



Organic School Gardens as Teaching Tools: Making the Curriculum Links

ELEMENTARY



We know that connecting your school garden to curriculum goals is of the utmost importance. Doing so helps solidify the garden space as a learning tool and emphasizes its pedagogical value. Included in this guide are the specific learning objectives targeted by Growing Up Organic garden-based workshops; included are curriculum goals that we have found are most easily linked to garden-based lessons. We know that the garden can be used in many more ways: visual arts, social sciences and language arts are some of the curriculum areas that are not explored to great depth in this document, but for which the garden still represents meaningful opportunities for learning. We hope you find this guide helpful in transforming your organic school garden into a vibrant outdoor classroom.



Grade 1

Science and Technology

Understanding Life Systems

Overall Expectations:

1. Assess the role of humans in maintaining a healthy environment;
2. Investigate needs and characteristics of plants and animals, including humans;
3. Demonstrate an understanding of the basic needs and characteristics of plants and animals, including humans.

Specific Expectations:

1. *Relating Science and Technology to Society and the Environment*
 - 1.1. Identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans
 - 1.2. Describe changes or problems that could result from the loss of some kinds of living things that are part of everyday life
2. *Developing Investigation and Communication Skills*
 - 2.2. Investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources
 - 2.3. Investigate the physical characteristics of plants and explain how they help the plant meet its basic needs, using a variety of methods and resources;
3. *Understanding Basic Concepts*
 - 3.2. Identify the physical characteristics (e.g., size, shape, colour, common parts) of a variety of plants and animals.
 - 3.5 Describe how showing care and respect for all living things helps to maintain a healthy environment.
 - 3.6 Identify what living things provide for other living things;
 - 3.7 Describe how the things plants and animals use to meet their needs are changed by their use and are returned to the environment in different forms.

Understanding Structures and Mechanisms

Specific Expectations:

1. *Relating Science and Technology to Society and the Environment*
 - 1.1 Identify the kinds of waste produced in the classroom, and plan and carry out a classroom course of action for minimizing waste, explaining why each action is important.
2. *Developing Investigation and Communication Skills*
 - 2.3 Investigate, through experimentation, the properties of various materials



Understanding Matter and Energy

Overall Expectations:

3. Demonstrate an understanding that energy is something that is needed to make things happen, and that the sun is the principal source of energy for the earth.

Specific Expectations:

Developing Investigation and Communication Skills

- 2.2 Investigate how the sun affects the air, land, and/or water, using a variety of methods
- 2.5 Use scientific inquiry/experimentation skills (see page 12), and knowledge acquired from previous investigations, to explore the effects of light and heat from the sun
- 2.6 Investigate how the sun's energy allows humans to meet their basic needs, including the need for food

Understanding Basic Concepts

- 3.2 Demonstrate an understanding that the sun, as the earth's principal source of energy, warms the air, land, and water; is a source of light for the earth; and makes it possible to grow food;
- 3.3 Identify food as a source of energy for themselves and other living things
- 3.4 Identify everyday uses of various sources of energy
- 3.5 Demonstrate an understanding that humans get the energy resources they need from the world around them (e.g., the wood, oil, and gas to heat our homes and cook our food) and that the supply of many of these resources is limited so care needs to be taken in how we use them

Understanding Earth and Space Systems

Overall Expectations:

1. Assess the impact of daily and seasonal changes on living things, including humans;
2. Investigate daily and seasonal changes;
3. Demonstrate an understanding of what daily and seasonal changes are and of how these changes affect living things.



Specific Expectations:

Relating Science and Technology to Society and the Environment

- 1.1 Assess the impact of daily and seasonal changes on human outdoor activities and identify innovations that allow for some of these activities to take place indoors out of season;
- 1.2 Assess ways in which daily and seasonal changes have an impact on society and the environment;

Developing Investigation and Communication Skills

- 2.2 investigate the changes in the amount of light from the sun that occur throughout the day and year
- 2.3 investigate the changes in the amount of heat from the sun that occur throughout the day and in the various seasons (e.g., use their prior experience of the sun's warmth, and measure, record, and compare outdoor temperatures at different times of day and in different months of the year)

Understanding Basic Concepts

- 3.1 Identify the sun as Earth's principal source of heat and light;
- 3.2 Define a cycle as a circular sequence of events;
- 3.3 Describe changes in the amount of heat and light from the sun that occur throughout the day and the seasons;
- 3.4 Describe and compare the four seasons;
- 3.5 Describe changes in the appearance or behaviour of living things that are adaptations to seasonal changes;
- 3.6 Describe how humans prepare for and/or respond to daily and seasonal changes.



Health and Physical Education

Social-Emotional Learning Skills

Overall Expectations:

A1 Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Identification and Management of Emotions

A1.1 Apply skills that help them identify and manage emotions as they participate in learning experiences in health and physical education, in order to improve their ability to express their own feelings and understand and respond to the feelings of others.

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Critical and Creative Thinking

A1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making.

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.



Specific Expectations:

D1. Understanding Health Concepts

D1.1 explain why people need food to have healthy bodies and minds (e.g., food provides energy and nutrients for the healthy growth of teeth, skin, bones, and muscles and the healthy development of the brain) [A1.6 Thinking] Teacher prompt: “There are many things that contribute to a healthy body and mind, and healthy eating is one. When we talk about ‘a healthy body and mind’, we’re talking about your whole body, including your brain and your feelings and thoughts. Just as some toys need batteries to run, we need healthy foods to be active, to grow and be well, and to learn. How does eating breakfast every day and eating healthy meals and snacks throughout the day help you learn?” Student: “It gives me energy to help me stay alert and concentrate through the day.”

