

Science – NAD and BC Standards

Key for “Province”:

Bold type – Big Ideas

Regular type – BC curricular competencies

Italicized type: Content

Topics	Gr	North American Division	Province:
Life Sciences	K-2	<p><i>Molecules to Organisms: Structures and Processes:</i> S.K-2.LS.1 Use observations to describe patterns (e.g., animals need to take in food but plants do not, different kinds of food needed by different types of animals, requirement of plants to have light, all living things need water) of what plants and animals (including humans) need to survive. (K-LS1-1)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i></p> <p>(1) Living things have features and behaviours that help them survive in their environment: <i>structural features and behavioural adaptations</i></p> <p>(2) Water is essential to all living things, and it cycles through the environment: <i>water sources</i></p> <ul style="list-style-type: none"> observe objects and events in familiar contexts, make exploratory observations using their senses, demonstrate curiosity and a sense of wonder about the world <p><i>(basic needs of plants and animals)</i></p>
		<p><i>Molecules to Organisms, cont:</i> S.K-2.LS.2 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs (e.g., designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills). (1-LS1-1)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i></p> <p>(1) Living things have features and behaviours that help them survive in their environment: <i>structural features and behavioural adaptations</i></p> <p>(2) Living Things have life cycles adapted to their environment: <i>metamorphic and non-metamorphic life cycles</i></p> <ul style="list-style-type: none"> ask simple questions about familiar objects and events, safely manipulate materials, discuss observations, generate and introduce new or refined ideas when problem solving, share observations and ideas orally
		<p><i>Molecules to Organisms, cont:</i> S.K-2.LS.3 Make observations to determine patterns in behavior of parents and offspring that help offspring survive (e.g., signals that offspring make such as crying, cheeping and the responses of parents such as feeding, comforting, protecting). (1-LS1-2)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i></p> <p>(1) Living things have features and behaviours that help them survive in their environment: <i>classification and behavioural adaptations</i></p> <p>(2) Living Things have life cycles adapted to their environment: <i>offspring and parent, and First Peoples use of their knowledge</i></p> <ul style="list-style-type: none"> observe objects and events in familiar contexts, ask simple questions about familiar objects and events, safely manipulate materials, discuss observations
		<p><i>Ecosystems: Interactions, Energy, and Dynamics:</i> S.K-2.LS.4 Plan and conduct an investigation to determine if plants need sunlight and water to grow, ensuring that only one variable is tested at a time. (2-LS2-1)</p>	<p>(K) Plants and animals have observable features: <i>basic needs</i></p> <p>(1) Living things have features and behaviours that help them survive in their environment: <i>structural features and behavioural adaptations</i></p>

		<p>(2) Water is essential to all living things, and it cycles through the environment: <i>water sources</i></p> <ul style="list-style-type: none"> • make exploratory observations using their senses, • make simple measurements using non-standard units, • transfer and apply learning to new situations
	<p><i>Ecosystems, cont:</i> S.K-2.LS.5 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (2-LS2-2)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i></p> <p>(1) Living things have features and behaviours that help them survive in their environment: <i>structural features and behavioural adaptations</i></p> <p>(2) Living Things have life cycles adapted to their environment: <i>metamorphic and non-metamorphic life cycles, and offspring and parent</i></p> <ul style="list-style-type: none"> • make exploratory observations using their senses, • represent observations and ideas by drawing charts and simple pictographs, • experience and interpret the local environment • observe objects and events in familiar contexts
	<p><i>Heredity: Inheritance and Variation of Traits:</i> S.K-2.LS.6 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents (e.g., leaves from same kind of plant are the same shape but can differ in size, young animals look similar to their parents but are not exactly the same). (1-LS3-1)</p>	<p>(K) Plants and animals have observable features: <i>basic needs</i></p> <p>(1) Living things have features and behaviours that help them survive: <i>structural features</i></p> <p>(2) Living Things have life cycles adapted to their environment: <i>offspring and parent, and First Peoples use of their knowledge</i></p> <ul style="list-style-type: none"> • make exploratory observations using their senses, • make simple measurements using non-standard units, • share observations and ideas orally, • represent observations and ideas by drawing charts and simple pictographs
	<p><i>Life: Origins, Unity, and Diversity:</i> S.K-2.LS.7 Make observations of plants and animals to compare the diversity of life in different habitats. (2-LS4-1)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i></p> <p>(1) Living things have features and behaviours that help them survive: <i>names and behavioural adaptations</i></p> <p>(2) Living Things have life cycles adapted to their environment: <i>offspring and parent, and First Peoples use of their knowledge</i></p> <ul style="list-style-type: none"> • make exploratory observations using their senses, • transfer and apply learning to new situations, • take part in caring for self, family, classroom and school through personal approaches

			<ul style="list-style-type: none"> recognize First Peoples stories (including oral and written narratives), songs and art, as ways to share knowledge
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.K-2.LS.8 Apply scientific principles to begin to construct a personal model that explains how life began on earth and acknowledges God as the Creator.</p>	<p>(K) Plants and animals have observable features: basic needs and adaptations (1) Living things have features and behaviours that help them survive: classification and structural features (2) Living Things have life cycles adapted to their environment: metamorphic and non-metamorphic life cycles; offspring and parent; and First Peoples use of their knowledge</p> <ul style="list-style-type: none"> make exploratory observations using their senses, express and reflect on personal experiences of place share observations and ideas orally, recognize First Peoples stories (including oral and written narratives), songs and art, as ways to share knowledge
Life Sciences	3-5	<p><i>Molecules to Organisms: Structures and Processes:</i> S.3-5.LS.1 Develop models (e.g., drawings, diagrams) to describe that organisms have unique and diverse life cycles but all have birth, growth, reproduction, and death in common. (3-LS1-1)</p>	<p>(2) Living Things have life cycles adapted to their environment: metamorphic and non-metamorphic life cycles</p> <ul style="list-style-type: none"> make exploratory observations using their senses represent observations and ideas by drawing charts and simple pictographs experience and interpret the local environment
		<p><i>Molecules to Organisms, cont:</i> S.3-5.LS.2 Construct an argument that plants and animals have internal and external structures (e.g., thorns, stems, roots, colored petals, heart, stomach, lung, brain, skin) that function to support survival, growth, behavior, and reproduction. (4-LS1-1)</p>	<p>(5) Multicellular organisms have organ systems that enable them to survive and interact with their environment: basic structures & functions of body systems</p> <ul style="list-style-type: none"> Make observations in familiar or unfamiliar contexts Choose appropriate data to collect to answer their questions Demonstrate an understanding and appreciation of evidence Communicate ideas, explanations, and processes in a variety of ways
		<p><i>Molecules to Organisms, cont:</i> S.3-5.LS.3 Use a model to describe systems of information transfer (e.g., nerves, hormones) that animals use to receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. (4-LS1-2)</p>	<p>(4) All living things sense and respond to their environment (6) Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment: hormonal and nervous systems</p> <ul style="list-style-type: none"> Identify questions about familiar objects and events that can be investigated scientifically Sort and classify data and information using drawings or provided tables Make simple inferences based on their results and prior knowledge Co-operatively design projects

		<ul style="list-style-type: none"> Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate
	<p><i>Molecules to Organisms, cont:</i> S.3-5.LS.4 Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1)</p>	<p>(2) Water is essential to all living things, and it cycles through the environment: <i>water sources, conservation, and cycles</i></p> <p>(3) Living things are diverse, can be grouped, and interact in their ecosystems: <i>biodiversity and ecosystems</i></p> <p>(4) All living things sense and respond to their environment: <i>plants</i></p> <ul style="list-style-type: none"> Demonstrate curiosity about the natural world Make predictions based on prior knowledge Collect simple data Sort and classify data and information using drawings or provided tables Reflect on whether an investigation was a fair test
	<p><i>Ecosystems: Interactions, Energy, and Dynamics:</i> S.3-5.LS.5 Construct an argument that some animals form groups that help members survive. (3-LS2-1)</p>	<p>(3) Living things are diverse, can be grouped, and interact in their ecosystems: <i>the knowledge of local First Peoples and biodiversity</i></p> <p>(4) All living things sense and respond to their environment: <i>biomes and humans/other animals/plants</i></p> <ul style="list-style-type: none"> Suggest ways to plan and conduct an inquiry to find answers to their questions Identify First Peoples perspectives and knowledge as sources of information Identify some simple environmental implications of their and others' actions Transfer and apply learning to new situations Express and reflect on personal or shared experiences
	<p><i>Ecosystems, cont:</i> S.3-5.LS.6 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1)</p>	<p>(4) All living things sense and respond to their environment: <i>biomes and humans/other animals/plants</i></p> <ul style="list-style-type: none"> Make observations about living and non-living things in the local environment Collect simple data Make simple inferences based on their results and prior knowledge
	<p><i>Heredity: Inheritance and Variation of Traits:</i> S.3-5.LS.7 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1)</p>	<p>(2) Living Things have life cycles adapted to their environment: <i>offspring and parent</i></p> <p>(5) Multicellular organisms have organ systems that enable them to survive and interact with their environment: <i>basic structures and functions</i></p> <ul style="list-style-type: none"> Choose appropriate data to collect to answer their questions Make observations in familiar or unfamiliar contexts Identify patterns and connections in data

			<ul style="list-style-type: none"> • Demonstrate an understanding and appreciation of evidence
		<p><i>Heredity, cont:</i> S.3-5.LS.8 Use evidence to support the explanation that traits can be influenced by the environment (e.g., Galapagos finches, peppered moth). (3-LS3-2)</p>	<p>(3) Living things are diverse, can be grouped, and interact in their ecosystems: <i>the knowledge of local First Peoples and biodiversity</i></p> <p>(4) All living things sense and respond to their environment: <i>biomes and humans/other animals/plants</i></p> <ul style="list-style-type: none"> • Suggest ways to plan and conduct an inquiry to find answers to their questions • Identify First Peoples perspectives and knowledge as sources of information • Identify some simple environmental implications of their and others' actions • Transfer and apply learning to new situations • Express and reflect on personal or shared experiences
		<p><i>Life: Origins, Unity, and Diversity:</i> S.3-5.LS.9 Analyze and interpret data (e.g., type, size, distributions) from fossils to provide evidence of the organisms and the environments (e.g., marine fossils on dry land, tropical plant fossils in Arctic areas, fossils of extinct organisms) in which they lived long ago. (3-LS4-1)</p>	<p>(3) Living things are diverse, can be grouped, and interact in their ecosystems: <i>biodiversity and the knowledge of local First Peoples of ecosystems</i></p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Identify First Peoples perspectives and knowledge as sources of information • Sort and classify data and information using drawings or provided tables • Represent and communicate ideas and findings in a variety of ways
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.3-5.LS.10 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing (e.g., plants with larger thorns are less likely to be eaten by predators, animals with better camouflage coloration are more likely to survive and to reproduce). (3-LS4-2)</p>	<p>(3) Living things are diverse, can be grouped and interact in their ecosystems: <i>biodiversity</i></p> <ul style="list-style-type: none"> • Make predictions based on prior knowledge • Experience and interpret the local environment • Compare results with predictions, suggesting possible reasons for findings • Make simple inferences based on their results and prior knowledge • Transfer and apply learning to new situations
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.3-5.LS.11 Construct an argument with evidence (e.g., needs, characteristics) that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. (3-LS4-3)</p>	<p>(3) Living things are diverse, can be grouped and interact in their ecosystems: <i>biodiversity</i></p> <p>(4) All living things sense and respond to their environment</p> <ul style="list-style-type: none"> • Make predictions based on prior knowledge • Experience and interpret the local environment • Compare results with predictions, suggesting possible reasons for findings • Make simple inferences based on their results and prior knowledge • Transfer and apply learning to new situations

		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.3-5.LS.12 Make a claim about the merit of a plant or animal adaptation in response to an environmental change (e.g., land characteristics, water distribution, temperature, food, other organisms). (3-LS4-4)</p>	<p>(3) Living things are diverse, can be grouped and interact in their ecosystems: <i>biodiversity</i> (4) All living things sense and respond to their environment (5) Multicellular organisms have organ systems that enable them to survive and interact within their environment: <i>basic structure and functions</i></p> <ul style="list-style-type: none"> • Make predictions based on prior knowledge • Experience and interpret the local environment • Compare results with predictions, suggesting possible reasons for findings • Make simple inferences based on their results and prior knowledge • Transfer and apply learning to new situations
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.3-5.LS.13 Construct an argument with evidence to support that God has created within living things a pool of variations that allows organisms to adapt to changes in the environment.</p>	<p>(3) Living things are diverse, can be grouped and interact in their ecosystems: <i>biodiversity</i> (4) All living things sense and respond to their environment (5) Multicellular organisms have organ systems that enable them to survive and interact within their environment: <i>basic structure and functions</i></p> <ul style="list-style-type: none"> • Demonstrate a sustained curiosity about the natural world • Make observations about living and non-living things in the local environment • Collect simple data • Make simple inferences based on their results and prior knowledge
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.3-5.LS.14 Apply scientific principles to construct a personal model that explains origins of life on earth and acknowledges God as the Creator.</p>	<p>(3) Living things are diverse, can be grouped and interact in their ecosystems: <i>biodiversity</i> (4) All living things sense and respond to their environment (5) Multicellular organisms have organ systems that enable them to survive and interact within their environment: <i>basic structure and functions</i></p> <ul style="list-style-type: none"> • Demonstrate a sustained curiosity about the natural world • Make observations about living and non-living things in the local environment • Collect simple data • Transfer and apply learning to new situations • Express and reflect on personal or shared experiences
Life Sciences	6-8	<p><i>Molecules to Organisms: Structures and Processes:</i> S.6-8.LS.1 Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells. (MS-LS1-1)</p>	<p>(8) Life processes are performed at the cellular level: <i>characteristics of life, and cell theory and types of cells</i></p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions about the natural world • Measure and control variables through fair tests

		<ul style="list-style-type: none"> • Use scientific understandings to identify relationships and draw conclusions co-operatively design projects • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate.
	<p><i>Molecules to Organisms, cont:</i> S.6-8.LS.2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. (MS-LS1-2)</p>	<p>(8) Life processes are performed at the cellular level: characteristics of life, and cell theory and types of cells</p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems • Demonstrate an understanding and appreciation of evidence • Co-operatively design projects
	<p><i>Molecules to Organisms, cont:</i> S.6-8.LS.3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (MS-LS1-3))</p>	<p>(6) Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment</p> <ul style="list-style-type: none"> • Make observations in familiar or unfamiliar contexts • Observe, measure, and record data, using appropriate tools, including digital technologies • Communicate ideas, explanations, and processes in a variety of ways <p>(8) Life processes are performed at the cellular level: the relationship of micro-organisms with living things</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions about the natural world • Formulate alternative “if...then...” hypotheses based on their questions • Construct and use a range of methods to represent patterns or relationship in data, including tables, graphs, keys, models, and digital technologies as appropriate
	<p><i>Molecules to Organisms, cont:</i> S.6-8.LS.4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors (e.g., nest building, herding, vocalization, colorful plumage) and specialized plant structures (e.g., bright flowers, flower nectar, odors that attract insects that transfer pollen, hard shells on nuts that squirrels bury) affect the probability of successful reproduction of animals and plants respectively. (MS-LS1-4)</p>	<p>(6) Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment</p> <p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: survival needs and natural selection</p> <ul style="list-style-type: none"> • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations
	<p><i>Molecules to Organisms, cont:</i></p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living</p>

	<p>S.6-8.LS.5 Construct a scientific explanation based on evidence (e.g., drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, fish growing larger in large ponds) for how environmental (e.g., availability of food, light, space, water) and genetic (e.g., large breed cattle and species of grass affecting growth) factors influence the growth of organisms. (MS-LS1-5)</p>	<p>things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
<p><i>Molecules to Organisms, cont:</i></p> <p>S.6-8.LS.6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (MS-LS1-6)</p>	<p>(8) Life processes are performed at the cellular level: <i>photosynthesis and cellular respiration</i></p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Identify a question to answer or a problem to solve through scientific inquiry • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Use scientific understandings to identify relationships and draw conclusions 	
<p><i>Molecules to Organisms, cont:</i></p> <p>S.6-8.LS.7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (MS-LS1-7)</p>	<p>(6) Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment</p> <p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> • Make predictions about the findings of their inquiry • Co-operatively design projects • Demonstrate an understanding and appreciation of evidence • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate 	
<p><i>Molecules to Organisms, cont:</i></p> <p>S.6-8.LS.8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. (MS-LS1-8)</p>	<p>(6) Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions about the natural world • Observe, measure, and record data • Seek patterns and connections in data from their own investigations and secondary sources 	
<p><i>Ecosystems: Interactions, Energy, and Dynamics:</i></p> <p>S.6-8.LS.9 Analyze and interpret data to provide evidence for the effects of resource availability on</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living</p>	

	<p>organisms and populations of organisms in an ecosystem. (MS-LS2-1)</p>	<p>things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Identify possible sources of error and suggest improvements to their investigation methods • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Ecosystems, cont:</i> S.6-8.LS.10 Construct an explanation that predicts patterns of interactions (e.g., competitive, predatory, mutually beneficial) among organisms across multiple ecosystems. (MS-LS2-2)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Identify possible sources of error and suggest improvements to their investigation methods • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Ecosystems, cont:</i> S.6-8.LS.11 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (MS-LS2-3)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Make predictions about the findings of their inquiry • Co-operatively design projects • Demonstrate an understanding and appreciation of evidence • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
	<p><i>Ecosystems, cont:</i> S.6-8.LS.12 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (MS-LS2-4)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Identify possible sources of error and suggest improvements to their investigation methods

		<ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Ecosystems, cont:</i> S.6-8.LS.13 Evaluate competing design solutions (e.g., scientific, economic, social considerations) for maintaining biodiversity and ecosystem services (e.g., water purification, nutrient recycling, soil erosion prevention, habitat enhancement). (MS-LS2-5)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest Seek patterns and connections in data from their own investigations and secondary sources Use scientific understandings to identify relationships and drawing conclusions Demonstrate an understanding an appreciation of evidence Consider social, ethical, and environmental implications of the findings from their own and others' investigations Transfer and apply learning to new situations
	<p><i>Heredity: Inheritance and Variation of Traits:</i> S.6-8.LS.14 Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. (MS-LS3-1)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions about the natural world Collaboratively plan a range of investigation types to answer their questions Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate
	<p><i>Heredity, cont:</i> S.6-8.LS.15 Develop and use a model (e.g., Punnett squares, diagrams, simulations) to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (MS-LS3-2)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions about the natural world Collaboratively plan a range of investigation types to answer their questions Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate
	<p><i>Life: Origins, Unity, and Diversity:</i> S.6-8.LS.16 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth, comparing</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p>

	<p>and contrasting creationist and naturalist perspectives. (MS-LS4-1)</p>	<ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Identify possible sources of error and suggest improvements to their investigation methods • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.6-8.LS.17 Apply scientific principles to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms, comparing and contrasting creationist and naturalist perspectives. (MS-LS4-2)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.6-8.LS.18 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (MS-LS4-4)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
	<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.6-8.LS.19 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. (MS-LS4-5)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Identify a question to answer or a problem to solve through scientific inquiry • Seek patterns and connections in data from their own investigations and secondary sources

			<ul style="list-style-type: none"> • Demonstrate an understanding and appreciation of evidence
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.6-8.LS.20 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (MS-LS4-6)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Measure and control variables through fair tests • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions
		<p><i>Life: Origins, Unity, and Diversity, cont:</i> S.6-8.LS.21 Apply scientific principles to construct and share a personal model that explains origins of life on earth and acknowledges God as the Creator.</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time, survival needs, natural selection</i></p> <ul style="list-style-type: none"> • Co-operatively design projects • Demonstrate an understanding and appreciation of evidence • Contribute to care for self, others, community, and world through personal or collaborative approaches • Express and reflect on a variety of experiences and perspectives of place
Life Sciences: Biology I	9- 12	<p><i>Course Focus:</i> BIO1.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO1.1.1 Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO1.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO1.1.3 Develop stewardship and service attitudes toward health, life, and earth's environment.</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches

		<ul style="list-style-type: none"> Contribute to finding solutions to problems at a local and/or global level through inquiry <i>Sustainability of systems</i>
	<p><i>Course Focus, cont:</i> BIO1.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them</p> <ul style="list-style-type: none"> Assess risks and address ethical, cultural and/or environmental issues associated with their proposed methods and those of others Consider social, ethical, and environmental implications of the findings from their own and others' investigations Contribute to care for self, others, community, and world through individual or collaborative approaches Contribute to finding solutions to problems at a local and/or global level through inquiry
	<p><i>Course Focus, cont:</i> BIO1.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(9) Cells are derived from cells</p> <ul style="list-style-type: none"> Ensure that safety and ethical guidelines are followed in their investigations Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources
	<p><i>Course Abilities:</i> BIO1.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world Formulate multiple hypotheses and predict multiple outcomes Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. Describe specific ways to improve their investigation methods and the quality of their data. Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources.

		<ul style="list-style-type: none"> • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. <p>Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.</p>
	<p><i>Course Abilities, cont:</i> BIO1.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation • (Sci 9, Sci 10) Ensure that safety and ethical guidelines are followed in their investigations
	<p><i>Course Abilities, cont:</i> BIO1.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local an/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Cell Structure and Processes:</i> BIO1.4.1 Acknowledge God as Creator of life while recognizing divergent theories. HS-LS4-1, 4-2, 4-4, 4-5</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.

