

## SCIENCE CONTINUUM OF BIG IDEAS (UNDERSTAND)

Big Ideas: UNDERSTAND											
	K Patterns	1 Form & Function	2 Cycles	3 Cause and Effect	4 Order	5 Systems	6 Change	7 Evolution	8 Matter & Energy	9 Interactions	10
<b>Biology</b>	Plants and animals have observable features.	Living things have features and behaviours that help them survive in their environment.	All living things have a life cycle.	Living things are diverse, can be grouped, and interact with their ecosystems.	All living things and their environment are inter-dependent.	Multicellular organisms have organ systems that enable them to survive and interact with their environment.	Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment.	The theory of evolution by natural selection provides an explanation for the diversity and survival of living things.	Cells are the basic unit of life.	Cells are derived from cells.	Genes are the foundation for the diversity of living things.
<b>Chemistry</b>	Humans interact with matter every day through familiar materials.	Matter is useful because of its properties.	Materials can be changes through physical and chemical processes.	All matter is made up of particles.	Matter has mass, takes up space, and can change phase.	Solutions are homogenous mixtures.	Everyday materials are often homogeneous (solutions) and heterogeneous mixtures.	Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined.	The kinetic molecular theory and the theory of the atom explain the behavior of matter.	The electron arrangement of atoms impacts their chemical nature.	Chemical processes require energy change as atoms are rearranged.
<b>Physics</b>	The motion of objects depends on their properties.	Light and sound can be produced and their properties can be changed.	Forces influence the motion of an object.	Thermal energy can be produced and transferred.	Energy comes in a variety of forms that can be transferred from one object to another.	Machines are devices that transfer force and energy.	Newton's three laws of motion describe the relationship between force and motion.	The electromagnetic force produces both electricity and magnetism.	Energy can be transferred s both a wave and a particle.	Electricity is the flow of electrons.	Energy is conserved, and its transformation can affect living things and the environment.
<b>Earth &amp; Space Science</b>	Daily and seasonal changes affect all living things.	Observable patterns and cycles occur in the local sky and landscape.	Water is essential to all living things, and it cycles through the environment.	Wind, water, and ice change the shape of the land.	The motion of Earth and the moon cause observable patterns that affect living and non-living systems.	Humans use earth materials as natural resources.	The solar system is part of the Milky Way, which is one of billions of galaxies.	Earth and its climate have changed over geological time.	The theory of plate tectonics is the unifying theory that explains Earth's geological processes.	The biosphere, geosphere, hydrosphere, and atmosphere are interconnected as matter cycles and energy flows through them.	The formation of the universe can be explained by the big bang theory.

## SCIENCE K-6 CURRICULAR COMPETENCY CONTINUUM

Core Competency	Curricular Competency	K	1-2	3-4	5-6		
<b>THINKING</b>	<b>Questioning &amp; Predicting</b>	I can demonstrate curiosity and a sense of wonder about the world.		I can demonstrate curiosity about the <b>natural world</b> .		I can demonstrate a <b>sustained curiosity</b> about a <b>scientific topic or problem of personal interest</b>	
		I can observe objects and events in familiar contexts.					I can make observations in <b>familiar or unfamiliar contexts</b>
		I can ask simple questions about familiar objects and events.	I can ask <b>questions</b> about familiar objects and events.		I can <b>identify questions about familiar objects and events that can be investigated scientifically</b> .		I can identify questions to answer or <b>problems to solve through scientific inquiry</b>
			I can make simple predictions about known objects and events.		I can make predictions <b>based on prior knowledge</b> .		I can make predictions <b>about what the findings of my inquiry will be</b> .
	<b>Planning &amp; Conducting</b>					I can <b>explore and pose questions</b> that lead to investigations I can <b>plan appropriate investigations</b> to answer my questions or solve problems I have identified. I can <b>decide which variable should be changed and measured</b> for a fair test.	
		I can make exploratory observations using their senses	I can <b>make and record observations</b> .		I can make observations about living and non-living things in the local environment		I can observe, measure, and record data, using appropriate tools, including digital technologies
		I can safely manipulate materials.	I can <b>safely manipulate materials</b> to test ideas and predictions.		I can safely <b>use appropriate tools to make observations and measurements</b> , using formal measurements and digital technology as appropriate.		I can use equipment and materials safely, <b>identifying potential risks</b> .
		I can make simple measurements using non-standard units.	I can <b>make and record simple measurements</b> using informal or non-standard methods.		I can <b>collect simple data</b> .		I can <b>choose appropriate data to collect to answer my question</b> .
	<b>Processing and Analyzing Data &amp; Information</b>	I can discuss observations.		I can <b>experience and interpret the local environment</b> .			
		I can represent observations and ideas <b>by drawing</b>	I can <b>sort and classify data and information</b> using methods such as <b>drawings or provided tables</b> .				I can <b>construct and use a variety of methods</b> , including tables, graphs, and digital technologies as appropriate, to represent patterns or relationships in data.
			I can identify <b>simple patterns and connections</b> .		I can use <b>tables and simple bar graphs to represent data</b> and show <b>simple patterns and trends</b> .		I can <b>identify patterns and connections</b> in data.
			I can compare observations <b>with predictions through discussion</b> .		I can <b>compare results with predictions</b> , suggesting <b>possible reasons</b> for findings.		I can compare data with predictions and <b>develop explanations for results</b> . I can demonstrate an <b>openness to new ideas</b> and a <b>consideration of alternatives</b> .