D2. Making Healthy Choices

D2.1 Describe how Canada’s Food Guide can help them develop healthy eating habits
Teacher prompt: “Canada’s Food Guide makes recommendations that can help you develop healthy eating habits. What are some of the healthy habits recommended in the Food Guide?” Student: “The guide suggests that you eat plenty of vegetables and fruits, whole grain foods, and protein foods, and choose protein foods that come from plants more often. It also says that healthy eating is about more than just the foods you eat; it’s also about being mindful of your eating habits, enjoying your food, and eating meals with others.”



Mathematics

Spatial Sense

Overall Expectations:

E.1 Geometric and Spatial Reasoning

Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them.

E.2 Measurement

Compare, estimate, and determine measurements in various contexts.

Specific Expectations:

Geometric Reasoning

E1.1 Sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used

E1.2 Construct three-dimensional objects, and identify two-dimensional shapes contained within structures and objects

E1.3 Construct and describe two-dimensional shapes and three-dimensional objects that have matching halves

Location and Movement

E1.4 Describe the relative locations of objects or people, using positional language

E1.5 Give and follow directions for moving from one location to another

Attributes and Time

E2.1 identify measurable attributes of two-dimensional shapes and three-dimensional objects, including length, area, mass, capacity, and angle

E2.2 Compare several everyday objects and order them according to length, area, mass, and capacity

E2.3 Read the date on a calendar, and use a calendar to identify days, weeks, months, holidays, and seasons



Grade 1 – Garden Connections

Data Literacy

Overall Expectations:

D1. Data Literacy:

manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Specific Expectations:

Data Collection and Organization

D1.1 Sort sets of data about people or things according to one attribute, and describe rules used for sorting

D1.2 Collect data through observations, experiments, and interviews to answer questions of interest that focus on a single piece of information; record the data using methods of their choice; and organize the data in tally tables



Social Studies

Heritage and Identity: Our Changing Roles and Responsibilities

Overall Expectations:

A1. Application: describe some of the ways in which people's roles, relationships, and responsibilities relate to who they are and what their situation is, and how and why changes in circumstances might affect people's roles, relationships, and responsibilities as well as their sense of self

A2. Inquiry: use the social studies inquiry process to investigate some aspects of the interrelationship between their identity/sense of self, their different roles, relationships, and responsibilities, and various situations in their daily lives

A3. Understanding Context: demonstrate an understanding that they and other people have different roles, relationships, and responsibilities, and that all people should be treated with respect, regardless of their roles, relationships, and responsibilities

Specific Expectations:

A1. Application: Why Roles and Responsibilities Change

A1.1 describe how and why a person's roles, relationships, and responsibilities may change in different places or situations and at different times

A3. Understanding Context: Roles, Relationships, and Respect

A3.1 Describe some of their own roles, relationships, and responsibilities

A3.4 Identify some elements of respectful behaviour that they can practise in their everyday life (e.g., sharing, cooperating, being courteous, not damaging the natural or built environment)

and/or that other people practise (e.g., some people bow to each other as a sign of respect; when meeting an Elder, one offers tobacco, a sacred medicine, for symbolic purposes)

A3.5 Demonstrate an understanding that it is important to treat other people and the environment with respect

People and Environments: The Local Community

Overall Expectations:

B1. Application: describe some aspects of the interrelationship between people and the natural and built features of their community, with a focus on how the features of and services in the community meet people's needs

B2. Inquiry: use the social studies inquiry process to investigate some aspects of the interrelationship between people and different natural and built features of their local community, with a focus on significant short- and long-term effects of this interrelationship

B3. Understanding Context: describe significant aspects of their community, with reference to different areas, services, and natural and built features, demonstrating an understanding of some basic ways of describing location and measuring distance



Grade 1 – Garden Connections

Specific Expectations:

B1. Application: Interrelationships within the Community

B1.1 describe some of the ways in which people make use of natural and built features of, and human services in, the local community to meet their needs, and what might happen if these features/services did not exist

B1.3 create a plan that outlines some specific ways in which they can responsibly interact with the built and/or natural environment in the local community (e.g., map out the location of garbage and recycling cans in parks so they can properly dispose of their waste; help plan a garden at home, composting in the school, or other ways of reducing their environmental footprint; plan ways to participate in clean-up days), and describe how their actions might enhance the features of the local environment

B2. Inquiry: Interrelationships and their Impact

B2.1 Formulate questions to guide investigations into some aspects of the interrelationship between people and the natural and built features of their community, with a focus on some of the short- and long-term effects of this interrelationship

B2.2 Gather and organize information on the interrelationship between people and the natural and built features of their community, and on the effects of this interrelationship, using sources that they have located themselves or that have been provided to them

B2.3 Analyse maps, and construct simple maps using appropriate elements, as part of their investigations into the interrelationship between people and significant natural and built features in their community (e.g., show the location of parks, bodies of water, or shopping districts, using symbols or photographs, a legend, directions, and colour)

B3. Understanding Context: The Elements of the Local Community

B3.1 Identify some of the natural and built features of their community

B3.3 describe the location of some significant places in their community, using relative location (e.g., near, far, up, down), relative distance (e.g., close, far, farther), and relative direction (e.g., right, left, in front, behind)

B3.4 Demonstrate an understanding of the basic elements of a map (e.g., title, symbols in the legend, direction, scale, and colour) when reading and constructing simple maps showing places that are significant to them

B3.5 Demonstrate an understanding of some common non-standard units of measurement

B3.6 Demonstrate the ability to construct simple maps of places they have visited, using symbols and non-standard units



Grade 2 Science and Technology

Understanding Earth and Space Systems

Overall Expectations:

1. Assess ways in which the actions of humans have an impact on the quality of air and water, and ways in which the quality of air and water has an impact on living things;
2. Investigate the characteristics of air and water and the visible/invisible effects of and changes to air and/or water in the environment;
3. Demonstrate an understanding of the ways in which air and water are used by living things to help them meet their basic needs.