		<ul style="list-style-type: none"> Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Cell Structure and Processes, cont:</i> BIO1.4.2 Demonstrate understanding of cellular structures and processes. HS-LS1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7</p>	<p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Construct, analyze, and interpret graphs, models, and/ or diagrams Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Characteristics of life</i> <i>Cell theory and types of cells</i> <i>Photosynthesis and cellular respiration</i></p> <p>(9) Cells are derived from cells</p> <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Construct, analyze, and interpret graphs, models, and/ or diagrams Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Asexual reproduction</i> <i>Sexual reproduction</i></p> <p>(10) DNA is the basis for the diversity of living things</p> <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Construct, analyze, and interpret graphs, models, and/ or diagrams Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>DNA structure and function</i></p> <p>(Li Sci 11) Life is a result of interactions at the molecular and cellular levels.</p> <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Construct, analyze, and interpret graphs, models, and/ or diagrams Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Cell structure and function</i> <i>Sexual and asexual reproduction</i> <i>Energy transformations in cells</i></p>
	<p><i>Cell Structure and Processes, cont:</i> BIO1.5.1 Manipulate cellular models and samples. HS-LS1-1, 1-4, 1-5</p>	<p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> Observe, measure, and record data using equipment, including digital technologies, with accuracy and precision

		<ul style="list-style-type: none"> • Use scientific understanding to identify relationships and draw conclusions • Demonstrate an understanding and appreciation of evidence • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate <p><i>Characteristics of life</i> <i>Cell theory and types of cells</i> <i>Photosynthesis and cellular respiration</i></p> <p>(9) Cells are derived from cells</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>Asexual reproduction</i> <i>Sexual reproduction</i></p> <p>(10) DNA is the basis for the diversity of living things</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>DNA structure and function</i></p> <p>(Li Sci 11) Life is a result of interactions at the molecular and cellular levels.</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record reliable data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>Cell structure and function</i> <i>Sexual and asexual reproduction</i> <i>Energy transformations in cells</i> <i>Single-celled and multi-celled organisms</i></p>
	<p><i>Cell Structure and Processes, cont:</i> BIO1.6.1 Compare and contrast cell diagrams and processes. HS-LS1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7</p>	<p>(8) Life processes are performed at the cellular level</p> <ul style="list-style-type: none"> • Observe, measure, and record data using equipment, including digital technologies, with accuracy and precision

		<ul style="list-style-type: none"> • Use scientific understanding to identify relationships and draw conclusions • Demonstrate an understanding and appreciation of evidence • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate <p><i>Characteristics of life</i> <i>Cell theory and types of cells</i> <i>Photosynthesis and cellular respiration</i></p> <p>(9) Cells are derived from cells</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>Asexual reproduction</i> <i>Sexual reproduction</i></p> <p>(10) DNA is the basis for the diversity of living things</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>DNA structure and function</i></p> <p>(Li Sci 11) Life is a result of interactions at the molecular and cellular levels.</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record reliable data • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled • Formulate physical or mental theoretical models to describe a phenomenon <p><i>Cell structure and function</i> <i>Sexual and asexual reproduction</i> <i>Energy transformations in cells</i> <i>Single-celled and multi-celled organisms</i></p>
	<p><i>Cell Structure and Processes, cont:</i> BIO1.6.6 Validate God as the Author of life, while evaluating aspects of divergent theories of origin. HS-LS4-1, 4-2, 4-4, 4-5</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.

		<ul style="list-style-type: none"> Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Genetics:</i> BIO1.4.3 Describe the dynamics of genetics and biotechnology. HS-LS1-1, 1-6, 3-1, 3-2, 3-3</p>	<p>(9) Cells are derived from cells.</p> <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Analyze cause-and-effect relationships Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources Consider the changes in knowledge over time as tools and technologies have developed Consider the role of scientists in innovation Formulate physical or mental theoretical models to describe a phenomenon <p><i>Asexual reproduction</i></p> <p>A. <i>mitosis</i></p> <p>B. <i>different forms</i></p> <p><i>Sexual reproduction</i></p> <p>A. <i>Meiosis</i></p> <p>B. <i>Human sexual reproduction</i></p> <p>(10) DNA is the basis for the diversity of living things</p> <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Analyze cause-and-effect relationships Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources Consider the changes in knowledge over time as tools and technologies have developed Consider the role of scientists in innovation Formulate physical or mental theoretical models to describe a phenomenon <p><i>Patterns of inheritance</i></p> <p><i>Mechanisms for the diversity of life</i></p> <p>A. <i>Natural selection</i></p> <p>B. <i>artificial selection</i></p> <p><i>Applied genetics and ethical considerations</i></p> <p>(Li Sci 11) Evolution occurs and the population level</p> <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Analyze cause-and-effect relationships Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources Consider the changes in knowledge over time as tools and technologies have developed Consider the role of scientists in innovation Formulate physical or mental theoretical models to describe a phenomenon <p><i>Microevolution</i></p> <p>A. <i>Adaptation to changing environments</i></p> <p>B. <i>Changes in DNA</i></p> <p><i>Natural selection</i></p>

	<p><i>Genetics, cont:</i> BIO1.5.2 Test concepts of Mendelian inheritance and evaluate genetic manipulation. HS-LS1-1, 3-1, 3-2, 3-3</p>	<p>(10) DNA is the basis for the diversity of living things</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data • Construct, analyze, and interpret graphs • Consider social, ethical, and environmental implications of the findings from their own and others' investigations <p><i>DNA structure and function</i> <i>Patterns of inheritance</i> <i>Mechanisms for the diversity of life</i> A. <i>Mutation and its impact on evolution</i> B. <i>Natural selection and artificial selection</i></p> <p>(Li Sci 11) Evolution occurs at the population level.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data • Construct, analyze, and interpret graphs • Consider social, ethical, and environmental implications of the findings from their own and others' investigations <p><i>Microevolution</i> 1. <i>Adaptation to changing environments</i> 2. <i>Changes in DNA</i> 3. <i>Natural selection</i></p> <p><i>Macroevolution:</i> A. <i>Speciation</i> B. <i>Processes of macroevolution</i> <i>Evidence for macroevolution</i></p>
	<p><i>Genetics, cont:</i> BIO1.6.2 Draw conclusions about genetic trends and the ethical ramifications of biotechnology. HS-LS3-2, 3-3</p>	<p>(10) DNA is the basis for the diversity of living things.</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problems <p><i>Applied genetics and ethical considerations</i></p> <p>(Li Sci 11) Life is a result of interactions at the molecular and cellular levels</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problems <p><i>Changes in DNA</i> <i>Natural selection</i></p> <p>(A&P 12) Gene expression, through protein synthesis, is an interaction between genes and the environment</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations

		<ul style="list-style-type: none"> Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problems <i>Genomics and biotechnology</i>
	<i>Taxonomy:</i> BIO1.4.4 Investigate taxonomy and the relationships among living organisms. HS-LS2-2, 4-2	(Li Sci 11) Organisms are grouped based on common characteristics. <ul style="list-style-type: none"> Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data Experience and interpret the local environment <i>Taxonomic principles for classifying organisms</i> <i>Binomial nomenclature</i>
	<i>Taxonomy, cont:</i> BIO1.5.3 Classify, compare, and examine organisms. HS-LS1-2	(Li Sci 11) Organisms are grouped based on common characteristics. <ul style="list-style-type: none"> Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled Communicate scientific ideas and information, constructing evidence-based arguments and using appropriate scientific language <i>Levels of organization</i> <i>Trends in complexity among various life forms</i> <i>First Peoples' knowledge of classification</i>
	<i>Taxonomy, cont:</i> BIO1.6.3 Evaluate the rationale for the current system of taxonomy.	(Li Sci 11) Organisms are grouped based on common characteristics. <ul style="list-style-type: none"> Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. <i>Evidence for phylogenetic relationships</i> <i>Taxonomic principles for classifying organisms</i> <i>First Peoples' understandings of interrelationships between organisms</i> <i>Similarities and differences between domains and kingdoms</i>
	<i>Ecology:</i> BIO1.4.5 Comprehend the interdependence between organisms and their environment. HS-LS1-5, 1-7, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 4-2	(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world Experience and interpret the local environment <i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i> <i>First Peoples' knowledge of interconnectedness and sustainability</i> (En Sci 11) Complex roles and relationships contribute to diversity of ecosystems. <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world Experience and interpret the local environment <i>Abiotic characteristics</i>

		<p>A. <i>Aquatic</i> A. <i>Atmospheric</i> B. <i>Edaphic</i> <i>Levels of biotic diversity</i></p>
	<p><i>Ecology, cont:</i> BIO1.5.4 Investigate relationships between organisms within their niche. HS-LS1-3, 2-2, 2-3, 2-4, 2-5, 2-8, 4-3, 4-4</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them</p> <ul style="list-style-type: none"> • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i> <i>Sustainability of systems</i> <i>First Peoples knowledge of interconnectedness and sustainability</i></p> <p>(En Sci 11) Complex roles and relationships contribute to diversity of ecosystems.</p> <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Ecosystem complexity:</i> A. <i>Roles</i> A. <i>Relationships</i> <i>Population dynamics</i></p>
	<p><i>Ecology, cont:</i> BIO1.5.5 Research the dynamics, organization, and problems in earth’s biomes. HS-LS1-3, 2-1, 2-2, 2-6, 2-7, 4-6</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Analyze cause-and-effect relationships • Contribute to finding solutions to problems at a local and/or global level through inquiry • Communicate scientific ideas, claims, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i> <i>Sustainability of systems</i> <i>First Peoples knowledge of interconnectedness and sustainability</i></p>

		<p>(En Sci 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest • Analyze cause-and-effect relationships • Contribute to finding solutions to problems at a local and/or global level through inquiry • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>First Peoples knowledge and other traditional Ecological knowledge in sustaining biodiversity</i> <i>Benefits of ecosystem services</i> <i>Human actions and their impact on ecosystem integrity</i> <i>Resource stewardship</i> <i>Restoration practices</i></p>
	<p><i>Ecology, cont:</i> BIO1.6.4 Determine how the relationships between organisms affect the balance of the ecosystem. HS-LS1-3, 1-5, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-8, 4-2, 4-3, 4-4</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, and identifying inconsistencies • Analyze cause-and-effect relationships <p><i>effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i></p> <p>(En Sci 11) Changing ecosystems are maintained by natural processes.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Analyze cause-and-effect relationships <p><i>Energy flow through ecosystems</i> <i>Matter cycles through and between living systems</i> <i>Succession</i></p>
	<p><i>Ecology, cont:</i> BIO1.6.5 Assess the environmental issues facing local ecosystems and earth’s biomes. HS-LS2-1, 2-2, 2-6, 2-7, 4-5, 4-6</p>	<p>(En Sci 11) Human practices affect the sustainability of ecosystems.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Formulate multiple hypotheses and predict multiple outcomes <p><i>First Peoples knowledge and other traditional ecological knowledge in sustaining biodiversity</i> <i>Benefits of ecosystem services</i></p> <p>(Earth Sci 11) Earth materials are changed as they cycle through the geosphere and are used as</p>

		<p>resources, with economic and environmental implications</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Formulate multiple hypotheses and predict multiple outcomes <p><i>Economic and environmental implications of geologic resources within BC and globally</i></p> <p>The transfer of energy through the atmosphere creates weather, and this transfer is affected by climate change</p> <p><i>Changes in the composition of the atmosphere due to natural and human causes</i></p>
	<p><i>Application:</i> BIO1.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, other, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> BIO1.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<p><i>Application, cont:</i> BIO1.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed.
	<p><i>Application, cont:</i> BIO1.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information

		<ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships.
	<p><i>Application, cont:</i> BIO1.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Application, cont:</i> BIO1.3.5 Engage in various uses of technology.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
	<p><i>Application, cont:</i> BIO1.7.1 Develop a personal ethical value system regarding a world view of life. HS-LS4-6</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> BIO1.7.2 Utilize biological concepts to influence lifestyle choices. HS-LS2-7</p>	<p>(En Sci 11) Human practices affect the sustainability of systems</p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. • Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Human actions and their impact on ecosystem integrity</i></p>

		<p><i>Resource stewardship</i> <i>Restoration practices</i> (En Sci 12) Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. • Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Personal choices and sustainable living</i> (A&P 12) Homeostasis is maintained through physiological processes</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. • Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Lifestyle differences and their effects on human health</i> <i>Holistic approach to health</i> <i>Disease as an imbalance in homeostasis</i></p>
	<p><i>Application, cont:</i> BIO1.7.3 Minimize damage to the environment by practicing good stewardship. HS-LS2-7, 4-5, 4-6</p>	<p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems.</p> <ul style="list-style-type: none"> • Experience and interpret the local environment. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. <p><i>Human actions and their impact on ecosystem integrity</i> <i>First Peoples ways of knowing and doing</i> <i>Resource stewardship</i> <i>Restoration practices</i> (En Sci 12) Living sustainably supports the well-being of self, community, and Earth</p> <ul style="list-style-type: none"> • Experience and interpret the local environment. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. <p><i>Global water security</i> A. <i>Laws and regulation</i> B. <i>Conservation of water</i></p>

			<p><i>Changes to climate systems</i> <i>Impacts of global warming</i> <i>Mitigation and adaptations</i> <i>Land use and degradation</i> <i>Land management</i> <i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
Life Sciences: Biology II	9- 12	<p><i>Course Focus:</i> BIO2.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO2.1.1 Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO2.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> BIO2.1.3 Develop stewardship and service attitudes toward health, life, and earth's environment.</p>	<p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(En Sci 12) Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Course Focus, cont:</i> BIO2.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Resource stewardship</i> <i>Restoration practices</i></p>

			<p>(En Sci 12) Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Course Focus, cont:</i> BIO2.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(En Sci 11) Human practices affect the sustainability of ecosystems</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(En Sci 12)Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Course Abilities:</i> BIO2.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world • Formulate multiple hypotheses and predict multiple outcomes • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their

		<p>own investigations to evaluate claims in primary and secondary sources.</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
	<p><i>Course Abilities, cont:</i> BIO2.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation
	<p><i>Course Abilities, cont:</i> BIO2.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Zoology:</i> BIO2.4.2 Observe and model organisms representing the major groups of invertebrate and vertebrate animals.</p>	<p>(Life Sciences 11) Organisms are grouped based on common characteristics</p> <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams <p><i>Single-celled and multi-celled organisms</i></p>
	<p><i>Zoology, cont:</i> BIO2.5.1 Manipulate invertebrate and vertebrate animals.</p>	<p>(Li Sci 11) Organisms are grouped based on common characteristics</p> <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams <p><i>trends in complexity among various life forms</i></p>
	<p><i>Zoology, cont:</i> BIO2.6.1 Ascertain the increasing complexity from invertebrate to vertebrate animals.</p>	<p>(Life Sciences 11) Organisms are grouped based on common characteristics</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence

		<i>trends in complexity among various life forms</i> <i>Evidence for phylogenetic relationships</i>
	<i>Embryology:</i> BIO2.4.1 Recognize God as the Designer and Creator of all life.	(9-12 CC) <ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<i>Embryology, cont:</i> BIO2.4.3 Describe the processes of gamete production, fertilization, and development.	(9) Cells are derived from cells Construct, analyze, and interpret graphs, models, and or diagrams <i>Meiosis</i> <i>human sexual reproduction</i> (Li Sci 11) Life is a result of interactions at the molecular and cellular levels Construct, analyze, and interpret graphs, models, and or diagrams <i>Sexual and asexual reproduction</i>
	<i>Embryology, cont:</i> BIO2.5.2 Investigate the reproductive processes within organisms.	(9) Cells are derived from cells <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. <i>Asexual reproduction</i> <ul style="list-style-type: none"> <i>Mitosis</i> <i>Different forms</i> (Li Sci 11) Life is a result of interactions at the molecular and cellular levels <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. <i>Sexual and asexual reproduction</i>
	<i>Embryology, cont:</i> BIO2.6.2 Compare embryological development of different organisms.	(Li Sci 11) Life is a result of interactions at the molecular and cellular levels <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data <i>Evidence for phylogenetic relationships</i>
	<i>Immunology:</i> BIO2.4.4 Identify the reactions, causes, and results of immune system function.	(8) Life processes are performed at the cellular level <ul style="list-style-type: none"> Use scientific understandings to identify relationships and draw conclusions <i>Basic functions of the immune system</i> <i>Vaccination and antibiotics</i> <i>Impacts of epidemics and pandemics on human populations</i>
	<i>Immunology, cont:</i> BIO2.5.3 Explore immune system disorders.	(A&P 12) Organ systems have complex interrelationships to maintain homeostasis <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <i>Proteins and their relationship to the structure and function of all cells</i> <i>Organ systems</i> <i>-Maintenance of homeostasis</i>
	<i>Immunology, cont:</i> BIO2.6.3 Evaluate immune system responses at the cellular and molecular levels.	(A&P 12) Organ systems have complex interrelationships to maintain homeostasis

		<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Consider the changes in knowledge over time as tools and technologies have developed <i>Proteins and their relationship to the structure and function of all cells</i> <i>Organ systems</i> <i>-Maintenance of homeostasis</i>
	<i>Microbiology:</i> BIO2.4.5 Understand the diversity, impact, and diseases of microorganisms .	(8) Life Processes are performed at the cellular level <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest <i>The relationship of micro-organisms with other living things</i> (Li Sci 11) Organisms are grouped based on common characteristics <ul style="list-style-type: none"> • Consider the changes in knowledge over time as tools and technologies have developed <i>Single-celled and multi-celled organisms</i> (A&P12) Homeostasis is maintained through physiological processes. <ul style="list-style-type: none"> • Consider the changes in knowledge over time as tools and technologies have developed <i>Feedback loops and regulation of the body's internal environment</i> <i>Disease as an imbalance in homeostasis</i>
	<i>Microbiology, cont:</i> BIO2.5.4 Examine the role of microbes in epidemiology.	(A&P12) Homeostasis is maintained through physiological processes. <ul style="list-style-type: none"> • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems <i>Disease as an imbalance in homeostasis</i> <i>Holistic approach to health</i>
	<i>Microbiology, cont:</i> BIO2.6.4 Assess treatment methods and effectiveness in terms of microbial cause.	(A&P12) Homeostasis is maintained through physiological processes. <ul style="list-style-type: none"> • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems <i>Disease as an imbalance in homeostasis</i> <i>Holistic approach to health</i>
	<i>Botany:</i> BIO2.4.6 Exhibit an understanding of global conservation efforts.	(En Sci 12) Human actions affect the quality of water and its ability to sustain life <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems <i>Water quality parameters and bioindicators</i> <i>Availability and water use impacts</i> <i>Global water security</i> <ul style="list-style-type: none"> • <i>Laws and regulation</i> <i>Conservation of water</i>
	<i>Botany, cont:</i>	(Li Sci 11) Organisms are grouped based on common characteristics

	BIO2.4.7 Demonstrate understanding of simple and complex plant forms.	<ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <i>Trends in complexity among various life forms</i>
	<i>Botany, cont:</i> BIO2.5.5 Research the impact of plant life on the biosphere.	(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems <ul style="list-style-type: none"> Experience and interpret the local environment Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <i>Ecosystem complexity</i> <i>Benefits of ecosystem services</i>
	<i>Botany, cont:</i> BIO2.6.5 Analyze the importance of plant life to human life.	(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems <ul style="list-style-type: none"> Analyze cause-and-effect relationships <i>Ecosystem complexity</i> <i>Benefits of ecosystem services</i>
	<i>Application:</i> BIO2.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1	(9-12 CC) <ul style="list-style-type: none"> Contribute to care for self, other, community, and world through individual or collaborative approaches. Cooperatively design projects with local and/or global connections and applications. Contribute to finding solutions to problems at a local and/or global level through inquiry. Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. Consider the role of scientists in innovation.
	<i>Application, cont:</i> BIO2.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.	(9-12 CC) <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<i>Application, cont:</i> BIO2.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.	(9-12 CC) <ul style="list-style-type: none"> Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. Describe specific ways to improve their investigation methods and the quality of their data. Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. Consider the changes in knowledge over time as tools and technologies have developed.
	<i>Application, cont:</i> BIO2.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).	(9-12 CC) <ul style="list-style-type: none"> Experience and interpret the local environment

		<ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships.
	<p><i>Application, cont:</i> BIO2.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation
	<p><i>Application, cont:</i> BIO2.3.5 Engage in various uses of technology.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
	<p><i>Application, cont:</i> BIO2.6.6 Validate God as the Author of life, while studying major areas of Biology II.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Application, cont:</i> BIO2.7.1 Strengthen belief in God as Designer and Creator by applying the higher concepts of Biology II.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Application, cont:</i> BIO2.7.2 Utilize the concepts of Biology II to improve lifestyle choices.</p>	<p>(En Sci 11) Human practices affect the sustainability of systems</p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon. • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-

			<p>based arguments and using appropriate scientific language, conventions, and representations.</p> <ul style="list-style-type: none"> Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Human actions and their impact on ecosystem integrity</i> <i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(En Sci 12) Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> Formulate physical or mental theoretical models to describe a phenomenon Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Personal choices and sustainable living</i></p> <p>(A&P 12) Homeostasis is maintained through physiological processes</p> <ul style="list-style-type: none"> Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. Express and reflect on a variety of experiences, perspectives, and worldview through place. <p><i>Lifestyle differences and their effects on human health</i> <i>Holistic approach to health</i> <i>Disease as an imbalance in homeostasis</i></p>
		<p><i>Application, cont:</i> BIO2.7.3 Apply the study of Biology II to ethical issues regarding life.</p>	<p>(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives</p> <ul style="list-style-type: none"> Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Evidence-based decision making through science</i> <i>Personal and public health practices, including First Peoples traditional health and healing practices</i> <i>Impact of technologies</i></p>
Life Sciences: Ecology/Environmental Science	9-12	<p><i>Course Focus:</i> ECO.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives</p> <ul style="list-style-type: none"> Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information

		<p><i>Personal and public health practices, including First Peoples traditional health and healing practices</i></p> <p><i>Beneficial scientific innovations</i></p>
	<p><i>Course Focus, cont:</i></p> <p>ECO.1.1 Recognize God’s power as Designer, Creator, Sustainer, and Redeemer ins the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their won and others’ investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i></p> <p>ECO.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man’s interpretation.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their won and others’ investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i></p> <p>ECO.1.3 Develop stewardship and service attitudes toward health, life, and earth’s environment.</p>	<p>(Sci Cit 11) Scientific understanding enables humans to respond and adapt to changes locally and globally</p> <ul style="list-style-type: none"> • Use local knowledge to experience and interpret the local environment • Contribute to care for self, others, community, and world through individual or collaborative approaches <p><i>Human impact of Earth’s systems</i></p> <p><i>A. Natural resources</i></p> <p><i>B. Effects of climate change</i></p> <p><i>Actions and decisions affecting the local and global environment, including those of First Peoples</i></p> <p>(En Sci 12) Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Use local knowledge to experience and interpret the local environment • Contribute to care for self, others, community, and world through individual or collaborative approaches <p><i>Personal choices and sustainable living</i></p> <p><i>Global environmental ethics, policy, and law</i></p>
	<p><i>Course Focus, cont:</i></p> <p>ECO.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Personal and public health practices, including First Peoples traditional health and healing practices</i></p> <p><i>Actions and decisions affecting the local and global environment, including those of First Peoples</i></p> <p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information

			<ul style="list-style-type: none"> • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(En Sci 12)Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Course Focus, cont:</i> ECO.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(En Sci 11) Human practices affect the sustainability of ecosystems</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(En Sci 12)Living sustainably supports the well-being of self, community, and Earth.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Course Abilities:</i> ECO.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world • Formulate multiple hypotheses and predict multiple outcomes • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources.

