at which energy is transformed: e.g. students racing up a hill, machine power ratings, motors, etc. * Types of earth materials: recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand ,soil) * The rock cycle: understanding the rock cycle including mineral formation * Aboriginal concept of interconnectedness: everything is one/connected * BC’s living and non-living resources: Living resources include forests, fish, agriculture, etc. Non-living resources include water, minerals, fossil fuels, etc. * Nature of sustainability: * Different scientific perspectives and world view interpretations of sustainability (e.g. Is resource extraction/harvesting sustainable? Can anything be sustainable?) * sustainable resource use; renewable and non-renewable resources |

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| **Science- Grade 6 (unifying concept: change)** | | | | |
| Big Ideas: | | Questions to support inquiry with students (NOT MANDATED) | | |
| Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment. | | * + How are internal systems necessary for survival?   + What do your body systems require for survival?   + How do your body systems interact with one another? | | |
| Everyday materials are often homogeneous (solutions) and heterogeneous mixtures. | | * What is a heterogeneous mixture? * How does it compare to a homogeneous (solution) mixture? | | |
| Newton’s three laws of motion describe the relationship between force and motion. | | * + What is the difference between motion caused by balanced forces and motion caused by unbalanced forces?   + How are balanced and unbalanced forces evident in your life and activities? | | |
| The solar system is part of the Milky Way, which is one of billions of galaxies. | | * + What are the relationships between Earth and the rest of the universe?   + What is an extreme environment?   + What extreme environments exist on Earth or in our galaxy? | | |
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| Curricular Competencies: | Elaborations: (NOT MANDATORY) | | Content: | Elaborations: (NOT MANDATORY) |
| **Questioning and predicting**   * Demonstrate a sustained curiosity about a scientific topic or problem of personal interest * Make observations in familiar or unfamiliar contexts * Identify questions to answer or problems to solve through scientific inquiry * Make predictions about what the findings of their inquiry will be   **Planning and conducting**   * With support, plan appropriate investigations to answer their questions or solve problems they have identified * Decide which variable should be changed and measured for a fair test * Choose appropriate data (**qualitative** and/or **quantitative**) to collect to answer their question * Observe, measure, and record data, using appropriate tools, including digital technologies * Use equipment and materials safely, identifying potential risks   **Processing and analyzing data and information**   * Construct and use a variety of methods, including tables, graphs, and digital technologies as appropriate, to represent patterns or relationships in data * Identify patterns and connections in data * Compare data with predictions and develop explanations for results * Demonstrate an openness to new ideas and a consideration of alternatives   **Evaluating**   * Evaluate whether their investigations were fair tests * Identify possible sources of error * Suggest improvements to their investigation methods * Identify some of the assumptions and given information in secondary sources * Demonstrate an understanding and appreciation of evidence * Identify some of the social, ethical, and environmental implications of the findings from their own and others’ investigations   **Applying and innovating**   * Contribute to care for self, others, and community through personal or collaborative approaches * Co-operatively design projects * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving     **Communicating**   * Communicate ideas, explanations, and processes in a variety of ways * Express and reflect on personal, shared or others' experiences of place | Change is making the form, nature, content or future course of something different from what it is or what it would be if left alone.  For example, Newton’s third law, the idea that for every action there is an equal and opposite reaction describes the changes that occur in response to pushes and pulls.   * Key questions about change: * How has our solar system changed over time? * How has the exploration of extreme environments on Earth and in space changed in the last decade?   Ssecondary sources of evidence could include anthropological accounts of First Peoples of BC, news media, archives, journals, etc.  Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.  Key questions about place:   * How does place influence your ability to plan and conduct an inquiry? * How does your understanding of place affect the ways in which you collect evidence and evaluate it? * How do the place-based experiences and stories of others affect the ways in which you communicate your findings and other information? * What does ways of knowing mean? * What are the connections between ways of knowing and place?   Ways of knowing: Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge. | | * the basic structures and functions of body systems * **musculoskeletal** * **reproductive** * **hormonal** * **nervous** * **heterogeneous** mixtures * **mixtures are separated** using a difference in component properties * **Newton’s three laws of motion** * **effects of balanced and unbalanced forces** in **daily physical activities** * **Force of gravity** * the overall scale, structure, and age of the universe * the position, motion, and **components** of our solar system in our galaxy * **extreme environments** exist on Earth and in the Solar System | * Musculoskeletal: muscles and skeleton * Reproductive: ovaries, testes, etc. * Hormonal: chemical messengers in the body (e.g. insulin, adrenalin, etc.) * brain, spinal cord, etc.; role of receptors — the brain interprets the signals received and can make mistakes (e.g.; optical illusions) in those interpretations * Heterogeneous mixture: suspensions (salad dressing), emulsions (milk), colloid (aerosols) * mixtures are separated:   + separating using gravity (centrifuge or settling, silt deposits in a river delta, tailings ponds, Roman aqueduct settling sections)   + Separating using particle size (sieves, filters)   + Historical and current Aboriginal use of separation methods (e.g. eulachon oil) * Newton’s Laws: * The first law explains that objects will stay stopped or in constant motion until acted upon by an outside force. * The second law explains that only an unbalanced force causes acceleration. * The third law explains that every force has an equal and opposite reaction force. * Effects of balanced and unbalanced forces: Balanced forces are equal and opposite forces (eg/ sitting in a chair). Unbalanced forces are unequal; one force is larger (eg/ race cars on different ramps, mouse trap cars, rockets, etc.) * Examples in daily physical activities: School sports and physical education activities * Force of gravity: Gravity is the force of attraction between objects that pulls all objects towards each other. On Earth, gravity pulls objects towards the centre of the planet (eg/ falling objects, egg drop) * Extreme environments: * places with severely limiting factors (e.g., lack of light, lack of oxygen, extreme pressure, extreme radiation) * place-based Aboriginal perspectives * obstacles that are unique to exploration of a specific extreme environment (e.g., extreme heat or cold) * contributions of Canadians to exploration technologies (e.g., Canadarm, Newt Suit, VENUS and NEPTUNE programs) |