Specific Expectations:

Developing Investigation and Communication Skills

2.3 Investigate, through experimentation, the characteristics of water (e.g., water takes up space, flows or moves when not contained, has mass) and its uses (e.g., living things need water to stay alive; water makes things move: spins a water wheel; water makes certain activities possible: keeps a white-water raft afloat)

2.4 Investigate the stages of the water cycle, including evaporation (e.g., heat water in a kettle), condensation (e.g., collect the water vapour from the kettle on an overturned mirror), precipitation (e.g., allow the water vapour on the overturned mirror to collect, cool, and drop), and collection (e.g., let the dripping water accumulate in a container)

2.5 Investigate water in the natural environment (e.g., observe and measure precipitation; observe and record cloud formations; observe water flow and describe where it goes; observe a puddle over time and record observations)

Understanding Basic Concepts

- 3.3 Describe ways in which living things, including humans, depend on air and water
- 3.4 Identify sources of water in the natural and built environment



Health and Physical Education

Social Emotional Learning Skills

Overall Expectations:

- A1. Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

A1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

A1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Making Healthy Choices

- D2.1 Use Canada's Food Guide to identify food and beverage choices that contribute to healthy eating patterns
- D2.2 Demonstrate an understanding of how to make healthy food choices for meals and snacks, considering the factors they can and cannot control



Mathematics

Geometric and Spatial Reasoning Sense

Overall Expectations:

Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

Specific Expectations:

Geometric Reasoning

- E1.1 Sort and identify two-dimensional shapes by comparing number of sides, side lengths, angles, and number of lines of symmetry
- E1.2 Compose and decompose two-dimensional shapes, and show that the area of a shape remains constant regardless of how its parts are rearranged
- E1.3 Identify congruent lengths and angles in two-dimensional shapes by mentally and physically matching them, and determine if the shapes are congruent

Location and Movement

- E1.4 Create and interpret simple maps of familiar places
- E1.5 Describe the relative positions of several objects and the movements needed to get from one object to another

Measurement

Overall Expectations:

Compare, estimate, and determine measurements in various contexts

Specific Expectations:

Length

- E2.1 Choose and use non-standard units appropriately to measure lengths, and describe the inverse relationship between the size of a unit and the number of units needed
- E2.2 Explain the relationship between centimetres and metres as units of length, and use benchmarks for these units to estimate lengths
- E2.3 Measure and draw lengths in centimetres and metres, using a measuring tool, and recognize the impact of starting at points other than zero

Time

- E2.4 Use units of time, including seconds, minutes, hours, and non-standard units, to describe the duration of various events



Grade 2 – Garden Connections

Data Literacy

Overall Expectations:

Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Specific Expectations:

Data Collection and Organization

D1.2 Collect data through observations, experiments, and interviews to answer questions of interest that focus on two pieces of information, and organize the data in two-way tally tables

Data Visualization

D1.3 Display sets of data, using one-to-one correspondence, in concrete graphs, pictographs, line plots, and bar graphs with proper sources, titles, and labels



Social Studies

People and Environments: Global Communities

Overall Expectations:

- Describe some similarities and differences in the ways in which people in two or more communities in different parts of the world meet their needs and have adapted to the location, climate, and physical features of their regions
- Use the social studies inquiry process to investigate aspects of the interrelationship between the natural environment, including the climate, of selected communities and the ways in which people in those communities live

Specific Expectations:

B1. Application: Variations in Global Communities

B1.1 Compare selected communities from around the world, including their own community, in terms of the lifestyles of people in those communities and some ways in which the people meet their needs (e.g., in northern Europe, people have homes that are heated and insulated, while in the Caribbean, houses do not need to be insulated and may have rooms that are open to the outdoors; in cities, most people buy their groceries from a local shop or a grocery store, but in rural South America people either grow their own food or trade with other farmers)

B1.2 Describe some of the ways in which two or more distinct communities have adapted to their location, climate, and physical features

B1.3 Demonstrate an understanding of the importance of sustainability in people's interrelationship with their natural environment and of some of the consequences of sustainable and/or non-sustainable actions (e.g., if people in dry regions do not use their water carefully, they may run out; if people do not use sustainable farming techniques, they may exhaust the fertility of the soil; responsible use of resources helps ensure that they will be available for future generations)

B2. Inquiry: Natural Environments and Ways of Life

B2.1 Formulate questions to guide investigations into some aspects of the interrelationship between the natural environment of selected communities and the ways in which people live (e.g., questions about how climate relates to clothing, agriculture, housing, recreation)



Grade 3

Science and Technology

Understanding Life Systems

Overall Expectations:

1. Assess ways in which plants have an impact on society and the environment, and ways in which human activity has an impact on plants and plant habitats;
2. Investigate similarities and differences in the characteristics of various plants, and ways in which the characteristics of plants relate to the environment in which they grow;
3. Demonstrate an understanding that plants grow and change and have distinct characteristics.