		<ul style="list-style-type: none"> • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
	<p><i>Course Abilities, cont:</i> ECO.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Course Abilities, cont:</i> ECO.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local an/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Principles:</i> ECO.4.1 Recognize God as the Designer and Creator of our earth.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Principles, cont:</i></p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p>

	<p>ECO.4.2 Understand the factors that influence organisms within their environment (trophic levels, symbiosis, food chain/web, biomes). HS-LS1-5, 2-3, 2-4, 2-5, 2-8, 4-2, 4-3, HS-ESS3-6</p>	<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Analyze cause-and effect relationships <p><i>Abiotic characteristics</i></p> <p>A. Aquatic B. Atmospheric C. Edaphic</p> <p><i>Ecosystem complexity</i></p> <p>A. Roles B. Relationships</p> <p><i>Population dynamics</i></p>
	<p><i>Principles, cont:</i> ECO.5.1 Examine relationships between organisms within the environment. HS-LS1-5, 2-5, 2-8, 4-2, 4-3</p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Seek and analyze patterns, trends, and connections in data <p><i>levels of biotic diversity</i></p>
	<p>ECO.6.1 Evaluate factors affecting relationships between organisms within the environment. HS-LS1-5, 2-3, 2-4, 2-5, 2-8, 4-2, 4-3</p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled <p><i>Abiotic characteristics</i></p> <p>A. Aquatic B. Atmospheric C. Edaphic</p> <p><i>Ecosystem complexity</i></p> <p>A. Roles B. Relationships</p> <p><i>Population dynamics</i></p>
	<p><i>Population Dynamics:</i> ECO.4.3 Demonstrate understanding of the nature of population dynamics (plant, animal, and human). HS-LS1-3, 2-1, 2-2, 2-6, 4-4, 4-5</p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Use scientific concepts to draw conclusions that are consistent with evidence <p><i>Abiotic characteristics</i></p> <p>A. Aquatic B. Atmospheric C. Edaphic</p> <p><i>Ecosystem complexity</i></p> <p>A. Roles B. Relationships</p> <p><i>Population dynamics</i></p>
	<p><i>Population Dynamics, cont:</i> ECO.5.2 Investigate the factors affecting population dynamics. HS-LS1-3, 2-1, 2-2, 2-6, 4-2, 4-3, 4-4, 4-5, HS-ESS3-4</p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data <p><i>Abiotic characteristics</i></p> <p>A. Aquatic B. Atmospheric C. Edaphic</p> <p><i>Ecosystem complexity</i></p> <p>A. Roles B. Relationships</p> <p><i>Population dynamics</i></p>

	<p><i>Population Dynamics, cont:</i> ECO.6.2 Research and predict how factors affect population dynamics. HS-LS1-3, 2-1, 2-2, 2-6, 4-2, 4-3, 4-4, 4-5</p>	<p>(En Sc 11) Complex roles and relationships contribute to diversity of ecosystems</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>Abiotic characteristics</i></p> <p>A. Aquatic B. Atmospheric C. Edaphic</p> <p><i>Ecosystem complexity</i></p> <p>A. Roles B. Relationships</p> <p><i>Population dynamics</i></p>
	<p><i>Natural Resources:</i> ECO.4.4 Identify non-energy resources and their effects on the environment. HS-LS2-1, 2-2, 2-3, 2-4, HS-ESS2-6, 3-1, 3-2, 3-3, 3-4, 3-5</p>	<p>(Earth Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications.</p> <ul style="list-style-type: none"> • Analyze cause-and-effect relationships • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. <p><i>Economic and environmental implications of geologic resources within BC and globally</i></p> <p>(Earth Sci 12) Minerals, rocks, and earth materials form in response to conditions within and on the Earth’s surface and are the foundation of many resource-based industries.</p> <ul style="list-style-type: none"> • Analyze cause-and-effect relationships • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. <p><i>BC resource deposits and others</i></p> <p>A. Origin and formation B. Economic, environmental, and First Peoples considerations</p> <p>(En Sci 12) Sustainable land use is essential to meet the needs of a growing population</p> <ul style="list-style-type: none"> • Analyze cause-and-effect relationships • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. <p><i>Soil characteristics</i> <i>Land use and degradation</i> <i>Land management</i></p>
	<p><i>Energy:</i> ECO.4.5 Classify conventional and alternative energy sources. HS-PS3-3</p>	<p>(10) Energy is conserved, and its transformation can affect living things and the environment</p> <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Nuclear energy and radiation</i> <i>Local and global impacts of energy transformations from technologies</i></p>

			<p>(En Sci 12) Human activities cause changes in the global climate system.</p> <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Energy, cont:</i> ECO.5.3 Survey advantages, disadvantages, and uses of conventional and alternative energy sources. HS-PS3-3</p>	<p>(10) Energy is conserved, and its transformation can affect living things and the environment</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Consider social, ethical, and environmental implications of the finding from their own and others' investigations. <p><i>Nuclear energy and radiation</i> <i>Local and global impacts of energy transformations from technologies</i></p> <p>(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives. Scientific knowledge can be used to develop procedures, techniques, and technologies that have implication for places of employment.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Consider social, ethical, and environmental implications of the finding from their own and others' investigations. <p><i>Evidence-based decisions making through science</i> <i>Practical applications of science in the workplace</i> <i>Impacts of technology in the workplace</i></p> <p>(En Sci 12) Human activities cause changes in the global climate system.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Consider social, ethical, and environmental implications of the finding from their own and others' investigations. <p><i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Energy, cont:</i> ECO.6.3 Compare and contrast advantages, disadvantages, and uses of conventional and alternative energy sources. HS-ESS3-4, HS-PS3-3</p>	<p>(10) Energy is conserved, and its transformation can affect living things and the environment</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>Nuclear energy and radiation</i> <i>Local and global impacts of energy transformations from technologies</i></p> <p>(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives.</p>

		<ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>Human impact of Earth's systems</i></p> <p><i>A. Natural resources</i></p> <p><i>B. Effect of climate change</i></p> <p><i>Actions and decisions affecting the local and global environment, including those of First Peoples</i></p> <p>(En Sci 12) Human activities cause changes in the global climate system.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>Personal choices and sustainable living</i></p> <p><i>Global environmental ethics, policy, and law</i></p>
	<p><i>Conservation:</i></p> <p>ECO.4.6 Exhibit an understanding of global conservation efforts. HS-LS2-7, 4-6, HS-ESS2-2, 3-1, 3-2, 3-3, 3-4</p>	<p>(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Sustainability of systems</i></p> <p><i>First Peoples knowledge of interconnectedness and sustainability</i></p> <p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Human actions and their impact on ecosystem integrity</i></p> <p><i>Resource stewardship</i></p> <p><i>Restoration practices</i></p> <p>(En Sci 12) Sustainable land use is essential to meet the needs of a growing population.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p><i>Availability and water use impacts</i></p> <p><i>Global water security</i></p> <p><i>A. Laws and regulation</i></p> <p><i>B. Conservation of water</i></p> <p><i>Mitigation and adaptations</i></p> <p><i>Land use and degradation</i></p> <p><i>Land management</i></p> <p><i>Personal choices and sustainable living</i></p> <p><i>Global environmental ethics, policy, and law</i></p>
	<p><i>Conservation, cont:</i></p> <p>ECO.5.4 Explore conservation methods for natural resources. HS-LS2-7, 4-6, HS-ESS2-2, 3-1, 3-2, 3-3, 3-4, HS-PS3-3</p>	<p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems.</p> <ul style="list-style-type: none"> • Assess risks in the context of personal safety and social responsibility <p><i>Human actions and their impact on ecosystem integrity</i></p> <p><i>First Peoples ways of knowing and doing</i></p> <p><i>Resource stewardship</i></p> <p><i>Restoration practices</i></p>

		<p>(Sci Cit 11) Scientific understanding enables humans to respond and adapt to changes locally and globally.</p> <ul style="list-style-type: none"> Assess risks in the context of personal safety and social responsibility <p><i>Actions and decisions affecting the local and global environment, including those of First Peoples</i></p> <p>(En Sci 12) Living sustainable supports the well-being of self, community, and Earth.</p> <p>Human actions affect the quality of water and its ability to sustain life.</p> <ul style="list-style-type: none"> Assess risks in the context of personal safety and social responsibility <p><i>Water quality parameters and bioindicators</i> <i>Availability and water use impacts</i> <i>Global water security</i> <i>A. Laws and regulation</i> <i>B. Conservation of water</i> <i>Soil characteristics and ecosystem services</i> <i>Land use and degradation</i> <i>Land management</i> <i>Global environmental ethics, policy, and law</i></p>	
		<p><i>Conservation, cont:</i> ECO.6.4 Analyze current natural resource conservation methods. HS-LS2-7, 4-6, HS-ESS2-2, 3-1, 3-2, 3-3, 3-4</p>	<p>(En Sci 11) Humans can play a role in stewardship and restoration of ecosystems.</p> <ul style="list-style-type: none"> Analyze cause-and-effect relationships <p><i>Human actions and their impact on ecosystem integrity</i> <i>First Peoples ways of knowing and doing</i> <i>Resource stewardship</i> <i>Restoration practices</i></p> <p>(Sci Cit 11) Scientific understanding enables humans to respond and adapt to changes locally and globally.</p> <ul style="list-style-type: none"> Analyze cause-and-effect relationships <p><i>Actions and decisions affecting the local and global environment, including those of First Peoples</i></p> <p>(En Sci 12) Living sustainable supports the well-being of self, community, and Earth.</p> <p>Human actions affect the quality of water and its ability to sustain life.</p> <ul style="list-style-type: none"> Analyze cause-and-effect relationships <p><i>Water quality parameters and bioindicators</i> <i>Availability and water use impacts</i> <i>Global water security</i> <i>A. Laws and regulation</i> <i>B. Conservation of water</i> <i>Soil characteristics and ecosystem services</i> <i>Land use and degradation</i> <i>Land management</i> <i>Global environmental ethics, policy, and law</i></p>
		<p><i>Application:</i> ECO.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Contribute to care for self, other, community, and world through individual or collaborative approaches.

		<ul style="list-style-type: none"> • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> ECO.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<p><i>Application, cont:</i> ECO.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed.
	<p><i>Application, cont:</i> ECO.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships.
	<p><i>Application, cont:</i> ECO.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods.

			<ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
		<i>Application, cont:</i> ECO.3.5 Engage in various uses of technology.	(9-12 CC) <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations.
		<i>Application, cont:</i> ECO.7.1 Strengthen belief in God as Designer and Creator by applying the fundamentals of Ecology/Environmental Science.	(9-12 CC) <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<i>Application, cont:</i> ECO.7.2 Utilize the concepts of Ecology/Environmental Science to improve lifestyle choices. HS-LS2-7, 4-6, HS-ESS3-1, 3-2, 3-3, 3-4, 3-5	(En Sci 12) Living sustainably supports the well-being of self, community, and Earth. <i>Personal choices and sustainable living</i>
		<i>Application, cont:</i> ECO.7.3 Apply the study of Ecology/Environmental Science to ethical issues regarding the environment. HS-LS2-6, 2-7, 4-6, HS-ESS2-2, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6	(En Sci 12) Living sustainably supports the well-being of self, community, and Earth. <i>Personal choices and sustainable living</i> <i>Global environmental ethics, policy, and law</i>
Health Sciences	K-2	<i>Health Promotion and Disease Prevention:</i> S.K-2.HS.1 Read texts and use media to determine the dimensions of health (e.g., nutrition, exercise) and patterns of behavior (e.g., eating healthy foods, daily exercise) that impact personal health.	(K-1) Knowing about our bodies and making healthy choices helps us look after ourselves. (2) Adopting healthy personal practices and safety strategies protects ourselves and others. <ul style="list-style-type: none"> • Identify opportunities to be physically active at school, at home, and in the community. • Identify and explore a variety of foods and describe how they contribute to health. • Identify opportunities to make choices that contribute to health and well-being. • Identify sources of health information. <i>(practices that promote health and well-being, relationships between food, hydration, and health)</i>
		<i>Health Promotion and Disease Prevention, cont:</i> S.K-2.HS.2 Demonstrate ways to prevent communicable diseases and reduce accidental injuries.	(K-1) Knowing about our bodies and making healthy choices helps us look after ourselves. (2) Adopting healthy personal practices and safety strategies protects ourselves and others. <ul style="list-style-type: none"> • Identify opportunities to make choices that contribute to health and well-being. • Identify sources of health information. • Identify and describe a variety of unsafe and/or uncomfortable situations.

		<i>(reliable sources of health information, hazards and potentially unsafe situations, practices that promote health and well-being)</i>
	<i>Health Promotion and Disease Prevention, cont:</i> S.K-2.HS.3 Role play how to tell a trusted adult if threatened or harmed.	<p>(K-1) Learning about ourselves and others helps us develop a positive attitude and caring behaviours, which helps us build healthy relationships.</p> <p>(2) Having good communication skills and managing our emotions enables us to develop and maintain healthy relationships.</p> <ul style="list-style-type: none"> Identify and describe a variety of unsafe and/or uncomfortable situations. Identify caring behaviours among classmates and within families. Identify and describe feelings and worries, and strategies for dealing with them. <p><i>(hazards and potentially unsafe situations, appropriate and inappropriate ways of being touched)</i></p>
	<i>Health Resources:</i> S.K-2.HS.4 Conduct an investigation to identify health professionals and other adults who can help to promote health.	<p>(K-1) Learning about ourselves and others helps us develop a positive attitude and caring behaviours, which helps us build healthy relationships.</p> <p>(2) Adopting healthy personal practices and safety strategies protects ourselves and others.</p> <ul style="list-style-type: none"> Recognize basic health information from a variety of sources <p><i>(reliable sources of health information)</i></p>
	<i>Healthy Lifestyle Choices:</i> S.K-2.HS.5 Construct an argument that media influences personal decisions relating to healthy choices.	<p>(K-1) Learning about ourselves and others helps us develop a positive attitude and caring behaviours, which helps us build healthy relationships.</p> <p>(2) Adopting healthy personal practices and safety strategies protects ourselves and others.</p> <ul style="list-style-type: none"> Identify opportunities to make choices that contribute to health and well-being. Recognize basic health information from a variety of sources. <p><i>(practices that promote health and well being, including those relating to physical activity, nutrition, and illness prevention, strategies for accessing health information)</i></p>
	<i>Healthy Lifestyle Choices, cont:</i> S.K-2.HS.6 Use a model to differentiate between situations when a health-related decision can be made individually or when assistance is needed.	<p>(K-1) Learning about ourselves and others helps us develop a positive attitude and caring behaviours, which helps us build healthy relationships.</p> <p>(2) Adopting healthy personal practices and safety strategies protects ourselves and others.</p> <ul style="list-style-type: none"> Identify opportunities to make choices that contribute to health and well-being. Identify caring behaviours among classmates and within families. <p><i>(caring behaviours in groups and families)</i></p>
	<i>Healthy Lifestyle Choices, cont:</i> S.K-2.HS.7 Identify a short-term personal health goal and implement a plan to attain that goal.	<p>(K-1) Good health comprises physical, mental and emotional well-being.</p> <p>(2) Our physical, emotional, and mental health are interconnected.</p> <ul style="list-style-type: none"> Identify opportunities to make choices that contribute to health and well-being.

			<ul style="list-style-type: none"> Identify and apply strategies that promote mental well-being. <i>(practices that promote health and well-being, managing and expressing emotions)</i>
		<p><i>Healthy Lifestyle Choices, cont:</i> S.K-2.HS.8 Ask questions and obtain information about God’s plan for healthy living.</p>	<p>(K-1) Good health comprises physical, mental and emotional well-being. (2) Our physical, emotional, and mental health are interconnected.</p> <ul style="list-style-type: none"> Describe ways to access information on and support services for a variety of health topics. Explore and describe components of healthy living. <p><i>(strategies for accessing health information, practices that promote health and well-being)</i></p>
Health Sciences	3-5	<p><i>Health Promotion and Disease Prevention:</i> S.3-5.HS.1 Make observations to construct an evidence-based link between healthy behaviors and personal health.</p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others. (4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> Explore and describe strategies for pursuing personal healthy-living goals. Explain the relationship of healthy eating to overall health and well-being. Identify and describe factors that influence healthy choices. <p><i>(practices that promote health and well-being, including those relating to physical activity, sleep, healthy eating, and illness prevention)</i></p>
		<p><i>Health Promotion and Disease Prevention, cont:</i> S.3-5.HS.2 Construct an argument that spiritual, emotional, intellectual, physical, and social health are interrelated and dependent on one another.)</p>	<p>(3) Our physical, emotional, and mental health are interconnected. (4,5) Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <ul style="list-style-type: none"> Describe physical, emotional, and social changes as students grow older. Describe factors that influence mental well-being and self-identity. Identify and apply strategies for pursuing personal health-living goals. <p><i>(factors that influence self-identity, practices that promote health and well-being)</i></p>
		<p><i>Health Promotion and Disease Prevention, cont:</i> S.3-5.HS.3 Analyze patterns of accidental injuries in different locations; develop a specific action plan designed to reduce accidents; evaluate the success of the plan.</p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others. (4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> Identify and describe avoidance or assertiveness strategies to use in unsafe and/or uncomfortable situations. Describe and apply strategies that promote a safe and caring environment. <p><i>(strategies and skills to use in potentially hazardous, unsafe, or abusive situations)</i></p>
		<p><i>Health Promotion and Disease Prevention, cont:</i></p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others.</p>

	<p>S.3-5.HS.4 Develop a model that demonstrates effective verbal and nonverbal communication skills to enhance health and reduce health risks.</p>	<p>(4,5) Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <ul style="list-style-type: none"> • Describe ways to access information on and support services for a variety of health topics. • Explore and describe strategies for pursuing personal health-living goals. • Identify and describe avoidance or assertiveness strategies to use in unsafe and/or uncomfortable situations. <p><i>(communicable and non-communicable illnesses, strategies and skills to use in potentially hazardous, unsafe, or abusive situations)</i></p>
	<p><i>Health Promotion and Disease Prevention, cont:</i> S.3-5.HS.5 Use scientific evidence to develop a family health plan designed to strengthen and enhance personal health.</p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others. (4,5) Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <ul style="list-style-type: none"> • Describe ways to access information on and support services for a variety of health topics. • Explore and describe strategies for pursuing personal health-living goals. • Identify and describe avoidance or assertiveness strategies to use in unsafe and/or uncomfortable situations. <p><i>(communicable and non-communicable illnesses, strategies and skills to use in potentially hazardous, unsafe, or abusive situations)</i></p>
	<p><i>Health Resources:</i> S.3-5.HS.6 Analyze and communicate the reliability of health information, products, and local services.</p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others. (4,5) Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <ul style="list-style-type: none"> • Explore and describe strategies for pursuing personal health-living goals. • Describe ways to access information on and support services for a variety of health topics. <p><i>(strategies for accessing health information, media messaging and body image)</i></p>
	<p><i>Healthy Lifestyle Choices:</i> S.3-5.HS.7 Construct a model that illustrates the various influences that impact personal health.</p>	<p>(3) Our physical, emotional, and mental health are interconnected. (4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> • Explore and describe strategies for pursuing personal health-living goals. • Examine and explain how health messages can influence behaviours and decisions. <p><i>(media messaging and body image, strategies for accessing health information)</i></p>
	<p><i>Healthy Lifestyle Choices, cont:</i> S.3-5.HS.8 Conduct an investigation to evaluate the accuracy/influence of the media on health.</p>	<p>(3) Our physical, emotional, and mental health are interconnected.</p>

