

BIG IDEAS

Plants and animals have observable features.

Humans interact with matter every day through familiar materials.

The motion of objects depends on their properties.

Daily and seasonal changes affect all living things.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Ask simple questions about familiar objects and events <p>Planning and conducting</p> <ul style="list-style-type: none"> • Make exploratory observations using their senses • Safely manipulate materials • Make simple measurements using non-standard units <p>Processing and analyzing data and information</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge • Discuss observations • Represent observations and ideas by drawing charts and simple pictographs <p>Applying and innovating</p> <ul style="list-style-type: none"> • Take part in caring for self, family, classroom and school through personal approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Share observations and ideas orally • Express and reflect on personal experiences of place 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • basic needs of plants and animals • adaptations of local plants and animals • local First Peoples uses of plants and animals • properties of familiar materials • effects of pushes/pulls on movement • effects of size, shape, and materials on movement • weather changes • seasonal changes • living things make changes to accommodate daily and seasonal cycles • First Peoples knowledge of seasonal changes

BIG IDEAS

Living things have features and behaviours that help them survive in their environment.

Matter is useful because of its properties.

Light and sound can be produced and their properties can be changed.

Observable patterns and cycles occur in the local sky and landscape.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Ask questions about familiar objects and events • Make simple predictions about familiar objects and events <p>Planning and conducting</p> <ul style="list-style-type: none"> • Make and record observations • Safely manipulate materials to test ideas and predictions • Make and record simple measurements using informal or non-standard methods <p>Processing and analyzing data and information</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge • Sort and classify data and information using drawings, pictographs and provided tables • Compare observations with predictions through discussion • Identify simple patterns and connections <p>Evaluating</p> <ul style="list-style-type: none"> • Compare observations with those of others • Consider some environmental consequences of their actions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • classification of living and non-living things • names of local plants and animals • structural features of living things in the local environment • behavioural adaptations of animals in the local environment • specific properties of materials allow us to use them in different ways • natural and artificial sources of light and sound • properties of light and sound depend on their source and the objects with which they interact • common objects in the sky • the knowledge of First Peoples <ul style="list-style-type: none"> – shared First Peoples knowledge of the sky – local First Peoples knowledge of the local landscape, plants and animals – local First Peoples understanding and use of seasonal rounds • local patterns that occur on Earth and in the sky

Learning Standards (continued)

Curricular Competencies	Content
<p>Applying and innovating</p> <ul style="list-style-type: none"> • Take part in caring for self, family, classroom and school through personal approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate observations and ideas using oral or written language, drawing, or role-play • Express and reflect on personal experiences of place 	

BIG IDEAS

Living things have life cycles adapted to their environment.

Materials can be changed through physical and chemical processes.

Forces influence the motion of an object.

Water is essential to all living things, and it cycles through the environment.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Ask questions about familiar objects and events • Make simple predictions about familiar objects and events <p>Planning and conducting</p> <ul style="list-style-type: none"> • Make and record observations • Safely manipulate materials to test ideas and predictions • Make and record simple measurements using informal or non-standard methods <p>Processing and analyzing data and information</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge • Sort and classify data and information using drawings, pictographs and provided tables • Compare observations with predictions through discussion • Identify simple patterns and connections <p>Evaluating</p> <ul style="list-style-type: none"> • Compare observations with those of others • Consider some environmental consequences of their actions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • metamorphic and non-metamorphic life cycles of different organisms • similarities and differences between offspring and parent • First Peoples use of their knowledge of life cycles • physical ways of changing materials • chemical ways of changing materials • types of forces • water sources including local watersheds • water conservation • the water cycle • local First People's knowledge of water: <ul style="list-style-type: none"> – water cycles – conservation – connection to other systems

Learning Standards (continued)

Curricular Competencies	Content
<p>Applying and innovating</p> <ul style="list-style-type: none"> • Take part in caring for self, family, classroom and school through personal approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate observations and ideas using oral or written language, drawing, or role-play • Express and reflect on personal experiences of place 	

BIG IDEAS

Living things are diverse, can be grouped, and interact in their ecosystems.

All matter is made of particles.

Thermal energy can be produced and transferred.

Wind, water, and ice change the shape of the land.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Identify questions about familiar objects and events that can be investigated scientifically • Make predictions based on prior knowledge <p>Planning and conducting</p> <ul style="list-style-type: none"> • Suggest ways to plan and conduct an inquiry to find answers to their questions • Consider ethical responsibilities when deciding how to conduct an experiment • Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate • Make observations about living and non-living things in the local environment • Collect simple data <p>Processing and analyzing data and information</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 • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Compare results with predictions, suggesting possible reasons for findings 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • biodiversity in the local environment • the knowledge of local First Peoples of ecosystems • energy is needed for life • matter is anything that has mass and takes up space • atoms are building blocks of matter • sources of thermal energy • transfer of thermal energy • major local landforms • local First Peoples knowledge of local landforms • observable changes in the local environment caused by erosion and deposition by wind, water, and ice

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Make simple inferences based on their results and prior knowledge • Reflect on whether an investigation was a fair test • Demonstrate an understanding and appreciation of evidence • Identify some simple environmental implications of their and others' actions <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, school, and neighbourhood through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <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 • Express and reflect on personal or shared experiences of place 	

BIG IDEAS

All living things sense and respond to their environment.