Specific Expectations:

Relating Science and Technology to Society and the Environment

1.1 Assess ways in which plants are important to humans and other living things, taking different points of view into consideration (e.g., the point of view of homebuilders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants

1.2 Assess the impact of different human activities on plants, and list personal actions they can engage in to minimize harmful effects and enhance good effects

Developing Investigation and Communication Skills

2.1 Follow established safety procedures during science and technology investigations; (e.g., avoid touching eyes when handling plants; never taste any part of a plant unless instructed to do so by the teacher)

2.2 Observe and compare the parts of a variety of plants (e.g., roots of carrot; stem of broccoli; leaves of lettuce);

2.3 Germinate seeds and record similarities and differences as seedlings develop (e.g., plant quick-growing seeds – nasturtium, morning glory, sunflower, tomato, beet, or radish seeds – in peat pellets to observe growth);

2.4 Investigate ways in which a variety of plants adapt and/or react to their environment, including changes in their environment, using a variety of methods (e.g., read a variety of non-fiction texts; interview plant experts; view DVDs or CD-ROMs)

2.6 Use appropriate science and technology vocabulary, including stem, leaf, root, pistil, stamen, flower, adaptation, and germination, in oral and written communication;

2.7 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., make illustrated entries in a personal science journal to describe plant characteristics and adaptations to harsh environments).

Understanding Basic Concepts

3.1 Describe the basic needs of plants, including air, water, light, warmth, and space

3.2 Identify the major parts of plants, including root, stem, flower, stamen, pistil, leaf, seed, and fruit, and describe how each contributes to the plant's survival within the plant's environment

(e.g., the roots soak up food and water for the plant; the stem carries water and food to the rest of the plant; the leaves make food for the plant with help from the sun; the flowers grow fruit and seeds for new plants)



Grade 3 – Garden

Connections

- 3.3 Describe the changes that different plants undergo in their life cycles (e.g., some plants grow from bulbs to flowers, and when the flowers die off the bulb produces little bulbs that will bloom the next year; some plants grow from germination of a seed to the production of a fruit containing seeds that are then scattered by humans, animals, or the wind so that new plants can grow)
- 3.4 Describe how most plants get energy to live directly from the sun (e.g., plants turn the energy from the sun into food for themselves) and how plants help other living things to get energy from the sun (e.g., Other living things, which cannot “eat” sunshine, eat the plants to get the energy. They also get energy when they eat the animals that eat the plants.)
- 3.5 Describe ways in which humans from various cultures, including Aboriginal people, use plants for food, shelter, medicine, and clothing (e.g., food – from rice plants; houses for shelter – from the wood of trees; medicines – from herbs; clothing – from cotton plants)
- 3.6 Describe ways in which plants and animals depend on each other (e.g., plants provide food for energy; animals help disperse pollen and seeds, and provide manure that fertilizes the soil in which plants grow; plants need the carbon dioxide that animals breathe out, and animals need the oxygen that plants release into the air)
- 3.7 Describe the different ways in which plants are grown for food (e.g., on farms, in orchards, greenhouses, home gardens), and explain the advantages and disadvantages of locally grown and organically produced food, including environmental benefits
- 3.8 Identify examples of environmental conditions that may threaten plant and animal survival (e.g., extreme heat and cold; floods and/or droughts; changes in habitat because of human activities)



Grade 3 – Garden Connections

Understanding Earth and Space Systems: Soils in the Environment

Overall Expectations:

1. Assess the impact of soils on society and the environment, and of society and the environment on soils;
2. Investigate the composition and characteristics of different soils;
3. Demonstrate an understanding of the composition of soils, the types of soils, and the relationship between soils and other living things.

Specific Expectations:

Relating Science and Technology to Society and the Environment

- 1.1 Assess the impact of soils on society and the environment, and suggest ways in which humans can enhance positive effects and/or lessen or prevent harmful effects;
- 1.2 Assess the impact of human action on soils, and suggest ways in which humans can affect soils positively and/or lessen or prevent harmful effects on soils.

Developing Investigation and Communication Skills

- 2.1 Follow established safety procedures during science and technology investigations;
- 2.2 Investigate the components of soil (e.g., nonliving things such as pebbles and decaying matter; living things such as organic matter, bacteria, earthworms, and insects), the condition of soil (e.g., wet, dry), and additives found in soil (e.g., pesticides, fertilizers, salt), using a variety of soil samples (e.g., sand, clay, loam) from different local environments, and explain how the different amounts of these components in a soil sample determine how the soil can be used;
- 2.4 Investigate the process of composting, and explain some advantages and disadvantages of composting (e.g., set up a pop-bottle composter in the classroom, and observe what happens over time).
- 2.5 Use appropriate science and technology vocabulary, including clay, sand, loam, pebbles, earth materials, and soil, in oral and written communication

Understanding Basic Concepts

- 3.1 Identify and describe the different types of soils;
- 3.2 Identify additives that might be in soil but that cannot always be seen (e.g., pesticides, fertilizers, salt);
- 3.3 Describe the interdependence between the living and non-living things that make up soil (e.g., earthworms ingest the soil and absorb the nutrients, then their castings return the nutrients to the soil; the roots of plants use the soil as an anchor to keep the plants from blowing away);
- 3.4 Describe ways in which the components of various soils enable the soil to provide shelter/homes and/or nutrients for different kinds of living things (e.g., microscopic bacteria and micro-organisms feed on decaying matter in the soil; roots of plants absorb minerals from the soil).