			<p>(4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> • Explore and describe strategies for pursuing personal health-living goals. • Examine and explain how health messages can influence behaviours and decisions. <p><i>(media messaging and body image, strategies for accessing health information)</i></p>
		<p><i>Healthy Lifestyle Choices, cont:</i> S.3-5.HS.9 Construct a model that demonstrates the ability to use decision-making skills to enhance health.</p>	<p>(3) Our physical, emotional, and mental health are interconnected.</p> <p>(4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> • Explore and describe strategies for pursuing personal health-living goals. • Examine and explain how health messages can influence behaviours and decisions. <p><i>(media messaging and body image, strategies for accessing health information)</i></p>
		<p><i>Healthy Lifestyle Choices, cont:</i> S.3-5.HS.10 Select a personal health goal, evaluate health resources to develop and implement a plan aimed at achieving the goal, and monitor progress toward the goal.</p>	<p>(3) Adopting healthy personal practices and safety strategies protects ourselves and others.</p> <p>(4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> • Explore and describe strategies for pursuing personal health-living goals. • Examine and explain how health messages can influence behaviours and decisions. <p><i>(strategies for accessing health information, benefits of physical activity and exercise)</i></p>
		<p><i>Healthy Lifestyle Choices, cont:</i> S.3-5.HS.11 Gather, synthesize, and present information from the Bible about God’s plan for healthy living.)</p>	<p>(3) Our physical, emotional, and mental health are interconnected.</p> <p>(4,5) Personal choices and social and environmental factors influence our health and well-being.</p> <ul style="list-style-type: none"> • Describe ways to access information on and support services for a variety of health topics. • Explore and describe strategies for pursuing personal healthy-living goals. <p><i>(strategies for accessing health information, practices that promote health and well-being)</i></p>
Health Sciences	6-8	<p><i>Health Promotion and Disease Prevention:</i> S.6-8.HS.1 Collect data from family members to compile evidence that supports the claim that personal health is influenced by the environment and genetics.</p>	<p>(Sci 8) Life processes are performed at the cellular level.</p> <ul style="list-style-type: none"> • Identify a question to answer or a problem to solve through scientific inquiry. • Observe, measure, and record data. <p><i>(characteristics of life; the relationship of micro-organisms with living things: immune system, vaccination & antibiotics, epidemics & pandemics)</i></p>
		<p><i>Health Promotion and Disease Prevention, cont:</i> S.6-8.HS.2 Construct a model that demonstrates the link between appropriate health care and personal health.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> • Describe the impacts of personal choices on health and well-being. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases)</i></p>

	<p><i>Health Promotion and Disease Prevention, cont:</i> S.6-8.HS.3 Gather and synthesize information to identify barriers to obtaining appropriate health care and to practicing healthy behaviors, and suggest ways to overcome these barriers.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions)</i></p>
<p><i>Health Promotion and Disease Prevention, cont:</i> S.6-8.HS.4 Construct an evidenced-based argument that demonstrates the importance of assuming responsibility for personal health behaviors.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions)</i></p>	
<p><i>Health Promotion and Disease Prevention, cont:</i> S.6-8.HS.5 Evaluate behaviors in relation to the degree to which they benefit or harm personal health and the health of others.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions)</i></p>	
<p><i>Health Promotion and Disease Prevention, cont:</i> S.6-8.HS.6 Choose a health-enhancing practice and develop a presentation designed to persuade others to adopt a similar practice.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions)</i></p>	
<p><i>Health Resources:</i> S.6-8.HS.7 Develop guidelines for evaluating health information, products, and services, and conduct an investigation designed to assess the validity of health-related resources.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Identify, apply, and reflect on strategies used to pursue personal health-living goals. Analyze health messages and possible intentions to influence behaviour. <p><i>(sources of health information, marketing and advertising tactics aimed at children and youth, including those involving food and supplements)</i></p>	
<p><i>Healthy Lifestyle Choices:</i></p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p>	

	<p>S.6-8.HS.8 Construct an argument that supports the claim that modifying unhealthy behaviors can enhance personal health.</p>	<ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Describe how students' participation in physical activities at school, at home, and in the community can influence their health and fitness. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions, influences on food choices, and effects of different types of physical activity on the body)</i></p>
	<p><i>Healthy Lifestyle Choices, cont:</i> S.6-8.HS.9 Plan and conduct an investigation that provides evidence that peers and perceptions of norms influence the health of adolescents.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. Identify and apply strategies to pursue personal health-living goals. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, marketing and advertising tactics aimed at children and youth)</i></p>
	<p><i>Healthy Lifestyle Choices, cont:</i> S.6-8.HS.10 Construct a model that demonstrates how public health policies can influence health promotion and disease prevention.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Analyze health messages and possible intentions to influence behaviour. Identify and apply strategies to pursue personal health-living goals. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, marketing and advertising tactics aimed at children and youth)</i></p>
	<p><i>Healthy Lifestyle Choices, cont:</i> S.6-8.HS.11 Analyze and interpret data that provides evidence to support the claim that traditional Adventist health practices promote optimal health.</p>	<p>(6-8) Healthy choices influence our physical, emotional, and mental well-being.</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being. Describe how students' participation in physical activities at school, at home, and in the community can influence their health and fitness. <p><i>(sources of health information, practices that reduce the risk of contracting sexually transmitted infections and life-threatening communicable diseases, potential short-term and long-term consequences of health decisions, influences on food choices, and effects of different types of physical activity on the body)</i></p>

Health Sciences: Anatomy and Physiology	9-12	<i>Course Focus:</i> A&P.1 Identify SDA Christian principles and values in correlation with science.	(9,10) Healthy choices influence our physical, emotional, and mental well-being. <ul style="list-style-type: none"> Propose healthy choices that support lifelong health and well-being. Reflect on outcomes of personal healthy-living goals and assess strategies used. <i>(sources of health information, potential short-term and long-term consequences of health decisions)</i>
		<i>Course Focus, cont:</i> A&P.1.1 Recognize God’s power as Designer, Creator, Sustainer, and Redeemer in the universe.	(9,10) Healthy choices influence our physical, emotional, and mental well-being. <ul style="list-style-type: none"> Propose healthy choices that support lifelong health and well-being. Reflect on outcomes of personal healthy-living goals and assess strategies used. <i>(sources of health information, potential short-term and long-term consequences of health decisions)</i>
		<i>Course Focus, cont:</i> A&P.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man’s interpretation.	(9,10) Healthy choices influence our physical, emotional, and mental well-being. <ul style="list-style-type: none"> Propose healthy choices that support lifelong health and well-being. Reflect on outcomes of personal healthy-living goals and assess strategies used. <i>(sources of health information, potential short-term and long-term consequences of health decisions)</i>
		<i>Course Focus, cont:</i> A&P.1.3 Develop stewardship and service attitudes toward health, life, and earth’s environment.	(Sci Cit 11) Scientific processes and knowledge inform our decisions and impact our daily lives. <ul style="list-style-type: none"> Contribute to care for self, others, community, and world through individual or collaborative approaches Contribute to finding solutions to problems at a local and/or global level through inquiry <i>(Personal and public health practices, including First Peoples traditional health and healing practices)</i>
		<i>Course Focus, cont:</i> A&P.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.	(Sci. 9-12 CC) <ul style="list-style-type: none"> Identify factors that influence health messages from a variety of sources, and analyze their influence on behaviour. Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. Contribute to the care for self, others, community, and world through individual or collaborative approaches.
		<i>Course Focus, cont:</i> A&P.1.5 Equip students with Christian perspectives on scientific issues.	(Sci. 9-12 CC) <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing relationships between variables and identifying inconsistencies. Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. Consider social, ethical, and environmental implications of the findings from their own and others’ investigations.
		<i>Course Abilities:</i>	(9-12 CC)

	<p>A&P.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world • Formulate multiple hypotheses and predict multiple outcomes • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
	<p><i>Course Abilities, cont:</i> A&P.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation
	<p><i>Course Abilities, cont:</i></p>	<p>(9-12 CC)</p>

	<p>A&P.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local an/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Anatomical Orientation:</i> A&P.4.1 Recognize God as the designer and creator of the human body.</p>	<p>(Sci. 9-12 CC)</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables and identifying inconsistencies. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.
	<p><i>Anatomical Orientation, cont:</i> A&P.4.2 Define and properly use anatomical orientation terminology.</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Micro to macro organization</i></p>
	<p><i>Anatomical Orientation, cont:</i> A&P.4.3 Demonstrate an understanding of the structure of cell types and tissues.</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Micro to macro organization</i></p>
	<p><i>Anatomical Orientation, cont:</i> A&P.4.4 Identify the components within each system (skeletal, digestive, circulatory, etc.). HS-LS1-2</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Organ systems</i></p> <ul style="list-style-type: none"> • <i>Structure and function</i> • <i>Structural and functional interdependence</i> <p><i>Maintenance of homeostasis</i></p>

	<p><i>Anatomical Orientation, cont:</i> A&P.4.5 Describe the major chemical and cellular processes necessary for maintaining life (cellular respiration, protein synthesis, mitosis, meiosis). HS-LS1-1, 1-4, 1-6, 1-7, 3-1, 3-2, 3-3</p>	<p>(A&P 12) Homeostasis is maintained through physiological processes</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>Biological molecules</i> <i>Metabolism and enzymes</i> <i>Feedback loops and regulation of the body's internal environment</i> <i>Transport across a cell membrane</i></p> <p>Gene Expression, through protein synthesis, is an interaction between genes and the environment</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations <p><i>DNA</i></p> <ul style="list-style-type: none"> • <i>The cell's genetic information</i> • <i>Replication</i> • <i>Gene expression</i> • <i>Proteins and their relationship to the structure and function of all cells</i> <p><i>Genomics and biotechnology</i></p>
	<p><i>Cells and Tissues:</i> A&P.5.1 Examine anatomy of specimens.</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world <p><i>Micro to macro organization</i></p>
	<p><i>Cells and Tissues, cont:</i> A&P.5.2 Explore human cells and tissues with microscopes. HS-LS1-2</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world <p><i>Micro to macro organization</i></p>
	<p><i>Cells and Tissues, cont:</i> A&P.6.1 Interpret the relationship between the structure and the function of cell types and tissues. HS-LS1-2, 1-7, 3-1, 3-2</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Construct, analyze, and interpret graphs, models, and/or diagrams <p><i>Micro to macro organization</i></p>
	<p><i>Systems:</i> A&P.5.3 Investigate the function of components within each system. HS-LS1-2, 1-3, 1-7</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. <p><i>Organ systems</i></p> <ul style="list-style-type: none"> • <i>Structure and function</i> • <i>Structural and functional interdependence</i> <p><i>Maintenance of homeostasis</i></p>
	<p><i>Systems, cont:</i></p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p>

	<p>A&P.6.2 Evaluate the relationship between the structure and the function of organs. HS-LS1-3</p>	<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Organ systems</i></p> <ul style="list-style-type: none"> • <i>Structure and function</i> • <i>Structural and functional interdependence</i> <p><i>Maintenance of homeostasis</i></p>
<p><i>Systems, cont:</i> A&P.6.3 Correlate the structure of each organ system with its function. HS-LS1-2</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Organ systems</i></p> <ul style="list-style-type: none"> • <i>Structure and function</i> • <i>Structural and functional interdependence</i> <p><i>Maintenance of homeostasis</i></p>	
<p><i>Systems, cont:</i> A&P.6.4 Analyze the interdependence of organ systems in the body. HS-LS1-2, 1-3</p>	<p>(A&P 12) Organ systems have complex interrelationships to maintain homeostasis</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Organ systems</i></p> <ul style="list-style-type: none"> • <i>Structure and function</i> • <i>Structural and functional interdependence</i> <p><i>Maintenance of homeostasis</i></p>	
<p><i>Application:</i> A&P.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, other, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. Consider the role of scientists in innovation. 	
<p><i>Application, cont:</i> A&P.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p>Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.</p>	
<p><i>Application, cont:</i> A&P.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. 	

		Consider the changes in knowledge over time as tools and technologies have developed.
	<i>Application, cont:</i> A&P.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).	(9-12 CC) <ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies • Construct, analyze, and interpret graphs, models, and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. Analyze cause-and-effect relationships.
	<i>Application, cont:</i> A&P.3.4 Conduct research in the content area.	(9-12 CC) <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation
	<i>Application, cont:</i> A&P.3.5 Engage in various uses of technology.	(9-12 CC) <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
	<i>Application, cont:</i> A&P.7.1 Strengthen belief in God as Designer and Creator from studying anatomy and physiology. HS-LS1-3	(Sci. 9-12 CC) <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables and identifying inconsistencies. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.
	<i>Application, cont:</i> A&P.7.2 Utilize the concepts of anatomy and physiology to improve lifestyle choices. HS-LS3-2	(A&P 12) Homeostasis is maintained through physiological processes <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches. <i>Lifestyle differences and their effects on human health</i>

			<i>Holistic approach to health</i> <i>Disease as an imbalance in homeostasis</i>
Earth and Space Sciences	K-2	<i>Earth's Systems:</i> S.K-2.ES.1 Use and share observations of local weather conditions to describe patterns over time. (K-ESS2-1)	(K) Daily and seasonal changes affect all living things: <i>weather changes</i> (1) Observable patterns and cycles occur in the local sky and landscape: <i>knowledge of First Peoples and local patterns</i> <ul style="list-style-type: none"> Observe objects and events in familiar contexts Make simple measurements using non-standard units Discuss observations
		<i>Earth's Systems, cont:</i> S.K-2.ES.2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. (K-ESS2-2)	(K) Plants and animals have observable features: <i>adaptations</i> (1) Living things have features and behaviours that help them survive in their environment: <i>behavioural adaptations</i> (2) Water is essential to all living things, and it cycles through the environment: <i>water sources and water conservation</i> <ul style="list-style-type: none"> Ask simple questions about familiar objects and events Make exploratory observations using their senses Safely manipulate materials Share observations and ideas orally
		<i>Earth's Systems, cont:</i> S.K-2.ES.3 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. (2-ESS2-1)	(2) Water is essential to all living things, and it cycles through the environment: <i>water sources and water conservation</i> <ul style="list-style-type: none"> Ask questions about familiar objects and events Make and record observations Experience and interpret the local environment Consider some environmental consequences of their actions Transfer and apply learning to new situations Generate and introduce new or refined ideas when problem solving
		<i>Earth's Systems, cont:</i> S.K-2.ES.4 Develop a model to represent the shapes and kinds of land and bodies of water in an area. (2-ESS2-2)	(2) Water is essential to all living things, and it cycles through the environment: <i>water sources and local First People's knowledge of water</i> <ul style="list-style-type: none"> Make and record observations Experience and interpret the local environment Communicate observations and ideas
		<i>Earth's Systems, cont:</i> S.K-2.ES.5 Obtain information to identify where water is found on Earth and that it can be solid or liquid. (2-ESS2-3)	(2) Water is essential to all living things, and it cycles through the environment: <i>water sources and water cycle</i> <ul style="list-style-type: none"> Ask questions about familiar objects and events Sort and classify data and information using drawings, pictographs and provided tables

	<p><i>Earth and Human Activity:</i> S.K-2.ES.6 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. (K-ESS3-2)</p>	<p>(K) Plants and animals have observable features: <i>basic needs and adaptations</i> (1) Living things have features and behaviours that help them survive in their environment: <i>behavioural adaptations: names and structural features</i></p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Experience and interpret the local environment • Identify simple patterns and connections
<p><i>Earth and Human Activity, cont:</i> S.K-2.ES.7 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. (K-ESS3-2)</p>	<p>(K) Daily and seasonal changes affect all living things: <i>weather changes, living things make changes, First Peoples knowledge of seasonal changes</i></p> <ul style="list-style-type: none"> • Ask questions about familiar objects and events • Make and record observations • Recognize First Peoples stories, songs, and art, as ways to share knowledge • Express and reflect on personal experiences 	
<p><i>Earth and Human Activity, cont:</i> S.K-2.ES.8 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. (K-ESS3-3)</p>	<p>(2) Water is essential to all living things, and it cycles through the environment: <i>water conservation</i></p> <ul style="list-style-type: none"> • Ask questions about familiar objects and events • Recognize First Peoples stories, songs, and art • Consider some environmental consequences of their actions • Take part in caring for self, family, classroom and school through personal approaches 	
<p><i>Earth's Place in the Universe:</i> S.K-2.ES.9 Use observations of the sun, moon, and stars to describe patterns (e.g., sun and moon appear to track across the sky, stars visible at night) that can be predicted. (1-ESS1-1)</p>	<p>(1) Observable patterns and cycles occur in the local sky and landscape: <i>common objects in the sky and local patterns</i></p> <ul style="list-style-type: none"> • Observe objects and events in familiar contexts • Make and record observations • Sort and classify data and information using drawings, pictographs and provided tables • Identify simple patterns and connections 	
<p><i>Earth's Place in the Universe, cont:</i> S.K-2.ES.10 Make observations at different times of year to relate the amount of daylight to the time of year. (1-ESS1-2)</p>	<p>(1) Observable patterns and cycles occur in the local sky and landscape: <i>common objects in the sky and local patterns</i></p> <ul style="list-style-type: none"> • Observe objects and events in familiar contexts • Make and record observations • Sort and classify data and information using drawings, pictographs and provided tables • Identify simple patterns and connections • Recognize First Peoples stories, songs, and art, as ways to share knowledge 	

		<p><i>Earth's Place in the Universe, cont:</i> S.K-2.ES.11 Use information from several sources to provide evidence that Earth events (e.g., volcanic explosions, earthquakes, rock erosion) can occur quickly or slowly. (2-ESS1-1)</p>	<p>(2) Water is essential to all living things, and it cycles through the environment: <i>water sources and water conservation</i></p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Compare observations with predictions through discussion • Sort and classify data and information using drawings, pictographs and provided tables
Earth and Space Sciences	3-5	<p><i>Earth's Systems:</i> S.3-5.ES.1 Represent data (e.g., average temperature, precipitation, wind direction) in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1)</p>	<p>(K) Daily and seasonal changes affect all living things (4) Wind, water, and ice change the shape of the land: <i>erosion and deposition by wind, water, and ice</i></p> <ul style="list-style-type: none"> • Make exploratory observations using their senses • Collect simple data • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Share observations and ideas orally
		<p><i>Earth's Systems, cont:</i> S.3-5.ES.2 Obtain and combine information to describe climates in different regions of the world. (3-ESS2-2)</p>	<p>(4) The motions of Earth and the moon cause observable patterns that affect living and non-living systems: <i>Earth's axis, rotation, and orbit; First Peoples perspectives</i></p> <ul style="list-style-type: none"> • Collect simple data • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Communicate observations and ideas
		<p><i>Earth's Systems, cont:</i> S.3-5.ES.3 Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation (e.g., angle of slope in downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing water, cycles of heating and cooling, volume of water flow). (4-ESS2-1)</p>	<p>(3) Wind, water, and ice change the shape of the land: <i>observable changes in the local environment caused by erosion and deposition by wind, water, and ice; local First Peoples knowledge</i></p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Make predictions based on prior knowledge • Consider ethical responsibilities when deciding how to conduct an experiment • Identify First Peoples perspectives and knowledge as sources of information • Transfer and apply learning to new situations
		<p><i>Earth's Systems, cont:</i> S.3-5.ES.4 Analyze and interpret data from maps, including topographic maps, to describe patterns of Earth's features. (4-ESS2-2)</p>	<p>(3) Wind, water and ice change the shape of the land: <i>major local landforms and local First Peoples knowledge of local landforms</i></p> <ul style="list-style-type: none"> • Make observations about living and non-living things in the local environment • Identify First Peoples perspectives and knowledge as sources of information • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Co-operatively design projects