Matter has mass, takes up space, and can change phase.

Energy can be transformed.

The motions of Earth and the moon cause observable patterns that affect living and non-living systems.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate curiosity about the natural world • Observe objects and events in familiar contexts • Identify questions about familiar objects and events that can be investigated scientifically • Make predictions based on prior knowledge <p>Planning and conducting</p> <ul style="list-style-type: none"> • Suggest ways to plan and conduct an inquiry to find answers to their questions • Consider ethical responsibilities when deciding how to conduct an experiment • Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate • Make observations about living and non-living things in the local environment • Collect simple data <p>Processing and analyzing data and information</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 • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Compare results with predictions, suggesting possible reasons for findings 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • sensing and responding: <ul style="list-style-type: none"> – humans – other animals – plants • biomes as large regions with similar environmental features • phases of matter • the effect of temperature on particle movement • energy: <ul style="list-style-type: none"> – has various forms – is conserved • devices that transform energy • local changes caused by Earth's axis, rotation, and orbit • the effects of the relative positions of the sun, moon, and Earth including local First Peoples perspectives

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Make simple inferences based on their results and prior knowledge • Reflect on whether an investigation was a fair test • Demonstrate an understanding and appreciation of evidence • Identify some simple environmental implications of their and others' actions <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, school, and neighbourhood through individual or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <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 • Express and reflect on personal or shared experiences of place 	

BIG IDEAS

Multicellular organisms have organ systems that enable them to survive and interact within their environment.

Solutions are homogeneous.

Machines are devices that transfer force and energy.

Earth materials change as they move through the rock cycle and can be used as natural resources.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate a sustained curiosity about a scientific topic or problem of personal interest • Make observations in familiar or unfamiliar contexts • Identify questions to answer or problems to solve through scientific inquiry • Make predictions about the findings of their inquiry <p>Planning and conducting</p> <ul style="list-style-type: none"> • With support, plan appropriate investigations to answer their questions or solve problems they have identified • Decide which variable should be changed and measured for a fair test • Choose appropriate data to collect to answer their questions • Observe, measure, and record data, using appropriate tools, including digital technologies • Use equipment and materials safely, identifying potential risks <p>Processing and analyzing data and information</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • 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 • Identify patterns and connections in data • Compare data with predictions and develop explanations for results • Demonstrate an openness to new ideas and consideration of alternatives 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • basic structures and functions of body systems: <ul style="list-style-type: none"> – digestive – musculo-skeletal – respiratory – circulatory • solutions and solubility • properties of simple machines and their force effects • machines: <ul style="list-style-type: none"> – constructed – found in nature • power – the rate at which energy is transferred • the rock cycle • local types of earth materials • First Peoples concepts of interconnectedness in the environment • the nature of sustainable practices around BC's resources • First Peoples knowledge of sustainable practices

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Evaluate whether their investigations were fair tests • Identify possible sources of error • Suggest improvements to their investigation methods • Identify some of the assumptions in secondary sources • Demonstrate an understanding and appreciation of evidence • Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, and community through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate ideas, explanations, and processes in a variety of ways • Express and reflect on personal, shared, or others' experiences of place 	

BIG IDEAS

Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment.

Everyday materials are often mixtures.

Newton's three laws of motion describe the relationship between force and motion.

The solar system is part of the Milky Way, which is one of billions of galaxies.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> • Demonstrate a sustained curiosity about a scientific topic or problem of personal interest • Make observations in familiar or unfamiliar contexts • Identify questions to answer or problems to solve through scientific inquiry • Make predictions about the findings of their inquiry <p>Planning and conducting</p> <ul style="list-style-type: none"> • With support, plan appropriate investigations to answer their questions or solve problems they have identified • Decide which variable should be changed and measured for a fair test • Choose appropriate data to collect to answer their questions • Observe, measure, and record data, using appropriate tools, including digital technologies • Use equipment and materials safely, identifying potential risks <p>Processing and analyzing data and information</p> <ul style="list-style-type: none"> • Experience and interpret the local environment • 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 • Identify patterns and connections in data • Compare data with predictions and develop explanations for results • Demonstrate an openness to new ideas and consideration of alternatives 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • the basic structures and functions of body systems: <ul style="list-style-type: none"> – excretory – reproductive – hormonal – nervous • heterogeneous mixtures • mixtures: <ul style="list-style-type: none"> – separated using a difference in component properties – local First Peoples knowledge of separation and extraction methods • Newton's three laws of motion • effects of balanced and unbalanced forces in daily physical activities • force of gravity • the overall scale, structure, and age of the universe • the position, motion, and components of our solar system in our galaxy