Health and Physical Education

Social-Emotional Learning Skills

Overall Expectations:

A1 Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

A1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

A1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Understanding Health Concepts

D1.1 Demonstrate an understanding of how the origins of food (e.g., where the food is grown, harvested, trapped, fished, or hunted; whether and how it is processed or prepared) affect its nutritional value and how those factors and others (e.g., the way we consume and dispose of food) can affect the environment

Making Healthy Choices

D2.2 Apply their understanding of good safety practices by developing safety guidelines for a variety of places and situations outside the classroom, including online;

Making Connections for Healthy Living

D3.1 Explain how local foods and foods from various cultures (e.g., berries, curries, chapatis, lychees, kale, lentils, corn, naan, wild game, fish, tourtière) can be used to expand their range of healthy eating choices



Social Studies

Heritage and Identity: Communities in Canada, 1780-1850

Overall Expectations:

- Compare ways of life among some specific groups in Canada around the beginning of the nineteenth century, and describe some of the changes between that era and the present day
- Use the social studies inquiry process to investigate some of the major challenges that different groups and communities faced in Canada from around 1780 to 1850, and key measures taken to address these challenges

- Identify some of the communities in Canada around the beginning of the nineteenth century, and describe their relationships to the land and to each other

Specific Expectations:

Application: Life in Canada- Then and Now

- A1.1** Describe some of the similarities and differences in various aspects of everyday life (e.g., housing, clothing, food, religious/spiritual practices, work, recreation, the role of children) of selected groups living in Canada between 1780 and 1850 (e.g., First Nations, Métis, French, British, Black people; men and women; slaves, indentured servants, habitants, seigneurs, farmers; people from different classes)
- A1.2** Compare some of the roles of and challenges facing people in Canada around the beginning of the nineteenth century with those in the present day (e.g., the roles of women, men, and children; challenges related to the environment, work, community life, the law)
- A1.3** Identify some key components of the Canadian identity (e.g., bilingualism, multiculturalism, founding nations, religious freedom), and describe some of the ways in which communities that were in Canada around the early 1800s have had an impact on Canadian identity (e.g., with reference to Canada's official languages, cultural contributions, place names, observances such as National Aboriginal Day or Black History Month)

Inquiry: Community Challenges and Adaptations

- A2.1** Formulate questions to guide investigations into some of the major challenges facing different groups and communities in Canada from around 1780 to 1850 (e.g., isolation; climate; lack of access to doctors, law enforcement, or manufactured goods in isolated communities; encroachment of European settlers on traditional First Nations territory; racism facing First Nations peoples and Black Loyalists) and measures taken to address these challenges

Understanding Context: Life in Colonial Canadian Communities

- A3.3** identify some of the main factors that helped shape the development of settlements in Canada during this period (e.g., the establishment of trading posts based on trade routes and the knowledge of First Nations peoples; navigable lakes and rivers for trade and transportation; climate; proximity to natural resources; the origins of settlers), and describe how the physical features of the land (e.g., topography, proximity to water, fertility of the soil) and the availability of goods and services (e.g., mills, churches, roads) can facilitate settlement and enhance community life
- A3.4** Describe some of the major challenges facing communities in Canada during this period (e.g., challenges relating to the climate; isolation in backwoods settlements; competition for resources; European diseases among First Nations; colonial wars and other conflicts; racism)
- A3.5** Describe the impact of some different kinds of settlements (e.g., seasonal settlements of semi-nomadic First Nations, trading posts, resource towns, large-scale farms, large towns or developing cities) on the natural environment and on any existing settlements



Grade 3 – Garden

Connections

A3.6 Describe some key aspects of life in selected First Nations, Métis, and settler communities in Canada during this period, including the roles of men, women, and children (e.g., with reference to diet; how food was obtained; clothing; housing; recreation; education; the division of labour between men, women, and children)

A3.7 Describe how some different communities in Canada related to each other during this period, with a focus on whether the relationships were characterized by conflict or cooperation (e.g., cooperation between First Nations and settler communities with respect to the sharing of medicines and technologies; intermarriage between First Nations women and European men; cooperative efforts to establish farms and villages; conflict as settlers impinged on First Nations lands; conflicts between different religious or ethnic groups)

People and Environments: Living and Working in Ontario

Overall Expectations:

-Demonstrate an understanding of some key aspects of the interrelationship between the natural environment, land use, employment opportunities, and the development of municipal regions in Ontario.

-Use the social studies inquiry process to investigate some of the environmental effects of different types of land and/or resource use in two or more Ontario municipal regions, as well as some of the measures taken to reduce the negative impact of that use

-Describe major landform regions and types of land use in Ontario and some of the ways in which land use in various Ontario municipalities addresses human needs and wants, including the need for jobs

Specific Expectations:

Application: Land Use and the Environment

--**B1.1** Describe some major connections between features of the natural environment of a region and the type of land use and/or the type of community that is established in that region (e.g., ports on lakes or major rivers; farming on flat land with fertile soil; resource towns in areas with ore, trees, or other natural resources)

B1.3 Identify and describe some of the main patterns in population distribution and land use in two or more municipal regions in Ontario, using mapping and globe skills (e.g., read city maps to extract information on how much land is used for residential and transportation purposes; read digital provincial land use and/or agricultural maps to identify population patterns in agricultural areas; create a thematic map to show how land used for commercial purposes often exists in specific pockets within areas with large populations)

Inquiry: The Impact of Land and Resource Use

--**B2.1** Formulate questions to guide investigations into some of the short- and/or long-term effects on the environment of different types of land and/or resource use in two or more municipal regions of Ontario (e.g., the impact of mining, forestry, agriculture, suburban land development) and measures taken to reduce the negative impact of that use

--**B2.2** Gather and organize a variety of data and information on the environmental effects of different land and/or resource use and measures taken to reduce the negative impact of that use (e.g., photographs, resource books, magazines, online articles, information from regional conservation authorities or provincial and national park websites, information from municipalities on recycling, an interview with an Elder on traditional ecological knowledge about a region and his or her observations on changes in that region)