		<ul style="list-style-type: none"> Express and reflect on personal or shared experiences
	<p><i>Earth's Systems, cont:</i> S.3-5.ESS.5 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact (e.g., influence of ocean on ecosystems, landform shape, climate; influence of the atmosphere on landforms and ecosystems; influence of mountain ranges on winds and clouds). (5-ESS2-1)</p>	<p>(4) The motions of Earth and the moon cause observable patterns that affect living and non-living systems: <i>Earth's axis, rotation, and orbit; effects of the relative positions of the sun, moon, and Earth including local First Peoples perspectives</i></p> <ul style="list-style-type: none"> Observe objects and events in familiar contexts Identify questions about familiar objects and events that can be investigated Collect simple data Sort and classify data and information using drawings or provided tables Demonstrate an understanding and appreciation of evidence Represent and communicate ideas and findings in a variety of ways
	<p><i>Earth's Systems, cont:</i> S.3-5.ESS.6 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2)</p>	<p>(3) Wind, water and ice change the shape of the land: <i>major local landforms and local First Peoples knowledge of local landforms</i></p> <ul style="list-style-type: none"> Make observations about living and non-living things in the local environment Identify First Peoples perspectives and knowledge as sources of information Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends Co-operatively design projects Express and reflect on personal or shared experiences
	<p><i>Earth and Human Activity:</i> S.3-5.ESS.7 Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard (e.g., barriers to prevent flooding, wind resistant roofs, lightning rods). (3-ESS3-1)</p>	<p>(3) Wind, water and ice change the shape of the land: <i>major local landforms, local First Peoples knowledge of local landforms, and observable changes in the local environment caused by erosion and deposition</i></p> <ul style="list-style-type: none"> Make observations about living and non-living things in the local environment Identify First Peoples perspectives and knowledge as sources of information Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends Co-operatively design projects Express and reflect on personal or shared experiences
	<p><i>Earth and Human Activity, cont:</i> 4.M.2 Convert measurement from a larger unit to a smaller unit (km, m, cm; kg, g; lb, oz; L, mL; hr, min, sec) (4.MD.1)</p>	<p>(3,4,5)</p> <ul style="list-style-type: none"> Observe, measure, and record data, using appropriate tools, including digital technologies
	<p><i>Earth and Human Activity, cont:</i> S.3-5.ESS.8 Obtain and combine information to describe that energy and fuels are derived from natural resources (e.g., wind energy, water behind</p>	<p>(3) Thermal energy can be produced and transferred (4) Energy can be transformed: <i>various forms, conserved, and devices that transform energy</i></p>

	<p>dams, sunlight, fossil fuels, fissile materials) and their uses affect the environment (e.g., loss of habitat due to dams, surface mining, air pollution). (4-ESS3-1)</p>	<ul style="list-style-type: none"> • Demonstrate curiosity about the natural world • Collect simple data • Sort and classify data and information using drawings or provided tables • Demonstrate an understanding and appreciation of evidence • Represent and communicate ideas and findings in a variety of ways
<p><i>Earth and Human Activity, cont:</i> S.3-5.ES.9 Generate and compare multiple solutions (e.g., earthquake resistant building, monitoring volcanic activity) to reduce the impacts of natural Earth processes on humans. (4-ESS3-2)</p>	<p>(5) Earth materials change as they move through the rock cycle and can be used as natural resources: <i>the rock cycle</i></p> <ul style="list-style-type: none"> • Demonstrate an openness to new ideas and considerations • Co-operatively design projects • Represent and communicate ideas and findings in a variety of ways 	
<p><i>Earth and Human Activity, cont:</i> S.3-5.ES.10 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)</p>	<p>(5) Earth materials change as they move through the rock cycle and can be used as natural resources: <i>the nature of sustainable practices around BC's resources and First Peoples knowledge of sustainable practices</i></p> <ul style="list-style-type: none"> • Identify First Peoples perspectives and knowledge as sources of information • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data • Demonstrate an understanding and appreciation of evidence 	
<p><i>Earth's Place in the Universe:</i> S.3-5.ES.11 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1)</p>	<p>(3) Wind, water and ice change the shape of the land: <i>major local landforms; observable changes in the local environment; and local First Peoples knowledge of local landforms</i></p> <p>(5) Earth materials change as they move through the rock cycle and can be used as natural resources: <i>the rock cycle and local types of earth materials</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • Choose appropriate data to collect to answer their questions • Identify First Peoples perspectives and knowledge as sources of information • Identify some of the assumptions in secondary sources • Transfer and apply learning to new situations 	
<p><i>Earth's Place in the Universe, cont:</i> S.3-5.ES.12 Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. (5-ESS1-1)</p>	<p>(4) The motions of Earth and the moon cause observable patterns that affect living and non-living systems: <i>the effects of the relative positions of the sun, moon, and Earth including local First Peoples perspectives</i></p> <ul style="list-style-type: none"> • Demonstrate curiosity about the natural world 	

			<ul style="list-style-type: none"> • Make predictions based on prior knowledge • Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate • Sort and classify data and information using drawings or provided tables • Demonstrate an understanding and appreciation of evidence
		<p><i>Earth's Place in the Universe, cont:</i> S.3-5.ES.13 Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. (5-ESS1-2)</p>	<p>(4) The motions of Earth and the moon cause observable patterns that affect living and non-living systems: <i>local changes caused by Earth's axis, rotation, and orbit; and the effects of the relative positions of the sun, moon and Earth including local First Peoples perspectives</i></p> <ul style="list-style-type: none"> • Make predictions based on prior knowledge • Collect simple data • Sort and classify data and information using drawings or provided tables • Make simple inferences based on their results and prior knowledge • Represent and communicate ideas and findings in a variety of ways
Earth and Space Sciences	6-8	<p><i>Earth's Systems:</i> S.6-8.ES.1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS2-1)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things</p> <p>(8) The theory of plate tectonics is the unifying theory that explains Earth's geological processes</p> <ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Use scientific understandings to identify relationships and draw conclusions • Co-operatively design projects
		<p><i>Earth's Systems, cont:</i> S.6-8.ES.2 Construct an explanation based on evidence for how geoscience processes (e.g., surface weathering and deposition by movements of water, ice, and wind) have changed Earth's surface at varying time and spatial scales (e.g., slow plate motions, uplift of large mountain ranges, rapid landslides, microscopic geochemical reactions). (MS-ESS2-2)</p>	<p>(8) The theory of plate tectonics is the unifying theory that explains Earth's geological processes: <i>plate tectonic movement major geological events, First Peoples knowledge, and layers of Earth</i></p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified • Use scientific understandings to identify relationships and draw conclusions • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
		<p><i>Earth's Systems, cont:</i> S.6-8.ES.3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (MS-ESS2-3)</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time</i></p>

		<ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Make observations aimed at identifying their own questions about the natural world • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources
	<p><i>Earth's Systems, cont:</i> S.6-8.ES.4 Develop a model (conceptual or physical) to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. (MS-ESS2-4)</p>	<p>(6) Newton's three laws of motion describe the relationship between force and motion: <i>force of gravity</i> (7) The electromagnetic force produces both electricity and magnetism</p> <ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Use scientific understandings to identify relationships and draw conclusions • Co-operatively design projects
	<p><i>Earth's Systems, cont:</i> S.6-8.ES.5 Collect data (e.g., weather maps, diagrams, visualizations, laboratory experiments) to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. (MS-ESS2-5)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i></p> <ul style="list-style-type: none"> • Observe, measure, and record data, using equipment, including digital technologies, with accuracy and precision • Apply First Peoples perspectives and knowledge, and other ways of knowing, and local knowledge as sources of information • Seek patterns and connections in data from their own investigations and secondary sources
	<p><i>Earth's Systems, cont:</i> S.6-8.ES.6 Develop and use a model (e.g., diagrams, maps and globes, digital representations) to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (MS-ESS2-6)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i></p> <ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Use scientific understandings to identify relationships and draw conclusions • Co-operatively design projects • Express and reflect on a variety of experiences and perspectives of place
	<p><i>Earth and Human Activity:</i> S.6-8.ES.7 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the results of past and current</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records</i> (8) The theory of plate tectonics is the unifying theory that explains Earth's geological processes:</p>

	<p>geoscience processes (e.g., plate tectonics, the Flood). (MS-ESS3-1)</p>	<p><i>plate tectonic movement major geological events, First Peoples knowledge, and layers of Earth</i></p> <ul style="list-style-type: none"> • Identify a question to answer or a problem to solve through scientific inquiry • Co-operatively design projects • Generate and introduce new or refined ideas when problem solving • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
	<p><i>Earth and Human Activity, cont:</i> S.6-8.ES.8 Analyze and interpret data (e.g., locations, magnitudes, frequencies) on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i></p> <p>(8) The theory of plate tectonics is the unifying theory that explains Earth’s geological processes: <i>plate tectonic movement major geological events, First Peoples knowledge, and layers of Earth</i></p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Make observations aimed at identifying their own questions about the natural world • Seek patterns and connections in data from their own investigations and secondary sources • Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources
	<p><i>Earth and Human Activity, cont:</i> S.6-8.ES.9 Apply scientific principles to design a method for monitoring and minimizing a human impact (e.g., water usage, soil usage, pollution) on the environment. (MS-ESS3-3)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i></p> <ul style="list-style-type: none"> • Formulate alternative “If...then...” hypotheses based on their questions • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations • Transfer and apply learning to new situations
	<p><i>Earth and Human Activity, cont:</i> S.6-8.ES.10 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems. (MS-ESS3-4)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i></p> <ul style="list-style-type: none"> • Identify a question to answer or a problem to solve through scientific inquiry • Use scientific understandings to identify relationships and draw conclusions • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate

	<p><i>Earth and Human Activity, cont:</i> S.6-8.ESS.11 Ask questions to clarify evidence (e.g., tables, graphs, maps of global and regional temperatures, atmospheric levels of gases, rates of human activities) of the factors that have caused the rise in global temperatures over the past century (e.g., fossil fuel combustion, cement production, agricultural activity, change in incoming solar radiation, volcanic activity). (MS-ESS3-5)</p>	<p>(7) Earth and its climate have changed over geological time: <i>fossil records, First Peoples knowledge, climate change and recent impacts</i> (8) The theory of plate tectonics is the unifying theory that explains Earth’s geological processes: <i>plate tectonic movement major geological events, First Peoples knowledge, and layers of Earth</i></p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified • Use scientific understandings to identify relationships and draw conclusions • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Demonstrate an understanding and appreciation of evidence
<p><i>Earth’s Place in the Universe:</i> S.6-8.ESS.12 Develop and use a model (physical, graphical, or conceptual) of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (MS-ESS1-1)</p>	<p>(6) The solar system is part of the Milky Way, which is one of billions of galaxies: <i>the position, motion, and components of our solar system in our galaxy</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • Choose appropriate data to collect to answer their questions • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data 	
<p><i>Earth’s Place in the Universe, cont:</i> S.6-8.ESS.13 Develop and use a model (physical or conceptual) to describe the role of gravity in the motions within galaxies and the solar system. (MS-ESS1-2)</p>	<p>(6) The solar system is part of the Milky Way, which is one of billions of galaxies: <i>the position, motion, and components of our solar system in our galaxy</i></p> <ul style="list-style-type: none"> • Make observations in familiar or unfamiliar contexts • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data • Demonstrate an understanding and appreciation of evidence 	
<p><i>Earth’s Place in the Universe, cont:</i> S.6-8.ESS.14 Analyze and interpret data (e.g., statistical information, drawings and photographs, models) to determine scale properties (e.g., size, surface features, orbital radius) of objects in the solar system. (MS-ESS1-3)</p>	<p>(6) The solar system is part of the Milky Way, which is one of billions of galaxies: <i>the position, motion, and components of our solar system in our galaxy</i></p> <ul style="list-style-type: none"> • Make observations in familiar or unfamiliar contexts • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data • Demonstrate an understanding and appreciation of evidence 	
<p><i>Earth’s Place in the Universe, cont:</i> S.6-8.ESS.15 Apply scientific principles to construct an explanation, based on evidence from rock</p>	<p>(7) Evolution by natural selection provides an explanation for the diversity and survival of living things: <i>organisms have evolved over time</i></p>	

		strata, for how the geologic column is used to organize Earth's relative age and geologic history, comparing and contrasting creationist and naturalistic perspectives. (MS-ESS1-4)	<ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Identify possible sources of error and suggest improvements to their investigation methods • Contribute to care for self, others, community, and world through personal or collaborative approaches • Communicate ideas, finding, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
Earth and Space Sciences	9-12	<i>Course Focus:</i> ESC.1 Identify SDA Christian principles and values in correlation with science.	(9-12 CC) <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<i>Course Focus, cont:</i> ESC.1.1 Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe.	(9-12 CC) <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<i>Course Focus, cont:</i> ESC.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation.	(9-12 CC) <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<i>Course Focus, cont:</i> ESC.1.3 Develop stewardship and service attitudes toward health, life, and earth's environment.	(9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Contribute to care for self, others, community, and world through individual or collaborative approaches • Contribute to finding solutions to problems at a local and/or global level through inquiry <i>First Peoples knowledge of interconnectedness and sustainability</i> (Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications. <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches

		<ul style="list-style-type: none"> Contribute to finding solutions to problems at a local and/or global level through inquiry <i>Economic and environmental implications of geologic resources with BC and globally</i> <i>First Peoples knowledge and perspectives of water resources and processes</i>
	<p><i>Course Focus, cont:</i> ESC.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i> ESC.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Abilities:</i> ESC.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world Formulate multiple hypotheses and predict multiple outcomes Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. Describe specific ways to improve their investigation methods and the quality of their data. Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. Consider the changes in knowledge over time as tools and technologies have developed. Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources.

		<ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
	<p><i>Course Abilities, cont:</i> ESC.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data. • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Course Abilities, cont:</i> ESC.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local an/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Geology:</i> ESC.4.1 Recognize God as the Designer and Creator of our earth within the universe while recognizing divergent theories. HS-ESS1-2, 1-6, 2-7</p>	<p>(Sci 10) The formation of the universe can be explained by the big bang theory.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>Formation of the universe</i> A. Big Bang theory B. Components of the universe over time <i>Astronomical data and collection methods</i> (Ear Sci 11) Astronomy seeks to explain the origin and interactions of Earth and its solar system.</p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon <p><i>The nebular hypothesis</i> <i>Earth as a unique planet within its solar system</i></p>

	<p><i>Geology, cont:</i> ESC.4.2 Demonstrate understanding of the structure, composition, and processes of earth (geologic time table, plate tectonics, rocks and minerals). HS-ESS1-5, 1-6, 2-1, 2-3</p>	<p>(Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications. Plate tectonic theory explains the consequences of tectonic plate interactions</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Properties of earth materials:</i></p> <p>A. Minerals B. Igneous rocks C. Sedimentary rocks D. Metamorphic rocks E. Geologic resources</p> <p><i>Surface and internal processes of the rock cycle</i> <i>Evidence that supports plate tectonic theory</i> <i>Factors that affect plate motion</i> <i>First Peoples knowledge of local plate tectonic settings and geologic terrains</i></p> <p>(Ear Sci 12) Minerals, rocks, and earth materials form in response to conditions within and on the Earth’s surface and are the foundation of many resource-based industries. The plate tectonic theory explains the changes that occur within Earth and to Earth’s crust throughout geological time The form arrangement, and structure of rocks are affected by three-dimensional forces over time.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Classification of minerals</i> <i>Processes of rock formation</i></p> <p>A. Igneous B. Sedimentary C. Metamorphic</p> <p><i>BC resource deposits and others</i></p> <p>A. Origin and formation B. Economic, environmental, and First Peoples considerations</p> <p><i>The geologic time scale and major events in Earth’s history</i> <i>Methods for relative and absolute dating of rocks, fossils, and geologic events</i> <i>Reconstruction of Earth’s past through correlation of fossil data and rock strata</i> <i>Formation of volcanic and deformational features through plate movement</i> <i>Evidence that supports a layered model of Earth</i> <i>Earthquakes and analysis of seismic waves</i> <i>Internal and external factors that affect the plasticity of rock strata</i> <i>Faulting and folding</i> <i>Geologic maps, cross-sections, and block diagrams</i> <i>Weathering and erosion processes</i></p>
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	<p><i>Geology, cont:</i> ESC.5.1 Observe the structure and composition of rocks and minerals. HS-ESS1-6, 2-1</p>	<p>(Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. <p><i>Properties of earth materials:</i> A. Minerals B. Igneous rocks C. Sedimentary rocks D. Metamorphic rocks</p> <p>(Ear Sci 12) Minerals, rocks, and earth materials form in response to conditions within and on the Earth’s surface and are the foundation of many resource-based industries.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world <p><i>Classification of minerals</i></p>
	<p><i>Geology, cont:</i> ESC.6.1 Classify different types of rocks and minerals.</p>	<p>(Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Properties of earth materials:</i> A. Minerals B. Igneous rocks C. Sedimentary rocks D. Metamorphic rocks</p> <p>(Ear Sci 12) Minerals, rocks, and earth materials form in response to conditions within and on the Earth’s surface and are the foundation of many resource-based industries.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Classification of minerals</i></p>
	<p><i>Geologic History:</i> ESC.4.3 Become acquainted with the geologic history of the earth (fossil record, absolute vs. relative time). HS-ESS1-5, 1-6</p>	<p>(Ear Sci 12) Earth’s geological and biological history is interpreted and inferred from information stored in rock strata and fossil evidence.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>The geologic time scale and major events in Earth’s history</i> <i>The local and global fossil record</i> A. Evidence of evolution B. Methods of fossil formation C. First Peoples perspectives <i>Methods for relative and absolute dating of rocks, fossils, and geologic events</i> <i>Reconstruction of Earth’s past through correlation of fossil data and rock strata</i></p>

	<p><i>Geologic History, cont:</i> ESC.5.2 Explore the fossil record of earth's history from a creationist's paradigm.</p>	<p>(Ear Sci 12) Earth's geological and biological history is interpreted and inferred from information stored in rock strata and fossil evidence.</p> <ul style="list-style-type: none"> • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information <p><i>The geologic time scale and major events in Earth's history</i> <i>The local and global fossil record</i> <i>A. Evidence of evolution</i> <i>B. Methods of fossil formation</i> <i>C. First Peoples perspectives</i> <i>Methods for relative and absolute dating of rocks, fossils, and geologic events</i> <i>Reconstruction of Earth's past through correlation of fossil data and rock strata</i></p>
	<p><i>Geologic History, cont:</i> ESC.6.2 Correlate the fossil record to earth's history from a creationist's paradigm.</p>	<p>(Ear Sci 12) Earth's geological and biological history is interpreted and inferred from information stored in rock strata and fossil evidence.</p> <ul style="list-style-type: none"> • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. <p><i>The geologic time scale and major events in Earth's history</i> <i>The local and global fossil record</i> <i>A. Evidence of evolution</i> <i>B. Methods of fossil formation</i> <i>C. First Peoples perspectives</i> <i>Methods for relative and absolute dating of rocks, fossils, and geologic events</i> <i>Reconstruction of Earth's past through correlation of fossil data and rock strata</i></p>
	<p><i>Weather:</i> ESC.4.4 Familiarize students with the factors that affect earth's climate patterns. HS-ESS1-1, 2-2, 2-4</p>	<p>(Ear Sci 11) The transfer of energy through the atmosphere creates weather, and this transfer is affected by climate change. The distribution of water has a major influence on weather and climate.</p> <p><i>The hydrologic cycle</i> <i>Changes in the composition of the atmosphere due to natural and human causes</i> <i>Weather as the interaction of water, air, and energy transfer</i> <i>Solar radiation interactions and impacts on the energy budget</i> <i>Evidence of climate change</i> <i>Local and global ocean currents</i> <i>Influences of large bodies of water on local and global climates</i> <i>Effects of climate change on water sources</i></p>
	<p><i>Weather, cont:</i> ESC.5.3 Investigate principles of climate and global weather patterns. HS-SSE1-1, 2-4</p>	<p>(Ear Sci 11) The transfer of energy through the atmosphere creates weather, and this transfer is affected by climate change. The distribution of water has a major influence on weather and climate.</p>

		<ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>The hydrologic cycle</i> <i>Changes in the composition of the atmosphere due to natural and human causes</i> <i>Weather as the interaction of water, air, and energy transfer</i> <i>Solar radiation interactions and impacts on the energy budget</i> <i>Evidence of climate change</i> <i>Local and global ocean currents</i> <i>Influences of large bodies of water on local and global climates</i> <i>Effects of climate change on water sources</i></p>
	<p><i>Weather, cont:</i> ESC.6.3 Analyze and predict the relationship between climate and global weather patterns. HS-ESS1-1, 2-4, 3-5</p>	<p>(Ear Sci 11) The transfer of energy through the atmosphere creates weather, and this transfer is affected by climate change. The distribution of water has a major influence on weather and climate.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies <p><i>The hydrologic cycle</i> <i>Changes in the composition of the atmosphere due to natural and human causes</i> <i>Weather as the interaction of water, air, and energy transfer</i> <i>Solar radiation interactions and impacts on the energy budget</i> <i>Evidence of climate change</i> <i>Local and global ocean currents</i> <i>Influences of large bodies of water on local and global climates</i> <i>Effects of climate change on water sources</i></p>
	<p><i>Water:</i> ESC.4.5 Present the basic concepts of earth’s biogeochemical cycles. HS-ESS2-5, 2-6</p>	<p>(Sci 9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them. <i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i></p> <p>(Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications. The distribution of water has a major influence on weather and climate. <i>Surface and internal processes of the rock cycle</i> <i>The hydrologic cycle</i></p> <p>(Ear Sci 12) Weathering and erosion processes continually reshape landscapes through the</p>

			<p>interaction of the geosphere with the hydrosphere and atmosphere. <i>Weathering and erosion processes</i> <i>Periods of glaciation</i> <i>Groundwater and aquifers</i> <i>Causes and controls of mass wasting</i></p>
		<p><i>Water, cont:</i> ESC.5.4 Examine factors that affect earth’s biogeochemical cycles. HS-ESS2-6</p>	<p>(Sci 9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them. • Experience and interpret the local environment <i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i> (Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications. The distribution of water has a major influence on weather and climate. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <i>Surface and internal processes of the rock cycle</i> <i>The hydrologic cycle</i> (Ear Sci 12) Weathering and erosion processes continually reshape landscapes through the interaction of the geosphere with the hydrosphere and atmosphere. • Analyse cause-and-effect relationships. <i>Weathering and erosion processes</i> <i>Periods of glaciation</i> <i>Groundwater and aquifers</i> <i>Causes and controls of mass wasting</i></p>
		<p><i>Water, cont:</i> ESC.6.4 Compare and contrast the relationship between earth’s biogeochemical cycles and the factors affecting them. HS-ESS2-6, 3-6</p>	<p>(Sci 9) The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them. • Analyse cause-and-effect relationships. <i>Effects of solar radiation on the cycling of matter and energy</i> <i>Matter cycles within biotic and abiotic components of ecosystems</i> (Ear Sci 11) Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications. The distribution of water has a major influence on weather and climate. • Analyse cause-and-effect relationships. <i>Surface and internal processes of the rock cycle</i> <i>The hydrologic cycle</i> (Ear Sci 12) Weathering and erosion processes continually reshape landscapes through the interaction of the geosphere with the hydrosphere and atmosphere. • Analyse cause-and-effect relationships.</p>

		<p><i>Weathering and erosion processes</i> <i>Periods of glaciation</i> <i>Groundwater and aquifers</i> <i>Causes and controls of mass wasting</i></p>
	<p><i>Astronomy:</i> ESC.4.6 Describe how stars through fusion produce new elements and energy, and how that energy is transmitted to planetary objects. HS-ESS1-1, 1-3</p>	<p>(Ear Sci 11) Astronomy seeks to explain the origin and interactions of Earth and its solar system.</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. <p><i>The nebular hypothesis</i></p>
	<p><i>Astronomy, cont:</i> ESC.6.5 Predict the motion of orbiting objects in the solar system using various models. HS-ESS1-4</p>	<p>(Ear Sci 11) Astronomy seeks to explain the origin and interactions of Earth and its solar system.</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. <p><i>Earth as a unique planet within its solar system</i> <i>Stars as the centre of a solar system</i> <i>Impacts of the Earth-moon-sun system</i></p>
	<p><i>Application:</i> ESC.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, other, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> ESC.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<p><i>Application, cont:</i> ESC.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources.