Core Competency	Curricular Competency	K	1-2	3-4	5-6	
THINKING (con't)	Evaluating		I can compare my observations with others.	I can evaluate whether my investigations were fair tests.		
					I can make inferences based on my results and prior knowledge.	I can identify <b>possible sources of error</b> .
					I can <b>suggest improvements to my investigation</b> methods.	
					I can <b>identify some of the assumptions and given information in secondary sources</b> .	
				I can demonstrate an understanding and appreciation of evidence.		
I can consider some consequences of my actions on the environment.	I can identify some <b>simple implications of my own and others'</b> actions on the environment.	I can identify some of the <b>social, ethical, and environmental implications</b> of the findings from my own and others' investigations.				
PERSONAL AND SOCIAL	Applying and innovating	I can take part in caring for self, family, classroom and school through personal approaches.		I can <b>contribute to care</b> for self, others, school, and neighbourhood through personal <b>or collaborative approaches</b> .	I can contribute to care for self, others, school, and neighbourhood through <b>individual</b> or collaborative approaches.	
		I can transfer and apply learning to new situations.				
		I can generate and introduce new or refined ideas when problem solving.				
			I can co-operatively design projects.			
COMMUNICATION	Communicating	I can share observations and ideas orally.	I can <b>communicate observations and ideas</b> using oral or <b>written language, drawing, or role play</b> .	I can <b>represent</b> and communicate ideas <b>and findings</b> in a variety of ways such as <b>diagrams and simple reports, using digital technologies as appropriate</b> .	I can communicate ideas, <b>explanations, and processes in a variety of ways</b> .	
			I can express and reflect on personal experiences of place.	I can express and reflect on personal <b>or shared</b> experiences of <b>place</b> .	I can express and reflect on personal, shared, <b>or others'</b> experiences of place	