Understanding Context: Regions and Land Use in Ontario

B3.5 Describe major types of land use (e.g., for agriculture, industry, commerce, housing, recreation, transportation, conservation) and how they address human needs and wants (e.g., agricultural lands provide us with a variety of foods for local consumption and export; land use for recreation enables people to enjoy the outdoors and to participate in or watch sports and other activities; residential areas have different types of buildings to meet people's housing needs; conservation lands protect ecosystems and habitat for organisms so that biodiversity is preserved for future generations; untouched wetlands help ensure clean water and a healthy habitat)



Mathematics

Number Sense

Overall Expectations:

--B1 Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

Specific Expectations:

Fractions

--B1.7 Represent and solve fair-share problems that focus on determining and using equivalent fractions, including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths

Spatial Sense- Geometric and Spatial Reasoning & Measurement

Overall Expectations:

- E1. Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them
- E2. Compare, estimate, and determine measurements in various contexts

Specific Expectations:

Location and Movement

E1.4 Give and follow multistep instructions involving movement from one location to another, including distances and half- and quarter-turns

Specific Expectations:

Length, Mass, and Capacity

--E2.1 Use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a given perimeter

--E2.2 Explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths

--E2.3 Use non-standard units appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy

--E2.4 Compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units

E2.5 Use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same

Area --

E2.7 Compare the areas of two-dimensional shapes by matching, covering, or decomposing and recomposing the shapes, and demonstrate that different shapes can have the same area

E2.8 Use appropriate non-standard units to measure area, and explain the effect that gaps and overlaps have on accuracy

E2.9 Use square centimetres (cm²) and square metres (m²) to estimate, measure, and compare the areas of various two-dimensional shapes, including those with curved sides



Grade 3 – Garden

Connections

Data Literacy and Probability

Overall Expectations:

- D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life.
- D2. Describe the likelihood that events will happen, and use that information to make predictions

Specific Expectations:

Data Collection and Organization

- D1.1 Sort sets of data about people or things according to two and three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate
- D1.2 Collect data through observations, experiments, and interviews to answer questions of interest that focus on qualitative and quantitative data, and organize the data using frequency tables

Data Visualization

- D1.3 Display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales



Grade 4

Science and Technology

Understanding Life Systems: Habitats and Communities

Overall Expectations:

1. Analyse the effects of human activities on habitats and communities;
2. Investigate the interdependence of plants and animals within specific habitats and communities
3. Demonstrate an understanding of habitats and communities and the relationships among the plants and animals that live in them

Specific Expectations:

Relating Science and Technology to Society and the Environment

1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities, taking different perspectives into account, and evaluate ways of minimizing the negative impacts

1.2 Identify reasons for the depletion or extinction of a plant or animal species (e.g., hunting, disease, invasive species, changes in or destruction of its habitat), evaluate the impacts on the rest of the natural community, and propose possible actions for preventing such depletions or extinctions from happening

Developing Investigation and Communication Skills

2.1 Follow established safety procedures for working with soils and natural materials;

2.2 Build food chains consisting of different plants and animals, including humans.

Understanding Basic Concepts

3.2 Demonstrate an understanding of food chains as systems in which energy from the sun is transferred to producers (plants) and then to consumers (animals);

3.3 Identify factors (e.g., availability of water or food, amount of light, type of weather) that affect the ability of plants and animals to survive in a specific habitat;

3.4 Demonstrate an understanding of a community as a group of interacting species sharing a common habitat (e.g., the life in a meadow or in a patch of forest)

3.5 Classify organisms, including humans, according to their role in a food chain (e.g., producer, consumer, and decomposer).

3.7 Describe structural adaptations that allow plants and animals to survive in specific habitats

(e.g., the thick stem of a cactus stores water for the plant; a duck's webbed feet allow it to move quickly and efficiently in water)



Health and Physical Education

Social-Emotional Learning Skills

Overall Expectations:

A1 Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Understanding Health Concepts

D1.1 Identify the key nutrients (e.g., fat, carbohydrates, protein, vitamins, minerals) provided by foods and beverages, and describe their importance for growth, health, learning, and physical performance.

Making Healthy Choices

D2.1 Identify personal eating habits through self-monitoring over time, and set a goal for developing healthier eating habits, on the basis of the recommendations and guidelines in Canada's Food Guides (e.g., make water their drink of choice; eat plenty of vegetables and fruits; eat meals with others; help with food shopping and meal preparation at home; trap, fish, hunt, harvest, and cultivate food)

Making Connections for Healthy Living

D3.1 Identify ways of promoting healthier eating habits in a variety of settings and situations (e.g., school, arena, recreation centre, stores, food courts, special events; when camping, having a snack or meal at a friend's house, eating on weekends versus weekdays)



Mathematics

Number Sense and Operations

Overall Expectations:

B1.–Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

B2.–Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Specific Expectations:

Fractions and Decimals

--**B1.4** Represent fractions from halves to tenths using drawings, tools, and standard fractional notation, and explain the meanings of the denominator and the numerator

--**B1.5** Use drawings and models to represent, compare, and order fractions representing the individual portions that result from two different fair-share scenarios involving any combination of 2, 3, 4, 5, 6, 8, and 10 sharers

--**B1.9** Describe relationships and show equivalences among fractions and decimal tenths, in various contexts

Multiplication and Division

--**B2.7** Represent the relationship between the repeated addition of a unit fraction and the multiplication of that unit fraction by a whole number, using tools, drawings, and standard fractional notation

B2.8 Show simple multiplicative relationships involving whole-number rates, using various tools and drawings

Geometric and Spatial Reasoning & Measurement

Overall Expectations:

E1. Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

E2. Compare, estimate, and determine measurements in various contexts

Specific Expectations:

Geometric Reasoning

E1.1 Identify geometric properties of rectangles, including the number of right angles, parallel and perpendicular sides, and lines of symmetry

E1.3 Describe and perform translations and reflections on a grid, and predict the results of these transformations

The Metric System

--**E2.1** Explain the relationships between grams and kilograms as metric units of mass, and between litres and millilitres as metric units of capacity, and use benchmarks for these units to estimate mass and capacity

--**E2.2** Use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity

Time

E2.3 Solve problems involving elapsed time by applying the relationships between different units of time

Area

--**E2.5** Use the row and column structure of an array to measure the areas of rectangles and to show that the area of any rectangle can be found by multiplying its side lengths

E2.6 Apply the formula for the area of a rectangle to find the unknown measurement when given two of the three



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Data Literacy

Overall Expectations:

Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life.