		<ul style="list-style-type: none"> Consider the changes in knowledge over time as tools and technologies have developed.
	<p><i>Application, cont:</i> ESC.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Experience and interpret the local environment Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies Construct, analyze, and interpret graphs, models, and/or diagrams Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. Analyze cause-and-effect relationships.
	<p><i>Application, cont:</i> ESC.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation
	<p><i>Application, cont:</i> ESC.3.5 Engage in various uses of technology.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
	<p><i>Application, cont:</i> ESC.7.1 Strengthen belief in God as Designer and Creator by applying the fundamentals of Earth Science. HS-ESS1-6, 2-7</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Application, cont:</i> ESC.7.2 Utilize the concepts of Earth Science to improve lifestyle choices. HS-ESS2-2, 3-1, 3-2, 3-3, 3-4, 3-6</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Application, cont:</i></p>	<p>(9-12 CC)</p>

		ESC.7.3 Apply the study of Earth Science to issues regarding the environment. HS-ESS2-2, 2-4, 3-1, 3-2, 3-3, 3-4, 3-6	<ul style="list-style-type: none"> Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
Physical Sciences	K-2	<p><i>Matter and Its Interactions:</i> S.K-2.PS.1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties (e.g., color, texture, hardness, flexibility). (2-PS1-1)</p>	<p>(K) Humans interact with matter every day through familiar materials: properties of familiar materials (1) Matter is useful because of its properties: specific properties</p> <ul style="list-style-type: none"> Observe objects and events in familiar contexts Make and record observations Sort and classify data and information using drawings, pictographs and provided tables Compare observations with those of others
		<p><i>Matter and Its Interactions, cont:</i> S.K-2.PS.2 Analyze data obtained from testing different materials to determine which materials have the properties (e.g., strength, flexibility, hardness, texture, absorbency) that are best suited for an intended purpose. (2-PS1-2)</p>	<p>(1) Matter is useful because of its properties: specific properties (2) Materials can be changed through physical and chemical processes</p> <ul style="list-style-type: none"> Observe objects and events in familiar contexts Make and record observations Sort and classify data and information using drawings, pictographs and provided tables Compare observations with those of others
		<p><i>Matter and Its Interactions, cont::</i> S.K-2.PS.3 Make observations to construct an evidence-based account of how an object made of a small set of pieces (e.g., blocks, building bricks, other assorted small objects) can be disassembled and made into a new object. (2-PS1-3)</p>	<p>(1) Matter is useful because of its properties: specific properties (2) Materials can be changed through physical and chemical processes</p> <ul style="list-style-type: none"> Observe objects and events in familiar contexts Make and record observations Sort and classify data and information using drawings, pictographs and provided tables Compare observations with those of others
		<p><i>Matter and Its Interactions, cont::</i> S.K-2.PS.4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed (e.g., water, butter) and some cannot (e.g., cooking an egg, freezing a plant leaf, heating paper). (2-PS1-4)</p>	<p>(2) Materials can be changed through physical and chemical processes</p> <ul style="list-style-type: none"> Ask questions about familiar objects and events Make and record observations Sort and classify data and information Communicate observations and ideas
		<p><i>Motion and Stability: Forces and Interactions:</i> S.K-2.PS.5 Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls (e.g., string attached to an object being pulled, pushing an object, stopping a rolling ball, two objects colliding and pushing on each other) on the motion of an object. (K-PS2-1)</p>	<p>(K) The motion of objects depends on their properties: effects of pushes/pulls</p> <ul style="list-style-type: none"> Ask simple questions about familiar objects and events Make exploratory observations using their senses Safely manipulate materials Share observations and ideas orally

	<p><i>Motion and Stability, cont:</i> S.K-2.PS.6 Analyze data to determine if a design solution (e.g., ramp to increase speed of an object, structure that causes an object to turn) works as intended to change the speed or direction of an object with a push or a pull. (K-PS2-2)</p>	<p>(K) The motion of objects depends on their properties: <i>effects of pushes/pulls and effects of size, shape, and materials</i></p> <ul style="list-style-type: none"> • Observe objects and events in familiar contexts • Safely manipulate materials • Make simple measurements using non-standard units • Represent observations and ideas by drawing charts and simple pictographs
<p><i>Energy:</i> S.K-2.PS.7 Make observations to determine the effect of sunlight on Earth’s surface (e.g., sand, soil, rocks, water). (K-PS3-1)</p>	<p>(K) Daily and seasonal changes affect all living things: <i>weather changes and First Peoples knowledge of seasonal changes</i></p> <ul style="list-style-type: none"> • Observe objects and events in familiar contexts • Represent observations and ideas by drawing charts and simple pictographs • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	
<p><i>Energy, cont:</i> S.K-2.PS.8 Use tools and materials to design and build a structure (e.g., umbrellas, canopies, tents) that will reduce the warming effect of sunlight on an area. (K-PS3-2)</p>	<p>(K) Daily and seasonal changes affect all living things: <i>weather changes and First Peoples knowledge of seasonal changes</i></p> <ul style="list-style-type: none"> • Make exploratory observations using their senses • Experience and interpret the local environment • Safely manipulate materials 	
<p><i>Waves and Their Applications in Technologies...:</i> S.K-2.PS.9 Plan and conduct investigations to provide evidence that vibrating materials (e.g., tuning forks, plucking a stretched string) can make sound and that sound can make materials vibrate (e.g., holding a piece of paper near a speaker, holding an object near a vibrating tuning fork). (1-PS4-1)</p>	<p>(1) Light and sound can be produced and their properties can be changed: <i>sources of light and sound, and properties of light and sound</i></p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Make simple predictions about familiar objects and events • Make and record observations • Safely manipulate materials to test ideas and predictions • Communicate observations and ideas using oral or written language, drawing, or role-play 	
<p><i>Waves and Their Applications, cont:</i> S.K-2.PS.10 Make observations (e.g., those made in a completely dark room, pinhole box, video of a cave explorer) to construct an evidence-based account that objects can be seen only when illuminated (e.g., external light source, object giving off its own light). (1-PS4-2)</p>	<p>(1) Light and sound can be produced and their properties can be changed: <i>sources of light and sound, and properties of light and sound</i></p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Make simple predictions about familiar objects and events • Make and record observations • Safely manipulate materials to test ideas and predictions 	

			<ul style="list-style-type: none"> Communicate observations and ideas using oral or written language, drawing, or role-play
		<p><i>Waves and Their Applications, cont:</i> S.K-2.PS.11 Plan and conduct an investigation to determine the effect of placing objects made with different materials (e.g., transparent, translucent, opaque, reflective) in the path of a beam of light. (1-PS4-3)</p>	<p>(1) Light and sound can be produced and their properties can be changed: <i>sources of light and sound, and properties of light and sound</i></p> <ul style="list-style-type: none"> Demonstrate curiosity and a sense of wonder about the world Make simple predictions about familiar objects and events Make and record observations Safely manipulate materials to test ideas and predictions Communicate observations and ideas using oral or written language, drawing, or role-play
		<p><i>Waves and Their Applications, cont:</i> S.K-2.PS.12 Use tools and materials to design and build a device (e.g., light source, paper cup and string “telephones,” drum beats pattern) that uses light or sound to solve the problem of communicating over a distance. (1-PS4-4)</p>	<p>(1) Light and sound can be produced and their properties can be changed: <i>sources of light and sound, and properties of light and sound</i></p> <ul style="list-style-type: none"> Make simple predictions about familiar objects and events Safely manipulate materials to test ideas and predictions Make and record observations Recognize First Peoples stories, songs, and art, as ways to share knowledge Compare observations with those of others Transfer and apply learning to new situations
Physical Sciences	3-5	<p><i>Matter and Its Interactions:</i> S.3-5.PS.1 Develop a model to describe that matter is made of particles too small to be seen (e.g., add air to expand a basketball, compress air in a syringe, dissolve sugar in water, evaporate salt water). (5-PS1-1)</p>	<p>(3) All matter is made of particles: <i>matter is anything that has mass and takes up space</i> (4) Matter has mass, takes up space, and can change phase</p> <ul style="list-style-type: none"> Make predictions based on prior knowledge Make observations about living and non-living things in the local environment Compare results with predictions Represent and communicate ideas and findings in a variety of ways
		<p><i>Matter and Its Interactions, cont:</i> S.3-5.PS.2 Measure and graph quantities to provide evidence that the total weight of matter is conserved regardless of the type of change (e.g., phase changes, dissolving, mixing) that occurs when heating, cooling, or mixing substances. (5-PS1-2)</p>	<p>(4) Matter has mass, takes up space, and can change phase: <i>phases of matter</i></p> <ul style="list-style-type: none"> Identify questions about familiar objects and events that can be investigated Suggest ways to plan and conduct an inquiry to find answers to their questions Collect simple data Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends Express and reflect on personal or shared experiences
		<p><i>Matter and Its Interactions, cont:</i> S.3-5.PS.3 Make observations and measurements to identify materials (e.g., powders, metals,</p>	<p>(3) All matter is made of particles: <i>matter is anything that has mass and takes up space, and atoms are building blocks of matter</i></p>

	<p>minerals, liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility). (5-PS1-3)</p>	<p>(4) Matter has mass, takes up space, and can change phase</p> <ul style="list-style-type: none"> • Make observations about living and non-living things in the local environment • Collect simple data • Sort and classify data and information using drawings or provided tables • Demonstrate an understanding and appreciation of evidence
	<p><i>Matter and Its Interactions, cont:</i> S.3-5.PS.4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)</p>	<p>(4) Matter has mass, takes up space, and can change phases (5) Solutions are homogeneous</p> <ul style="list-style-type: none"> • Make predictions based on prior knowledge • Safely use appropriate tools to make observations and measurements • Use equipment and materials safely, identifying potential risks • Identify patterns and connections in data • Reflect on whether an investigation was a fair test • Contribute to care for self, others, school, and neighbourhood through individual or collaborative approaches • Represent and communicate ideas and findings in a variety of ways
	<p><i>S.3-5.PS.5 Plan and conduct an investigation to provide evidence of the effects of balanced (e.g., pushing two opposite sides of a box) and unbalanced (e.g., pushing one side of a box) forces on the motion of an object. (3-PS2-1)</i></p>	<p>(5) Machines are devices that transfer force and energy: simple machines and their force effects (6) Newton's three laws of motion describe the relationship between force and motion: balanced and unbalanced forces</p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • With support, plan appropriate investigations • Observe, measure, and record data • Make simple inferences based on their results and prior knowledge • Suggest improvements to their investigation methods
	<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.3-5.PS.6 Observe and/or measure an object's motion to provide evidence that a pattern can be used to predict future motion (e.g., child swinging, ball rolling in a bowl, pendulum). (3-PS2-2)</p>	<p>(5) Machines are devices that transfer force and energy (6) Newton's three laws of motion describe the relationship between force and motion</p> <ul style="list-style-type: none"> • Make simple predictions about familiar objects and events • Make and record simple measurements using informal or non-standard methods • Identify simple patterns and connections in data • Transfer and apply learning to new situations
	<p><i>Motion and Stability: Forces and Interactions, cont:</i></p>	<p>(5) Machines are devices that transfer force and energy: simple machines and their force effects, and</p>

	<p>S.3-5.PS.7 Ask questions to determine cause and effect relationships (e.g., distance between objects affects strength of the force, orientation of magnets affect direction of magnetic force) of electric or magnetic interactions between two objects not in contact with each other. (3-PS2-3)</p>	<ul style="list-style-type: none"> • Demonstrate a sustained curiosity about a scientific topic • Identify questions to answer or problems to solve through scientific inquiry • Decide which variable should be changed and measured for a fair test • Compare data with predictions and develop explanations for results
<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.3-5.PS.8 Define a simple design problem (e.g., constructing a door latch, creating a device to keep two moving objects from touching) that can be solved by applying scientific ideas about magnets. (3-PS2-4)</p>	<p>(5) Machines are devices that transfer force and energy: <i>simple machines and their force effects; constructed machines</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • With support, plan appropriate investigations to answer questions or solve problems they have identified • Evaluate whether their investigations were fair tests • Generate and introduce new or refined ideas when problem solving 	
<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.3-5.PS.9 Support an argument that the gravitational force exerted by Earth on objects is directed down toward the center of the earth. (5-PS2-1)</p>	<p>(6) Newton's three laws of motion describe the relationship between force and motion: <i>force of gravity</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve • Observe, measure, and record data • Identify patterns and connections in data • Generate and introduce new or refined ideas when problem solving 	
<p><i>Energy:</i> S.3-5.PS.10 Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1)</p>	<p>(5) Machines are devices that transfer force and energy: <i>simple machines and their force effects, and power</i></p> <ul style="list-style-type: none"> • Observe objects and events • Suggest ways to plan and conduct an inquiry to find answers to their questions • Compare results with predictions, suggesting possible reasons for findings • Communicate ideas, explanations, and processes in a variety of ways 	
<p><i>Energy, cont:</i> S.3-5.PS.11 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. (4-PS3-2)</p>	<p>(3) Thermal energy can be produced and transferred (5) Machines are devices that transfer force and energy: <i>simple machines and their force effects, and power</i></p> <ul style="list-style-type: none"> • Observe objects and events • Suggest ways to plan and conduct an inquiry to find answers to their questions • Compare results with predictions, suggesting possible reasons for findings • Communicate ideas, explanations, and processes in a variety of ways 	

	<p><i>Energy, cont:</i> S.3-5.PS.12 Ask questions and predict outcomes about the changes in energy that occur when objects collide. (4-PS3-3)</p>	<p>(5) Machines are devices that transfer force and energy: <i>simple machines and their force effects, and power</i></p> <ul style="list-style-type: none"> • Observe objects and events • Suggest ways to plan and conduct an inquiry to find answers to their questions • Compare results with predictions, suggesting possible reasons for findings • Communicate ideas, explanations, and processes in a variety of ways
	<p><i>Energy, cont:</i> S.3-5.PS.13 Apply scientific principles to design, test, and refine a device (e.g., electric motor, solar heater) that converts energy from one form to another. (4-PS3-4)</p>	<p>(4) Energy can be transformed: <i>devices that transform energy</i> (5) Machines are devices that transfer force and energy: <i>power</i></p> <ul style="list-style-type: none"> • Suggest ways to plan and conduct an inquiry to find answers to their questions • Observe, measure, and record data, using appropriate tools, including digital technologies • Demonstrate an openness to new ideas and consideration of alternatives • Generate and introduce new or refined ideas when problem solving
	<p><i>Energy, cont:</i> S.3-5.PS.14 Use models (e.g., diagrams, flow charts) to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. (5-PS3-1)</p>	<p>4) Energy can be transformed: <i>devices that transform energy</i> (5) Machines are devices that transfer force and energy: <i>power</i></p> <ul style="list-style-type: none"> • Observe, measure, and record data • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Represent and communicate ideas and findings in a variety of ways
	<p><i>Waves and their Applications in Technologies...:</i> S.3-5.PS.15 Develop a model (e.g., diagrams, analogies, physical models) of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. (4-PS4-1)</p>	<p>(1) Light and sound can be produced and their properties can be changed</p> <ul style="list-style-type: none"> • Observe objects and events • Make and record observations and simple measurements • Identify simple patterns and connections
	<p><i>Waves and their Applications, cont:</i> S.3-5.PS.16 Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. (4-PS4-2)</p>	<p>(1) Light and sound can be produced and their properties can be changed</p> <ul style="list-style-type: none"> • Safely manipulate materials to test ideas and predictions • Compare observations through discussion
	<p><i>Waves and their Applications, cont:</i> S.3-5.PS.17 Generate and compare multiple solutions (e.g., drum sending codes through sound waves, grid of 1's and 0's representing black and white to send information about a picture, Morse code) that use patterns to transfer information. (4-PS4-3)</p>	<p>(1) Light and sound can be produced and their properties can be changed</p> <ul style="list-style-type: none"> • Safely manipulate materials to test ideas and predictions • Compare observations through discussion • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends

Physical Sciences	6-8	<p><i>Matter and Its Interactions:</i> S.6-8.PS.1 Develop models (e.g., drawings, 3D ball and stick structures, computer representations) to describe the atomic composition of simple molecules (e.g., ammonia, methanol) and extended structures (e.g., sodium chloride, diamonds). (MS-PS1-1)</p>	<p>(7) Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined</p> <p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory</p> <ul style="list-style-type: none"> Identify a question to answer or a problem to solve through scientific inquiry Measure and control variables through fair tests Use appropriate SI units and perform simple unit conversions Reflect on their investigation methods, including the adequacy of controls on variables and the quality of the data collected Co-operatively design projects Express and reflect on a variety of experiences and perspectives of place
		<p><i>Matter and Its Interactions, cont:</i> S.6-8.PS.2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction (e.g., burning sugar or steel wool, fat reacting with sodium hydroxide, mixing zinc with hydrogen chloride) has occurred. (MS-PS1-2)</p>	<p>(7) Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined: <i>chemical changes</i></p> <ul style="list-style-type: none"> Demonstrate a sustained curiosity about a scientific topic or problem Use equipment and materials safely, identifying potential risks Compare data with predictions and develop explanations for results
		<p><i>Matter and Its Interactions, cont:</i> S.6-8.PS.3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society (e.g., new medicines, foods, alternative fuels). (MS-PS1-3)</p>	<p>(6) Everyday materials are often mixtures: <i>heterogeneous mixtures, First Peoples knowledge of separation and extraction methods</i></p> <ul style="list-style-type: none"> Choose appropriate data to collect to answer questions Compare data with predictions and develop explanations for results Demonstrate an understanding and appreciation of evidence
		<p><i>Matter and Its Interactions, cont:</i> S.6-8.PS.4 Develop a model (e.g., drawings, diagrams) that predicts and describes changes in particle (e.g., molecules, inert atoms) motion, temperature, and state of a pure substance (e.g., water, carbon dioxide, helium) when thermal energy is added or removed. (MS-PS1-4)</p>	<p>(7) Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined: <i>pure substances, crystalline structure of solids, and chemical changes</i></p> <p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory: <i>kinetic molecular theory; atomic theory; and protons, neutrons, and quarks</i></p> <ul style="list-style-type: none"> Make predictions about the findings of their inquiry Measure and control variables through fair tests Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate
		<p><i>Matter and Its Interactions, cont:</i></p>	<p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory</p>