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Evaluate whether their investigations were fair tests • Identify possible sources of error • Suggest improvements to their investigation methods • Identify some of the assumptions in secondary sources • Demonstrate an understanding and appreciation of evidence • Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, and community through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate ideas, explanations, and processes in a variety of ways • Express and reflect on personal, shared, or others' experiences of place 	

BIG IDEAS

Evolution by natural selection provides an explanation for the diversity and survival of living things.

Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined.

The electromagnetic force produces both electricity and magnetism.

Earth and its climate have changed over geological time.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</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 • Identify a question to answer or a problem to solve through scientific inquiry • Formulate alternative “If...then...” hypotheses based on their questions • Make predictions about the findings of their inquiry <p>Planning and conducting</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 • Measure and control variables (dependent and independent) through fair tests • Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision • Use appropriate SI units and perform simple unit conversions • Ensure that safety and ethical guidelines are followed in their investigations <p>Processing and analyzing data and information</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 • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • organisms have evolved over time • survival needs • natural selection • elements and compounds are pure substances • crystalline structure of solids • chemical changes • electricity <ul style="list-style-type: none"> – generated in different ways with different environmental impacts – electromagnetism • the fossil record provides evidence for changes in biodiversity over geological time • First Peoples knowledge of changes in biodiversity over time • evidence of climate change over geological time and the recent impacts of humans: <ul style="list-style-type: none"> – physical records – local First Peoples knowledge of climate change

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected • Identify possible sources of error and suggest improvements to their investigation methods • Demonstrate an awareness of assumptions and bias in their own work and secondary sources • Demonstrate an understanding and appreciation of evidence (qualitative and quantitative) • Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources • Consider social, ethical, and environmental implications of the findings from their own and others' investigations <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate • Express and reflect on a variety of experiences and perspectives of place 	

BIG IDEAS

Life processes are performed at the cellular level.

The behaviour of matter can be explained by the kinetic molecular theory and atomic theory.

Energy can be transferred as both a particle and a wave.

The theory of plate tectonics is the unifying theory that explains Earth's geological processes.

Learning Standards

Curricular Competencies	Content
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Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</p> <ul style="list-style-type: none"> • Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected • Identify possible sources of error and suggest improvements to their investigation methods • Demonstrate an awareness of assumptions and bias in their own work and secondary sources • Demonstrate an understanding and appreciation of evidence (qualitative and quantitative) • Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources • Consider social, ethical, and environmental implications of the findings from their own and others' investigations <p>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving <p>Communicating</p> <ul style="list-style-type: none"> • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate • Express and reflect on a variety of experiences and perspectives of place 	

BIG IDEAS

Cells are derived from cells.

The electron arrangement of atoms impacts their chemical nature.

Electric current is the flow of electric charge.

The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Questioning and predicting</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, including increasingly complex ones, about the natural world • Formulate multiple hypotheses and predict multiple outcomes <p>Planning and conducting</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) • Assess risks and address ethical, cultural and/or environmental issues associated with their proposed methods and those of others • Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Ensure that safety and ethical guidelines are followed in their investigations <p>Processing and analyzing data and information</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 (dependent and independent) and identifying inconsistencies • Construct, analyze and interpret graphs (including interpolation and extrapolation), models and/or diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Analyze cause-and-effect relationships 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • asexual reproduction: <ul style="list-style-type: none"> – mitosis – different forms • sexual reproduction: <ul style="list-style-type: none"> – meiosis – human sexual reproduction • element properties as organized in the periodic table • The arrangement of electrons determines the compounds formed by elements • circuits — must be complete for electrons to flow • voltage, current, and resistance • effects of solar radiation on the cycling of matter and energy • matter cycles within biotic and abiotic components of ecosystems • sustainability of systems • First Peoples knowledge of interconnectedness and sustainability

Learning Standards (continued)

Curricular Competencies	Content
<p>Evaluating</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 the 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 secondary sources • Consider the changes in knowledge over time as tools and technologies have developed • Connect scientific explorations to careers in science • Exercise a healthy, informed skepticism, and use scientific knowledge and findings to form their own investigations and to evaluate claims in secondary sources • 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>Applying and innovating</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving • Contribute to finding solutions to problems at a local and/or global level through inquiry • Consider the role of scientists in innovation <p>Communicating</p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon • 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 • Express and reflect on a variety of experiences, perspectives, and worldviews through place 	