Specific Expectations:

Data Collection and Organization

--D1.2 collect data from different primary and secondary sources to answer questions of interest that involve comparing two or more sets of data, and organize the data in frequency tables and stem-and-leaf plots

Data Visualization

--D1.3 Select from among a variety of graphs, including multiple-bar graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

D1.4 Create an infographic about a data set, representing the data in appropriate ways, including in frequency tables, stem-and-leaf plots, and multiple-bar graphs, and incorporating any other relevant information that helps to tell a story about the data

Data Analysis

--D1.6 Analyse different sets of data presented in various ways, including in stem-and-leaf plots and multiple-bar graphs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions

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Social Studies

Heritage and Identity: Early Societies to 1500CE *Overall*

Expectations:

1. Compare key aspects of life in a few early societies (to 1500), including at least one First Nation and one Inuit society, each from a different region and era and representing a different culture, and describe some key similarities and differences between these early societies and present-day Canadian society
- 2. Use the social studies inquiry process to investigate ways of life and relationships with the environment in a few early societies (to 1500), including at least one First Nation and one Inuit society, with an emphasis on aspects of the interrelationship between the environment and life in those societies
- 3. Demonstrate an understanding of key aspects of a few early societies (to 1500), including at least one First Nation and one Inuit society, each from a different region and era and representing a different culture, with reference to their political and social organization, daily life, and relationships with the environment and with each other

Specific Expectations:

Application: Past and Present Societies

A1.4 Compare a few early societies, including at least one First Nation and one Inuit society, in terms of their relationship with the environment (e.g., with reference to seasonal rhythms, use of land and resources, differences between urban and rural communities, religious and spiritual practices/ beliefs with respect to the environment), and describe some key similarities and differences in environmental practices between these societies and present-day Canada

Inquiry: Ways of Life and Relationships with the Environment

A2.1 Formulate questions to guide investigations into ways of life and relationships with the environment in a few early societies, including at least one First Nation and one Inuit society, with an emphasis on aspects of the interrelationship between the environment and life in those societies (e.g., connections between the local environment and settlement, art, medicine, religion, spirituality, types of work; the impact on the environment of agriculture or the development of towns, cities, settlements, communities, and/or villages)

Understanding Context: Characteristics of Early Societies

A3.4 describe significant physical features and natural processes and events in a few early societies, including at least one First Nation and one Inuit society (e.g., physical features: rivers, flood plains, mountains, volcanoes, barren lands, tundra, ocean shore, fertile soil; natural processes: seasonal changes in climate, animal migration, erosion; natural events: earthquakes, floods, volcanic eruptions) and how they affected these societies, with a focus on the societies' sustainability and food production (e.g., how flooding of rivers in ancient Egypt, India, and China enriched agricultural land, making it possible to sustain large populations; how the thin topsoil of Central America, Mesopotamia, and Easter Island limited population growth; how volcanoes threatened the survival of communities in ancient Greece and parts of the Roman Empire; how fluctuations in temperature led early Inuit societies to develop techniques like igunaq [meat fermentation] to prevent food spoilage, Cree societies to develop sphagnum moss bags to prolong meat freshness, or Anishinaabe societies to develop techniques to smoke fish)

A3.5 Describe the importance of the environment for a few early societies, including at least one First Nation and one Inuit society, with a particular focus on how the local environment affected the ways in which people met their physical needs (e.g., food, housing, clothing)



People and Environments: Political and Physical Regions of Canada

Overall Expectations:

- 1. Assess some key ways in which industrial development and the natural environment affect each other in two or more political and/or physical regions of Canada
- 2. Use the social studies inquiry process to investigate some issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada

Specific Expectations:

Application: Industrial Development and the Environment

B1.3 describe some key actions taken by both industries and citizens to address the need for more sustainable use of land and resources (e.g., controlling industrial tailings; putting solar panels on houses or other buildings; ensuring responsible hunting and fishing practices; consulting with First Nations, Métis, and/or Inuit communities about resource development in their territories), and assess their effectiveness

Inquiry: Balancing Human Needs and Environmental Stewardship

B2.1 Formulate questions to guide investigations into some of the issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada



Grade 5

Science and Technology

Understanding Life Systems

Overall Expectations:

1. Analyse the impact of human activities and technological innovations on human health.

Specific Expectations:

Relating Science and Technology to Society and the Environment

1.1 Assess the effects of social and environmental factors on human health, and propose ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial.

2.5 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes

Understanding Matter and Energy

Specific Expectations:

1. Evaluate the social and environmental impacts of processes used to make everyday products.

Relating Science and Technology to Society and the Environment

1.1 Assess the social and environmental impact of using processes that rely on chemical changes to produce consumer products, taking different perspectives into account (e.g., the perspectives of food manufacturers, consumers, landfill operators, people concerned about the environment), and make a case for maintaining the current level of use of the product or for reducing it

3.5– Describe chemical changes in matter as changes that are irreversible

Understanding Earth and Space Systems

Overall Expectations:

1. Analyse the immediate and long-term effects of energy and resource use on society and the environment, and evaluate options for conserving energy and resources;
3. Demonstrate an understanding of the various forms and sources of energy and the ways in which energy can be transformed and conserved.