	<p>S.6-8.PS.5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (MS-PS1-5)</p>	<ul style="list-style-type: none"> • Make predictions about the findings of their inquiry • Measure and control variables through fair tests • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate
	<p><i>Matter and Its Interactions, cont:</i> S.6-8.PS.6 Design, construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. (MS-PS1-6)</p>	<p>(7) Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined: <i>chemical changes</i> (8) Energy can be transferred as both a particle and a wave</p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified • Ensure that safety and ethical guidelines are followed in their investigations • Identify possible sources of error and suggest improvements to their investigation methods • Contribute to care for self, others, community, and world through personal or collaborative approaches
	<p><i>Motion and Stability: Forces and Interactions:</i> S.6-8.PS.7 Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects (e.g., two cars, car and stationary objects, meteor and space vehicle). (MS-PS2-1)</p>	<p>(6) Newton’s three laws of motion describe the relationship between force and motion: <i>balanced and unbalanced forces, and force of gravity</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • Observe, measure, and record data, using appropriate tools, including digital technologies • Evaluate whether their investigations were fair tests • Communicate ideas, explanations, and processes in a variety of ways
	<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.6-8.PS.8 Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object. (MS-PS2-2)</p>	<p>(6) Newton’s three laws of motion describe the relationship between force and motion: <i>balanced and unbalanced forces, and force of gravity</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • Observe, measure, and record data, using appropriate tools, including digital technologies • Evaluate whether their investigations were fair tests • Communicate ideas, explanations, and processes in a variety of ways
	<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.6-8.PS.9 Ask questions about data (e.g., effect of the number of turns of wire on the strength of an electromagnet, effect of increasing the number or strength of magnets on speed of an electric motor)</p>	<p>(7) The electromagnetic force produces both electricity and magnetism: <i>generated in different ways and electromagnetism</i></p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry

	<p>to determine the factors that affect the strength of electric and magnetic forces (e.g., electromagnets, electric motors, generators). (MS-PS2-3)</p>	<ul style="list-style-type: none"> Choose appropriate data to collect to answer their questions Identify patterns and connections in data Demonstrate an understanding and appreciation of evidence
	<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.6-8.PS.10 Construct and present arguments using evidence (e.g., data generated from simulations or digital tools; charts displaying mass, strength of interaction, distance from the Sun, orbital periods of objects within the solar system) to support the claim that gravitational interactions exert attraction and depend on the masses of interacting objects. (MS-PS2-4)</p>	<p>(6) The solar system is part of the Milky Way, which is one of billions of galaxies: <i>the position, motions and components of our solar system</i> (7) The electromagnetic force produces both electricity and magnetism: <i>generated in different ways and electromagnetism</i></p> <ul style="list-style-type: none"> Choose appropriate data to collect to answer their questions Observe, measure, and record data, using appropriate tools, including digital technologies Communicate ideas, explanations and processes in a variety of ways
	<p><i>Motion and Stability: Forces and Interactions, cont:</i> S.6-8.PS.11 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact (e.g., interactions of magnets, electrically-charged strips of tape, electrically-charged pith balls). (MS-PS2-5)</p>	<p>(7) The electromagnetic force produces both electricity and magnetism: <i>generated in different ways and electromagnetism</i></p> <ul style="list-style-type: none"> Identify questions to answer or problems to solve through scientific inquiry Use equipment and materials safely, identifying potential risks Observe, measure, and record data, using appropriate tools, including digital technologies Evaluate whether their investigations were fair tests Demonstrate an understanding and appreciation of evidence
	<p><i>Energy:</i> S.6-8.PS.12 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and the speed of an object (e.g., riding a bicycle at different speeds, rolling different sizes of rock downhill, getting hit by a Wiffle® ball versus a tennis ball). (MS-PS3-1)</p>	<p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory</p> <ul style="list-style-type: none"> Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified Ensure the safety and ethical guidelines are followed in their investigations Use scientific understandings to identify relationships and draw conclusions Transfer and apply learning to new situations
	<p><i>Energy, cont:</i> S.6-8.PS.13 Develop a model (e.g., representations, diagrams, pictures, written descriptions) to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system (e.g., the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing direction/orientation of a magnet, balloon with</p>	<p>(7) The electromagnetic force produces both electricity and magnetism: <i>generated in different ways and electromagnetism</i> (8) Energy can be transferred as both a particle and a wave: <i>types and effects; properties and behaviours</i></p> <ul style="list-style-type: none"> Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified Construct and use a range of methods to represent patterns or relationships in data,

	<p>static electrical charge brought close to a classmate's hair). (MS-PS3-2)</p>	<p>including tables, graphs, keys, models, and digital technologies as appropriate</p> <ul style="list-style-type: none"> • Transfer and apply learning to new situations
	<p><i>Energy, cont:</i> S.6-8.PS.14 Apply scientific principles to design, construct, and test a device (e.g., insulated box, solar cooker, Styrofoam® cup) that either minimizes or maximizes thermal energy transfer. (MS-PS3-3)</p>	<p>(7) The electromagnetic force produces both electricity and magnetism: generated in different ways and electromagnetism (8) Energy can be transferred as both a particle and a wave: types and effects; properties and behaviours</p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry • Use equipment and materials safely, identifying potential risks • Observe, measure, and record data, using appropriate tools, including digital technologies • Demonstrate an understanding and appreciation of evidence
	<p><i>Energy, cont:</i> S.6-8.PS.15 Plan an investigation (e.g., comparing final water temperatures after different masses of ice are melted in the same volume of water with the same initial temperature) to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. (MS-PS3-4)</p>	<p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory</p> <ul style="list-style-type: none"> • Identify questions to answer or problems to solve through scientific inquiry. • Use equipment and materials safely, identifying potential risks. • Observe, measure, and record data, using appropriate tools, including digital technologies. • Demonstrate an understanding and appreciation of evidence. • Transfer and apply learning to new situations.
	<p><i>Energy, cont:</i> S.6-8.PS.16 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. (MS-PS3-5)</p>	<p>(8) The behaviour of matter can be explained by the kinetic molecular theory and atomic theory</p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified. • Ensure the safety and ethical guidelines are followed in their investigations. • Use scientific understandings to identify relationships and draw conclusions. • Transfer and apply learning to new situations.
	<p><i>Waves and their Applications in Technologies...:</i> S.6-8.PS.17 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (MS-PS4-1)</p>	<p>(8) Energy can be transferred as both a particle and a wave: electrons and leptons, types and effects</p> <ul style="list-style-type: none"> • Measure and control variables through fair tests. • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate. • Use appropriate SI units and perform simple unit conversions.

		<p><i>Waves and their Applications, cont:</i> S.6-8.PS.18 Develop and use a model (e.g., drawings, simulations, written descriptions) to describe that waves are reflected, absorbed, or transmitted through various materials. (MS-PS4-2)</p>	<p>(8) Energy can be transferred as both a particle and a wave: electrons and leptons, types and effects, and properties/behaviours/ways of sensing</p> <ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate. • Use scientific understandings to identify relationships and draw conclusions.
		<p><i>Waves and their Applications, cont:</i> S.6-8.PS.19 Integrate qualitative scientific and technical information to support the claim that digitized signals (e.g., fiber optic cable transmits light pulses, radio wave pulses in Wi-Fi devices, conversion of stored binary patterns to make sound or text on a computer screen) are a more reliable way to encode and transmit information than analog signals. (MS-PS4-3)</p>	<p>(8) Energy can be transferred as both a particle and a wave: electrons and leptons, types and effects, and properties/behaviours/ways of sensing</p> <ul style="list-style-type: none"> • Observe, measure, and record data, using equipment, including digital technologies, with accuracy and precision. • Seek patterns and connections in data from their own investigations and secondary sources. • Demonstrate an understanding and appreciation of evidence.
Physical Sciences: Chemistry	9-12	<p><i>Course Focus:</i> CHM.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> CHM.1.1 Recognize God's power as Designer, creator, Sustainer, and Redeemer in the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> CHM.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.

		<ul style="list-style-type: none"> Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i> CHM.1.3 Develop stewardship and service attitudes toward health, life, and earth's environment.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i> CHM.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i> CHM.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Abilities:</i> CHM.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world Formulate multiple hypotheses and predict multiple outcomes Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information

		<ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
	<p><i>Course Abilities, cont:</i> CHM.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data. • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Course Abilities, cont:</i> CHM.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.

		<ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Structure and Properties of Matter:</i> CHM.4.1 Recognize God as the Designer and Creator of matter with inherent properties and laws.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Structure and Properties of Matter, cont:</i> CHM.4.2 Demonstrate understanding of structure and properties of matter. HS-PS1-3, 2-6, 4-3</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Element properties as organized in the periodic table</i> <i>The arrangement of electrons determines the compounds formed by elements.</i></p> <p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Rearrangement of atoms in chemical reactions</i></p> <p>(Chem 11) Atoms and molecules are building blocks of matter.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i> <i>Chemical bonding and electronegativity</i></p>
	<p><i>Structure and Properties of Matter, cont:</i> CHM.4.5 Describe the changes in the composition of the nucleus during fission, fusion, and radioactive decay. HS-PS1-8</p>	<p>(Sci 10) Energy is conserved, and its transformation can affect living things and the environment</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Nuclear energy and radiation</i></p>
	<p><i>Structure and Properties of Matter, cont:</i> CHM.5.1 Explore the design of the periodic table and structure of molecules. HS-PS1-1, 1-2</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Element properties as organized in the periodic table</i></p>

		<p><i>The arrangement of electrons determines the compounds formed by elements.</i></p> <p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Rearrangement of atoms in chemical reactions</i> <i>Law of conservation of mass</i></p> <p>(Chem 11) Atoms and molecules are building blocks of matter.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i> <i>Chemical bonding and electronegativity</i> <i>Bonds/forces</i></p>
	<p><i>Structure and Properties of Matter, cont:</i> CHM.6.1 Correlate the relationship between periodicity and molecular structure in the periodic table. HS-PS1-1, 1-2</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Element properties as organized in the periodic table</i> <i>The arrangement of electrons determines the compounds formed by elements.</i></p> <p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Rearrangement of atoms in chemical reactions</i> <i>Law of conservation of mass</i></p> <p>(Chem 11) Atoms and molecules are building blocks of matter.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i> <i>Chemical bonding and electronegativity</i> <i>Bonds/forces</i></p>
	<p><i>Chemical Interactions:</i> M.4.3 Describe the interactions of matter and energy (bonding, chemical reactions, conservation). HS-PS1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 3-1, 3-2, 3-4, 4-4</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature.</p> <ul style="list-style-type: none"> • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-

		<p>based arguments and using appropriate scientific language, conventions, and representations. <i>The arrangement of electrons determines the compounds formed by elements.</i> (Sci 10) Energy change is required as atoms rearrange in chemical processes. <ul style="list-style-type: none"> Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. <i>Rearrangement of atoms in chemical reactions</i> <i>Acid-base chemistry</i> <i>Law of conservation of mass</i> <i>Energy change during chemical reactions</i> (Chem 11) Atoms and molecules are building blocks of matter. <ul style="list-style-type: none"> Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. <i>Chemical bonding and electronegativity</i> <i>Bonds/forces</i> (Chem 12) Oxidation and reduction are complementary processes that involve the gain or loss of electrons. <ul style="list-style-type: none"> Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. <i>The oxidation-reduction process</i> <i>Electrochemical cells</i> <i>Electrolytic cells</i></p>
	<p><i>Chemical Interactions, cont:</i> CHM.5.2 Examine the relationship between energy and chemical reactions (bond, activation, thermal). HS-PS1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 3-1, 3-2, 3-4</p>	<p>(Chem 12) Reactants must collide to react, and the reaction rate is dependent on the surrounding conditions. <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. <i>Reaction rate</i> <i>Collision theory</i> <i>Energy change during a chemical reaction</i></p>
	<p><i>Chemical Interactions, cont:</i> CHM.6.2 Interpret the relationship between energy and chemical reactions. HS-PS1-2, 1-3, 1-4, 3-1, 3-2, 3-4</p>	<p>(Chem 12) Reactants must collide to react, and the reaction rate is dependent on the surrounding conditions. <ul style="list-style-type: none"> Analyze cause-and-effect relationships <i>Reaction mechanism</i> <i>Catalysts</i></p>
	<p><i>Stoichiometry:</i> CHM.4.4 Integrate balanced equations, conversion factors, ratio and proportion, and dimensional analysis. HS-PS1-7</p>	<p>(Chem 11) The mole is a quantity used to make atoms and molecules measurable. <ul style="list-style-type: none"> Seek and analyze patterns, trends, and connections in data, including describing </p>

		relationships between variables, performing calculations, and identifying inconsistencies. <i>The mole</i> <i>Dimensional analysis</i> <i>Reactions</i>
	<i>Stoichiometry, cont:</i> CHM.5.3 Solve stoichiometric problems with appropriate chemical and mathematical skills. HS-PS1-7	(Chem 11) The mole is a quantity used to make atoms and molecules measurable. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <i>Stoichiometric calculations using significant figures</i> <i>Analysis techniques</i> (Chem 12) Dynamic equilibrium can be shifted by changes to the surrounding conditions. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <i>quantitative relationships</i>
	<i>Stoichiometry, cont:</i> CHM.6.3 Evaluate conditions and factors that affect stoichiometric results. HS-PS1-5, 1-6, 1-7	(Chem 11) The mole is a quantity used to make atoms and molecules measurable. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <i>Local and other chemical processes</i> (Chem 12) Dynamic equilibrium can be shifted by changes to the surrounding conditions. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <i>Dynamic nature of chemical equilibrium</i> <i>Le Chatelier's principle and equilibrium shift</i> <i>Equilibrium constant</i> <i>quantitative relationships</i>
	<i>Solutions:</i> CHM.4.5 Identify the types and properties of solutions.	(Chem 11) Solubility within a solution is determined by the nature of the solute and the solvent. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <i>Solubility of molecular and ionic compounds</i> <i>Stoichiometric calculations in aqueous solutions</i> (Chem 12) Saturated solutions are systems in equilibrium. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <i>Saturated solutions and solubility product (K_{sp})</i> <i>Hydrolysis of ions in salt solutions</i>
	<i>Solutions, cont:</i> CHM.5.4 Investigate factors that define and affect solutions (pH, concentration, temperature, pressure).	(Chem 12) Saturated solutions are systems in equilibrium. Acid or base strength depends on the degree of ion dissociation. • Seek and analyze patterns, trends, and connections in data, including describing

		<p>relationships between variables, performing calculations, and identifying inconsistencies.</p> <p><i>Saturated solutions and solubility product (K_{sp})</i></p> <p><i>Hydrolysis of ions in salt solutions</i></p> <p><i>Relative strength of acids and bases in solution</i></p> <p><i>Water as an equilibrium system</i></p> <p><i>Weak acids and bases</i></p> <p><i>Titration</i></p> <p><i>Applications of acid-base reactions</i></p>
	<p><i>Solutions, cont:</i></p> <p>CHM.6.4 Predict solution changes as factors are manipulated. HS-PS1-5, 1-6</p>	<p>(Chem 12) Dynamic equilibrium can be shifted by changes to the surrounding conditions.</p> <p>Saturated solutions are systems in equilibrium.</p> <p>Acid or base strength depends on the degree of dissociation.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Dynamic nature of chemical equilibrium</i></p> <p><i>Le Chatelier's principle and equilibrium shift</i></p> <p><i>Equilibrium constant (K_{eq})</i></p>
	<p><i>Solutions, cont:</i></p> <p>CHM.6.5 Compare and contrast the processes of nuclear fission, fusion, and radioactive decay. HS-PS1-8</p>	<p>(Sci 10) Energy is conserved, and its transformation can affect living things and the environment.</p> <ul style="list-style-type: none"> • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. <p><i>Nuclear energy and radiation</i></p> <p><i>Law of conservation of energy</i></p>
	<p><i>Application:</i></p> <p>CHM.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, other, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i></p> <p>CHM.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<p><i>Application, cont:</i></p> <p>CHM.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions.

		<ul style="list-style-type: none"> • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed.
	<p><i>Application, cont:</i> CHM.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Experience and interpret the local environment. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies. • Construct, analyze, and interpret graphs, models, and/or diagrams. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships.
	<p><i>Application, cont:</i> CHM.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Application, cont:</i> CHM.3.5 Engage in various uses of technology.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations.
	<p><i>Application, cont:</i> CHM.7.1 Develop an increased respect for the Designer of all matter in the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations.

			<ul style="list-style-type: none"> Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Application, cont:</i> CHM.7.2 Utilize various chemical resources to influence lifestyle choices (warning labels, MSDS, nutritional labels, Internet resources).</p>	<p>(Chem 11) Organic chemistry and its applications have significant implications for human health, society, and the environment.</p> <ul style="list-style-type: none"> Contribute to care for self, others, community, and world through individual or collaborative approaches. <p><i>Applications of organic chemistry</i> <i>Green chemistry</i></p>
		<p><i>Application, cont:</i> CHM.7.3 Implement chemical principles to chemistry-related issues in society. HS-PS2-6</p>	<p>(Chem 11) Organic chemistry and its applications have significant implications for human health, society, and the environment.</p> <ul style="list-style-type: none"> Contribute to care for self, others, community, and world through individual or collaborative approaches. <p><i>Applications of organic chemistry</i> <i>Green chemistry</i></p>
Physical Sciences: Physical Science	9-12	<p><i>Course Focus:</i> PSC.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PSC.1.1 Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PSC.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others' investigations. Formulate physical or mental theoretical models to describe a phenomenon.

			<ul style="list-style-type: none"> Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PSC.1.3 Develop stewardship and service attitudes toward health, life, and earth’s environment.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others’ investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PSC.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others’ investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PSC.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Analyze cause-and-effect relationships. Consider social, ethical, and environmental implications of the findings from their own and others’ investigations. Formulate physical or mental theoretical models to describe a phenomenon. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Abilities:</i> PSC.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly abstract one, about the natural world. Formulate multiple hypotheses and predict multiple outcomes. Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies.

			<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems.
		<p><i>Course Abilities, cont:</i> PSC.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable qualitative and quantitative data. • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
		<p><i>Course Abilities, cont:</i> PSC.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications.

		<ul style="list-style-type: none"> • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Consider the role of scientists in innovation. • Express and reflect on a variety of experiences, perspectives, and worldview through place.
	<p><i>Structure and Properties of Matter:</i> PSC.4.1 Recognize God as the Designer and Creator of our physical world.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Structure and Properties of Matter, cont:</i> PSC.4.2 Introduce the fundamental structure and properties of matter (physical, chemical, periodic table). HS-PS1-1, 1-2</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature. <i>Element properties as organised in the periodic table</i> <i>The arrangement of electrons determines the compounds formed by elements</i> (Chem 11) Atoms and molecules are building blocks of matter. <i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i> <i>Chemical bonding based on electronegativity</i></p>
	<p><i>Structure and Properties of Matter, cont:</i> PSC.5.1 Observe the structure and properties of matter. HS-PS1-3</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature. • Experience and interpret the local environment. <i>Element properties as organized in the periodic table</i> <i>The arrangement of electrons determines the compounds formed by elements</i> (Chem 11) Atoms and molecules are building blocks of matter. • Experience and interpret the local environment. <i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i> <i>Chemical bonding based on electronegativity</i></p>
	<p><i>Structure and Properties of Matter, cont:</i> PSC.6.1 Exhibit understanding of the basic structure and properties of matter. HS-PS1-1, 1-2, 1-3, 2-6</p>	<p>(Sci 9) The electron arrangement of atoms impacts their chemical nature. • Transfer and apply learning to new situations. <i>Element properties as organized in the periodic table</i> <i>The arrangement of electrons determines the compounds formed by elements</i> (Chem 11) Atoms and molecules are building blocks of matter. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. <i>Quantum mechanical model and electron configuration</i> <i>Valence electrons and Lewis structures</i></p>

		<p><i>Chemical bonding based on electronegativity</i> <i>Analysis techniques</i></p>
	<p><i>Measurement and Conversions:</i> PSC.4.3 Demonstrate understanding of scientific measurement and expression (conversions, scientific notation).</p>	<p>(Chem 11) The mole is a quantity used to make atoms and molecules measurable.</p> <ul style="list-style-type: none"> Apply the concepts of accuracy and precision to experimental procedures and data: sig figures, uncertainty, scientific notation. <p><i>Dimensional analysis</i> <i>Stoichiometric calculations using sign figures</i></p>
	<p><i>Interactions of Matter:</i> PSC.4.4 Become acquainted with the interactions of matter (bonding, reaction types). HS-PS1-1, 1-2, 1-4, 1-5</p>	<p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. <p><i>Rearrangement of atoms in chemical reactions</i> <i>Acid-base chemistry</i> <i>Law of conservation of mass</i> <i>Energy change during chemical reactions</i></p> <p>(Chem 11) Matter and energy are conserved in chemical reactions.</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. <p><i>Bonds/forces</i> <i>Reactions</i></p>
	<p><i>Interactions of Matter, cont:</i> PSC.5.2 Explore the interactions of matter. HS-PS1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7</p>	<p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. <p><i>Rearrangement of atoms in chemical reactions</i> <i>Acid-base chemistry</i> <i>Law of conservation of mass</i> <i>Energy change during chemical reactions</i></p> <p>(Chem 11) Matter and energy are conserved in chemical reactions.</p> <ul style="list-style-type: none"> Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. <p><i>Bonds/forces</i> <i>Reactions</i></p>
	<p><i>Interactions of Matter, cont:</i> PSC.6.2 Interpret the results of the interactions of matter. HS-PS1-1, 1-2, 1-4, 1-5, 1-6, 1-7, 2-5</p>	<p>(Sci 10) Energy change is required as atoms rearrange in chemical processes.</p> <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Rearrangement of atoms in chemical reactions</i> <i>Acid-base chemistry</i> <i>Law of conservation of mass</i> <i>Energy change during chemical reactions</i></p> <p>(Chem 11) Matter and energy are conserved in chemical reactions.</p> <ul style="list-style-type: none"> Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Bonds/forces</i> <i>Reactions</i></p>

	<p><i>Force and Motion:</i> PSC.4.5 Familiarize students with the fundamental properties of force and motion (Newton’s laws, velocity, acceleration) HS-PS2-1, 2-2, 2-3, 2,4</p>	<p>(Phy 11) Forces influence the motion of an object.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. <p><i>Newton’s laws of motion and free-body diagrams Balanced and unbalanced forces in systems</i></p>
	<p><i>Force and Motion, cont:</i> PSC.5.3 Investigate the properties and interactions of force and motion. HS-PS2-1, 2-2, 2-3, 2-4, 2-5</p>	<p>(Phy 11) Forces influence the motion of an object.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. <p><i>Newton’s laws of motion and free-body diagrams Balanced and unbalanced forces in systems</i></p>
	<p><i>Force and Motion, cont:</i> PSC.6.3 Relate the concepts of force to motion. HS-PS2-1, 2-2, 2-3, 2-4</p>	<p>(Phy 11) Forces influence the motion of an object.</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. <p><i>Newton’s laws of motion and free-body diagrams Balanced and unbalanced forces in systems</i></p>
	<p><i>Energy:</i> PSC.4.6 Present the basic concepts of different energy forms (sound, electromagnetic waves, kinetic, potential, heat, nuclear, etc.). HS-PS1-8, 3-1, 3-2, 3-3, 3-4, 3-5, 4-1</p>	<p>(Sci 10) Energy is conserved, and its transformation can affect living things and the environment.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Nuclear energy and radiation Law of conservation of energy Potential and kinetic energy Transformation of energy</i></p>
	<p><i>Energy, cont:</i> PSC.5.4 Examine the fundamental concepts of different energy forms. HS-PS1-4, 1-8, 3-1, 3-2, 3-3, 3-4, 3-5, 4-1</p>	<p>(Sci 10) Energy is conserved, and its transformation can affect living things and the environment.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Nuclear energy and radiation Law of conservation of energy Potential and kinetic energy Transformation of energy</i></p>
	<p><i>Energy, cont:</i> PSC.6.4 Compare and contrast the different forms of energy. HS-PS1-8, 3-1, 3-2, 3-3, 3-4, 3-5</p>	<p>(Sci 10) Energy is conserved, and its transformation can affect living things and the environment.</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. <p><i>Nuclear energy and radiation Law of conservation of energy Potential and kinetic energy Transformation of energy</i></p>
	<p><i>Application:</i> PSC.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Contribute to care for self, other, community, and world through individual or collaborative approaches. • Cooperatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations.