## SCIENCE CONTINUUM OF CONTENT (KNOW)

	<b>K Patterns</b>	<b>1 Form &amp; Function</b>	<b>2 Cycles</b>	<b>3 Cause &amp; Effect</b>	<b>4 Order</b>	<b>5 Systems</b>	<b>6 Change</b>
<b>BIOLOGY</b>	<ul style="list-style-type: none"> <li>basic needs of plants and animals</li> <li>features of local plants and animals that help them meet their basic needs</li> <li>First Peoples' uses of plants and animals</li> <li>changes that living things make to accommodate daily and seasonal cycles</li> </ul>	<ul style="list-style-type: none"> <li>the classification of living or non-living things</li> <li>structural features of living things in the local environment</li> <li>behavioural adaptations of animals in the local environment</li> </ul>	<ul style="list-style-type: none"> <li>metamorphic and non-metamorphic life cycles of different organisms</li> <li>similarities and differences between offspring and parent</li> <li>Aboriginal knowledge of life cycles</li> </ul>	<ul style="list-style-type: none"> <li>biodiversity in the local environment</li> <li>Aboriginal knowledge of ecosystems</li> <li>energy - needed for life</li> </ul>	<ul style="list-style-type: none"> <li>the ways organisms in ecosystems sense and respond to their environment</li> </ul>	basic structures and functions of body systems: <ul style="list-style-type: none"> <li>digestive</li> <li>excretory</li> <li>respiratory</li> <li>circulatory</li> </ul>	the basic structures and functions of body systems: <ul style="list-style-type: none"> <li>musculoskeletal</li> <li>reproductive</li> <li>hormonal</li> <li>nervous</li> </ul>
<b>CHEMISTRY</b>	<ul style="list-style-type: none"> <li>properties of familiar materials</li> </ul>	<ul style="list-style-type: none"> <li>specific properties of materials connected to the function of the materials</li> </ul>	<ul style="list-style-type: none"> <li>physical ways of changing materials</li> <li>chemical ways of changing materials</li> </ul>	<ul style="list-style-type: none"> <li>atoms or molecules as particles of matter</li> <li>properties of materials - related to the particles they consist of</li> </ul>	<ul style="list-style-type: none"> <li>solids, liquids, and gases as matter</li> <li>the effect of temperature on pressure in a gas</li> </ul>	<ul style="list-style-type: none"> <li>solutions and solubility</li> </ul>	<ul style="list-style-type: none"> <li>heterogeneous mixtures</li> <li>mixtures - separated using a difference in component properties</li> </ul>
<b>PHYSICS</b>	<ul style="list-style-type: none"> <li>effects of pushes/pulls on movement</li> <li>effects of size, shape, and materials on movement</li> </ul>	<ul style="list-style-type: none"> <li>natural and artificial sources of light and sound</li> <li>properties of light and sound that depend on their source and the objects they interact with</li> </ul>	<ul style="list-style-type: none"> <li>types of forces</li> </ul>	<ul style="list-style-type: none"> <li>sources of thermal energy</li> <li>transfer of thermal energy</li> </ul>	<ul style="list-style-type: none"> <li>Energy has various forms</li> <li>Energy is conserved</li> <li>devices that transform energy</li> </ul>	<ul style="list-style-type: none"> <li>properties of simple machines and their force effects</li> <li>machines that are constructed</li> <li>machines that are found in nature</li> <li>power- the rate at which energy is transformed</li> </ul>	<ul style="list-style-type: none"> <li>Newton's three laws of motion</li> <li>effects of balanced and unbalanced forces in daily physical activities</li> <li>force of gravity</li> </ul>
<b>EARTH &amp; SPACE SCIENCE</b>	<ul style="list-style-type: none"> <li>weather changes</li> <li>seasonal changes</li> </ul>	<ul style="list-style-type: none"> <li>common objects in the sky</li> <li>Aboriginal knowledge of the sky and landscape</li> <li>local patterns in events that occur on Earth and in the sky</li> </ul>	<ul style="list-style-type: none"> <li>water sources, including local watersheds</li> <li>water - a limited resource</li> <li>the water cycle</li> </ul>	<ul style="list-style-type: none"> <li>major local landforms</li> <li>observable changes in the local environment caused by erosion and deposition by wind, water, and ice</li> </ul>	<ul style="list-style-type: none"> <li>local changes caused by Earth's axis, rotation, and orbit</li> <li>features of biomes</li> <li>the relationship between the sun and the moon</li> </ul>	<ul style="list-style-type: none"> <li>local types of earth materials</li> <li>the rock cycle</li> <li>Aboriginal concept of interconnectedness in the environment</li> <li>the nature of sustainable practices around BC's living and non-living resources</li> </ul>	<ul style="list-style-type: none"> <li>the overall scale, structure, and age of the universe</li> <li>the position, motion, and components of our solar system in our galaxy</li> <li>extreme environments exist on Earth and in the solar system</li> </ul>



	Processing & Analyzing Data & Information	I can <b>experience and interpret</b> the local environment.									
		I can <b>sort and classify</b> data and information using methods such as drawings or provided tables.									
		I can <b>use tables and simple bar graphs</b> to represent data and show simple patterns and trends.									
		I can <b>compare results</b> with predictions, suggesting possible reasons for findings.									
	Evaluating	I can <b>make inferences</b> based on their results & prior knowledge.									
		I can <b>reflect</b> on whether an investigation was a fair test.									
		I can <b>demonstrate an understanding &amp; appreciation</b> of evidence.									
I can <b>identify some simple implications</b> of their & others' actions on the environment.											
PERSONAL & SOCIAL	Applying & Innovating	I can <b>contribute to care for self, others, school, &amp; neighbourhood</b> through personal or collaborative approaches.									
		I can <b>co-operatively design projects</b> .									
		I can <b>transfer &amp; apply learning</b> to new situations.									
		I can <b>generate &amp; introduce</b> new or refined ideas when problem solving.									
COMMUNICATING	Communicating	I can <b>represent and communicate ideas &amp; findings</b> in a variety of ways such as diagrams & simple reports, using digital technologies as appropriate.									
		I can <b>express &amp; reflect</b> on personal or shared experiences of <b>place</b> .									