		<ul style="list-style-type: none"> • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> PSC.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.
	<p><i>Application, cont:</i> PSC.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Consider the changes in knowledge over time as tools and technologies have developed.
	<p><i>Application, cont:</i> PSC.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Experience and interpret the local environment. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Seek and analyze patterns, trends, and connections in data including describing relationships between variables, performing calculations, and identifying inconsistencies. • Construct, analyze, and interpret graphs, models, and/or diagrams. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyse cause-and-effect relationships.
	<p><i>Application, cont:</i> PSC.3.4 Conduct research in the content area.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data. • Assess risks and address ethical, cultural, and /or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation.
	<p><i>Application, cont:</i> PSC.3.5 Engage in various uses of technology.</p>	<p>(9-12 CC)</p>

			<ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations.
		<p><i>Application, cont:</i> PSC.7.1 Strengthen belief in God as Designer and Creator by applying the fundamentals of Physical Science.</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Application, cont:</i> PSC.7.2 Utilize the concepts of Physical Science to improve lifestyle choices. HS-PS2-3, 4-2, 4-4, 4-5</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Application, cont:</i> PSC.7.3 Apply the study of Physical Science to issues regarding the environment. HS-PS4-4</p>	<p>(9-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Analyze cause-and-effect relationships. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Formulate physical or mental theoretical models to describe a phenomenon. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
Physical Sciences: Physics	11 - 12	<p><i>Course Focus:</i> PHY.1 Identify SDA Christian principles and values in correlation with science.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Course Focus, cont:</i> PHY.1.1 Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe.</p>	<p>(11-12 CC)</p>

		<ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Course Focus, cont:</i> PHY.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man’s interpretation.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations.
	<p><i>Course Focus, cont:</i> PHY.1.3 Develop stewardship and service attitudes toward health, life, and earth’s environment.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Co-operatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry.
	<p><i>Course Focus, cont:</i> PHY.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations.
	<p><i>Course Focus, cont:</i> PHY.1.5 Equip students with Christian perspectives on scientific issues.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others’ investigations.
	<p><i>Course Abilities:</i> PHY.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Formulate multiple hypotheses and predict multiple outcomes. • Experience and interpret the local environment. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. • Construct, analyze, and interpret graphs, models, and/or diagrams.

			<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. • Assess risks in the context of personal safety and social responsibility.
		<p><i>Course Abilities, cont:</i> PHY.2.2 Understand and utilize the scientific method of problem solving.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Formulate multiple hypotheses and predict multiple outcomes. • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative). • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods. • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. (gr. 11 ch. 1) • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, and scientific notation. (gr. 11 ch. 1) • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence.

			<ul style="list-style-type: none"> Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. Describe specific ways to improve their investigation methods and the quality of their data.
		<p><i>Course Abilities, cont:</i> PHY.2.3 Utilize the principles and methodologies of cooperative learning.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative). Contribute to care for self, others, community, and world through individual or collaborative approaches. Co-operatively design projects with local and/or global connections and applications.
		<p><i>Mechanics:</i> PHY.4.1 Recognize God as the Designer and Creator of our physical world and its governing laws.</p>	<p>Note: essentially every big idea in the curriculum could fit here. Note: The Grade 11 Physics book referenced here is “BC Science: Physics 11” by Edvantage Interactive. The Grade 12 Physics book referenced here is “BC Science: Physics 12” by Edvantage Interactive.</p> <p>(11) An object’s motion can be predicted, analyzed, and described.</p> <ul style="list-style-type: none"> Horizontal uniform and accelerated motion (ch. 2) Projectile motion (ch. 2) Graphical methods in physics (ch. 2, etc.)
		<p><i>Mechanics, cont:</i> PHY.4.2 Identify the fundamental properties and laws of mechanics. HS-PS2-1, 2-2, 2-3, 2-4, 3-1, 3-2, 3-3</p>	<p>(11) An object’s motion can be predicted, analyzed, and described.</p> <ul style="list-style-type: none"> Vector and scalar quantities (ch. 1) Horizontal uniform and accelerated motion (ch. 2) Projectile motion (ch. 2) Graphical methods in physics (ch. 2, etc.) <p>(12) Measurement of motion depends on our frame of reference.</p> <ul style="list-style-type: none"> Frames of reference (ch. 1, 2, 4) Relative motion within a stationary reference frame (ch. 2) Graphical methods in physics (ch. 2, etc.)
		<p><i>Mechanics, cont:</i> PHY.5.1 Test the properties and laws of mechanics (Newton’s laws, work, power, velocity, energy, etc.). HS-PS2-1, 2-2, 2-3, 2-4, 3-1, 3-2, 3-3</p>	<p>(11) Forces influence the motion of an object.</p> <ul style="list-style-type: none"> Contact forces and the factors that affect magnitude and direction (ch. 3) Mass, force of gravity, and apparent weight (ch. 3) Newton’s laws of motion and free-body diagrams (ch. 4) Conservation of energy; principle of work and energy (ch. 5) Power and efficiency (ch. 5)

		<ul style="list-style-type: none"> • Simple machines and mechanical advantage (ch. 5) • Applications of simple machines by First Peoples (ch. 5) • Graphical methods in physics (ch. 5, etc.) <p>(12) Forces can cause linear and circular motion. (12) Forces and energy interactions occur within fields. (12) Momentum is conserved within a closed and isolated system.</p> <ul style="list-style-type: none"> • Static equilibrium (ch. 1) • Uniform circular motion (ch. 4) • Gravitational field and Newton’s law of universal gravitation (ch. 4, 5) • Impulse and momentum (ch. 3) • Conservation of momentum and energy in collisions (ch. 3) • Graphical methods in physics (ch. 2, etc.)
	<p><i>Mechanics, cont:</i> PHY.6.1 Predict the outcome of motion and force problems using the principles of mechanics. HS-PS2-1, 2-2, 2-3, 2-4, 3-1, 3-2, 3-3</p>	<p>(11) Forces influence the motion of an object.</p> <ul style="list-style-type: none"> • Balanced and unbalanced forces in systems (ch. 4) • Conservation of energy; principle of work and energy (ch. 5) <p>(12) Forces can cause linear and circular motion. (12) Forces and energy interactions occur within fields. (12) Momentum is conserved within a closed and isolated system.</p> <ul style="list-style-type: none"> • Static equilibrium (ch. 1) • Uniform circular motion (ch. 4) • Gravitational field and Newton’s law of universal gravitation (ch. 4, 5) • Gravitational potential energy (ch. 3, 4) • Gravitational dynamics and energy relationships (ch. 4) • Impulse and momentum (ch. 3) • Conservation of momentum and energy in collisions (ch. 3) • Graphical methods in physics (ch. 2, etc.) • First Peoples knowledge and applications of forces in traditional technologies (not in textbook)
	<p><i>Thermodynamics:</i> PHY.4.3 Define the properties and laws of thermodynamics. HS-PS3-1, 3-2, 3-3, 3-4</p>	<p>(11) Energy is found in different forms, is conserved, and has the ability to do work.</p> <ul style="list-style-type: none"> • Conservation of energy; principle of work and energy (ch. 5) • Thermal equilibrium and specific heat capacity (ch. 5) <p>(12) Momentum is conserved within a closed and isolated system. (12) Forces and energy interactions occur within fields.</p> <ul style="list-style-type: none"> • Gravitational potential energy (ch. 3, 4)

		<ul style="list-style-type: none"> Gravitational dynamics and energy relationships (ch. 4) Impulse and momentum (ch. 3) Conservation of momentum and energy in collisions (ch. 3) Graphical methods in physics (ch. 2, etc.)
	<p><i>Thermodynamics, cont:</i> PHY.5.2 Explore the properties and laws of thermodynamics (laws, heat energy). HS-PS3-1, 3-2, 3-3, 3-4</p>	<p>(11) Energy is found in different forms, is conserved, and has the ability to do work.</p> <ul style="list-style-type: none"> Conservation of energy; principle of work and energy (ch. 5) Thermal equilibrium and specific heat capacity (ch. 5)
	<p><i>Thermodynamics, cont:</i> PHY.6.2 Correlate changes in energy to the laws of thermodynamics. HS-PS3-1, 3-2, 3-3, 3-4</p>	<p>(11) Energy is found in different forms, is conserved, and has the ability to do work.</p> <ul style="list-style-type: none"> Conservation of energy; principle of work and energy (ch. 5) Thermal equilibrium and specific heat capacity (ch. 5) <p>(12) Forces and energy interactions occur within fields.</p> <ul style="list-style-type: none"> Gravitational potential energy (ch. 3, 4) Electric potential energy, electric potential, and electric potential difference (ch. 5) Electrostatic dynamics and energy relationships (ch. 5)
	<p><i>Sound and Electromagnetic Waves:</i> PHY.4.4 Demonstrate an understanding of sound and electromagnetic wave principles. HS-PS4-1, 4-3, 4-4, 4-5</p>	<p>(11) Mechanical waves transfer energy but not matter.</p> <ul style="list-style-type: none"> Generation and propagation of waves (ch. 6) Properties and behaviours of waves (ch. 6)
	<p><i>Sound and Electromagnetic Waves, cont:</i> PHY.5.3 Investigate the properties of sound and electromagnetic waves (waves, optics, etc.). HS-PS3-3, 4-1, 4-3, 4-4, 4-5</p>	<p>(11) Mechanical waves transfer energy but not matter.</p> <ul style="list-style-type: none"> Characteristics of sound (ch. 6) Resonance and frequency of sound (not in textbook) <p>(11/12) Not in BC Curriculum (optics, gr. 11 ch. 7)</p>
	<p><i>Sound and Electromagnetic Waves, cont:</i> PHY.6.3 Evaluate the conditions and factors which affect sound and electromagnetic waves. HS-PS3-3, 4-1, 4-3, 4-4, 4-5</p>	<p>(11) Mechanical waves transfer energy but not matter.</p> <ul style="list-style-type: none"> Characteristics of sound (ch. 6) Resonance and frequency of sound (not in textbook)
	<p><i>Electricity and Magnetism:</i> PHY.4.5 Describe the fundamental properties of electricity and magnetism. HS-PS2-4, 2-5, 3-1, 3-2, 3-3, 3-5</p>	<p>(12) Forces and energy interactions occur within fields.</p> <ul style="list-style-type: none"> Electric field and Coulomb's law (ch. 5) Electric potential energy, electric potential, and electric potential difference (ch. 5) Electrostatic dynamics and energy relationships (ch. 5) Magnetic field (ch. 7) Magnetic force (ch. 7) Electromagnetic induction (ch. 8) Applications of electromagnetic induction (ch. 8)
	<p><i>Electricity and Magnetism, cont:</i></p>	<p>(11) Energy is found in different forms, is conserved, and has the ability to do work.</p>

	<p>PHY.5.4 Examine the principles of electricity and magnetism (circuits, Ohm's law, forces, charges, fields). HS-PS2-4, 2-5, 3-1, 3-2, 3-3, 3-5</p>	<ul style="list-style-type: none"> • Electric circuits (DC), Ohm's law, and Kirchhoff's laws (gr. 12 ch. 6) • Power and efficiency (gr. 12 ch. 6) <p>(12) Forces and energy interactions occur within fields.</p> <ul style="list-style-type: none"> • Electric field and Coulomb's law (ch. 5) • Electric potential energy, electric potential, and electric potential difference (ch. 5) • Electrostatic dynamics and energy relationships (ch. 5) • Magnetic field (ch. 7) • Magnetic force (ch. 7) • Electromagnetic induction (ch. 8) • Applications of electromagnetic induction (ch. 8)
	<p><i>Electricity and Magnetism, cont:</i> PHY.6.4 Analyze various electrical circuits. HS-PS2-4, 2-5</p>	<p>(11) Energy is found in different forms, is conserved, and has the ability to do work.</p> <ul style="list-style-type: none"> • Electric circuits (DC), Ohm's law, and Kirchhoff's laws (gr. 12 ch. 6) • Power and efficiency (gr. 12 ch. 6)
	<p><i>Nuclear Physics:</i> PHY.4.6 Understand the basic concepts of nuclear physics. HS-PS1-8</p>	<p>Not covered in the new Physics curriculum; covered in the Chemistry 11 curriculum (ch. 5), or in the old Physics 11 curriculum (ch. 9).</p>
	<p><i>Nuclear Physics, cont:</i> PHY.5.5 Research the principles of nuclear physics (quantum theory, radioactivity, dating methods, etc.). HS-PS1-8</p>	<p>Not covered in the new Physics curriculum; covered in the Chemistry 11 curriculum (ch. 5), or in the old Physics 11 curriculum (ch. 9).</p>
	<p><i>Nuclear Physics, cont:</i> PHY.6.5 Interpret the results of nuclear research. HS-PS1-8</p>	<p>Not covered in the new Physics curriculum; covered in the Chemistry 11 curriculum (ch. 5), or in the old Physics 11 curriculum (ch. 9).</p>
	<p><i>Application:</i> PHY.3 Be able to apply science knowledge and skills to a variety of purposes. HS-ETS1</p>	<p>(12) Forces and energy interactions occur within fields.</p> <ul style="list-style-type: none"> • Applications of electromagnetic induction (ch. 8).
	<p><i>Application, cont:</i> PHY.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Connect scientific explorations to careers in science. • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Co-operatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations.
	<p><i>Application, cont:</i></p>	<p>(11-12 CC)</p>

	<p>PHY.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.</p>	<ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Consider the changes in knowledge over time as tools and technologies have developed. • Consider the role of scientists in innovation.
	<p><i>Application, cont:</i> PHY.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).</p>	<ul style="list-style-type: none"> • (11-12 CC) • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. • Collectively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative). • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems. • Consider the role of scientists in innovation. • Formulate physical or mental theoretical models to describe a phenomenon. • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
	<p><i>Application, cont:</i> PHY.3.4 Conduct research in the content area.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. • Collaboratively and individually plan, select, and use appropriate investigation methods,

			<p>including field work and lab experiments, to collect reliable data (qualitative and quantitative).</p> <ul style="list-style-type: none"> • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, and scientific notation. • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies. • Construct, analyze, and interpret graphs, models, and/or diagrams. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions. • Describe specific ways to improve their investigation methods and the quality of their data.
		<p><i>Application, cont:</i> PHY.3.5 Engage in various uses of technology.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative). • Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data. • Consider the changes in knowledge over time as tools and technologies have developed.
		<p><i>Application, cont:</i> PHY.7.1 Strengthen belief in God as Designer and Creator by applying the laws of physics.</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<p><i>Application, cont:</i> PHY.7.2 Utilize the concepts of physics to improve lifestyle choices. HS-PS4-2, 4-5</p>	<p>(11-12 CC)</p> <ul style="list-style-type: none"> • Consider social, ethical, and environmental implications of the findings from their own and others' investigations. • Assess risks in the context of personal safety and social responsibility.

			<ul style="list-style-type: none"> Contribute to care for self, others, and world through individual or collaborative approaches. Contribute to finding solutions to problems at a local and/or global level through inquiry. Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. Express and reflect on a variety of experiences, perspectives, and worldviews through place.
		<i>Application, cont:</i> PHY.7.3 Apply the study of physics to issues regarding nuclear energy. HS-PS1-8	Not covered in the new Physics curriculum; covered in the Chemistry 11 curriculum (ch. 5), or in the old Physics 11 curriculum (ch. 9).
		No NAD Correlation: Special Relativity	(12) Measurement of motion depends on our frame of reference. <ul style="list-style-type: none"> Postulates of Special Relativity (gr. 11 ch. 8) Relativistic effects (gr. 11 ch. 8)
Engineering, Technology, and Applications of Science	K-2	<i>Engineering Design:</i> 1.DSP.1 Organize, represent, compare, and interpret data with up to three categories (1.MD.4)	(1,2) <ul style="list-style-type: none"> Make and record simple measurements using informal or non-standard methods; sort and classify data and information using drawings, pictographs and provided tables.
		<i>Engineering Design, cont:</i> 2.DSP.1 Generate measurement data by measuring lengths of several objects to the nearest whole unit; show the measurements by making a line plot (2.MD.9)	(1,2) <ul style="list-style-type: none"> Make and record simple measurements using informal or non-standard methods; sort and classify data and information using drawings, pictographs and provided tables.
		<i>Engineering Design, cont:</i> 2.DSP.2 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories; solve simple addition, subtraction, and comparison problems using information in a bar graph (2.MD.10)	(1,2) <ul style="list-style-type: none"> Sort and classify data and information using drawings, pictographs and provided tables; Identify simple patterns and connections.
Engineering, Technology, and Applications of Science	3-5	<i>Engineering Design:</i> 3.DSP.1 Draw and interpret scaled picture and bar graphs to represent a data set (3.MD.3)	(3,4,5) <ul style="list-style-type: none"> Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends.
		<i>Engineering Design, cont:</i> 3.DSP.2 Measure length using rulers marked with halves and fourths of an inch and the nearest whole centimeter; show data by making a line plot (3.MD.4)	(3,4,5) <ul style="list-style-type: none"> Observe, measure and record data. Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends.
		<i>Engineering Design, cont:</i> 4.DSP.1 Solve addition and subtraction problems using a line plot to display a data set of measurement in fractions of a unit (halves, fourths, and eighths) (4.MD.4)	(3,4,5) <ul style="list-style-type: none"> Observe, measure and record data. Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends.
	6-8	<i>Engineering Design:</i> 5.DSP.1 Use basic operations to solve problems using a line plot to display a data set of	(6-8) <ul style="list-style-type: none"> Observe, measure, and record data, using equipment, including digital technologies, with accuracy and precision.

		measurement in fractions of a unit (halves, fourths, and eighths) (5.MD.2)	<ul style="list-style-type: none"> Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate.
		<i>Engineering Design, cont:</i> 5.DSP.2 Find the mean, median, mode, and range of a given set of data	(6-8) <ul style="list-style-type: none"> Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate. Use appropriate SI units and perform simple unit conversions. Use scientific understandings to identify relationships and draw conclusions.
		<i>Engineering Design, cont:</i> 6.DSP.1 Develop understanding of statistical variability (6.SP.1,2,3)	(6-8) <ul style="list-style-type: none"> Use scientific understandings to identify relationships and draw conclusions. Measure and control variables through fair tests. Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate.
		<i>Engineering Design, cont:</i> 6.DSP.2 Summarize and describe distributions (6.SP.4,5)	(6-8) <ul style="list-style-type: none"> Demonstrate an understanding and appreciation of evidence. Communicate ideas, findings, and solutions to problems. Express and reflect on a variety of experiences and perspectives.
Engineering, Technology, and Applications of Science	9-12	None	None

Note: NAD Secondary Science standards are classified by course rather than by grade. Provinces will vary in the grades in which these courses (or similar) are offered. Please make it clear what grade each provincial standard refers to.