Specific Expectations:

Relating Science and Technology to Society and the Environment

1.1 Analyse the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts.

1.2– Evaluate the effects of various technologies on energy consumption and propose ways in which individuals can improve energy conservation

Understanding Basic Concepts

3.1 Identify a variety of forms of energy (e.g., electrical, chemical, mechanical, heat, light, kinetic) and give examples from everyday life of how that energy is used

3.2 Identify renewable and non-renewable sources of energy.



Health and Physical Education

Social-Emotional Learning Skills

Overall Expectations:

- A1. Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

A1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

A1.6 Use a range of critical and creative thinking processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education.

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Making Healthy Choices

D2.1 Explain how to use nutrition facts tables and ingredient lists on food labels to make informed choices about healthy and safe foods

Making Connections for Healthy Living

D3.1 Describe how advertising, food marketing, and media affect food choices (e.g., TV commercials, product packaging, celebrity endorsements and social media postings, product placements in movies and programs, idealized and unrealistic body images in movies and programs, magazine articles promoting fad diets, loyalty programs), and explain how these influences can be evaluated to help people make healthier choices (e.g., by critically examining the reasons for celebrity endorsements or public personas or the plausibility of product claims, checking whether there is information in an advertisement to verify its claims, asking for information about product ingredients and nutrients, critically examining the reality and healthiness of idealized body images in the media)



Mathematics

Number Sense and Operations

Overall Expectations:

- B1-Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life
- B2-Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Specific Expectations:

Whole Numbers

B1.1 Read, represent, compose, and decompose whole numbers up to and including 100 000, using appropriate tools and strategies, and describe various ways they are used in everyday life

B1.2 Compare and order whole numbers up to and including 100 000, in various contexts

Fractions, Decimals, and Percents

B1.3 Represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts

B1.4 Compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts

B1.7 Describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts

Addition and Subtraction

B2.4 Represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms

Geometric and Spatial Reasoning and Measurement

Overall Expectations:

E1-Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

E2-Compare, estimate, and determine measurements in various contexts

Specific Expectations:

Geometric Reasoning

--E1.2 Identify and construct congruent triangles, rectangles, and parallelograms

E1.3 Draw top, front, and side views of objects, and match drawings with objects

The Metric System

--E2.1 Use appropriate metric units to estimate and measure length, area, mass, and capacity

E2.5 Use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems

E2.6 Show that two-dimensional shapes with the same area can have different perimeters, and solve related problems



Data Literacy

Overall Expectations:

- Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Specific Expectations:

Data Collection and Organization

--D1.1 Explain the importance of various sampling techniques for collecting a sample of data that is representative of a population

- D1.2 Collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative-frequency tables

Data Visualization

D1.3 Select from among a variety of graphs, including stacked-bar graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

D1.4 Create an infographic about a data set, representing the data in appropriate ways, including in relative-frequency tables and stacked-bar graphs, and incorporating any other relevant information that helps to tell a story about the data

Data Analysis

D1.6 Analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions



Social Studies

Grade 5 – Garden

Connections

Heritage and Identity: Interactions of Indigenous Peoples and Europeans Prior to 1713, in What Would Eventually Become Canada

Overall Expectations

-Analyse some key short- and long-term consequences of interactions among Indigenous peoples, among Europeans, and between Indigenous and European people prior to 1713 in what would eventually become Canada

-Use the social studies inquiry process to investigate aspects of the interactions among Indigenous peoples, among Europeans, and between Indigenous and European people prior to 1713 in what would eventually become Canada, from the perspectives of the various groups involved

-Describe significant features of and interactions among Indigenous peoples, among Europeans, and between Indigenous and European people prior to 1713 in what would eventually become Canada

Specific Expectations:

Application: The Impact of Interactions

A1.2 Analyse aspects of contact between Indigenous peoples and European explorers and settlers in what would eventually become Canada to determine ways in which different parties benefited from each other (e.g., early European settlers, slave owners, coureurs de bois, and European fur trade company employees benefited from First Nations and Métis ways of knowing, including their knowledge of land-based subsistence with respect to hunting, medicines, foods, geography, modes of transportation appropriate for local conditions, and established trade routes; the imperial government in France benefited economically from the fur trade and from alliances with First Nations, who aided them in their conflict with the British; First Nations benefited from some of the new materials and technologies introduced by Europeans; First Nations and European peoples benefited from the cultural knowledge, social ties, and language skills of the Métis)

A1.3 Explain some of the ways in which interactions among Indigenous peoples, among European explorers and settlers, and between Indigenous and European people in what would eventually become Canada are connected to issues in present-day Canada (e.g., with reference to land claims; treaty rights and responsibilities; treaty-making processes and people excluded from these processes; environmental stewardship and relationships with the land; resource ownership, extraction, and use)

Understanding Context: Significant Characteristics and Interactions

A3.5 Describe significant aspects of the interactions between Indigenous peoples and European explorers and settlers in what would eventually become Canada (e.g., with reference to trade; sharing of beliefs, knowledge, skills, technology; disruption of Indigenous gender norms and roles; intermarriage; military alliances and conflict; the theft of Indigenous lands; spread of diseases; introduction of alcohol; the roles of First Nations, Métis, and Europeans in the fur trade; the impact of the fur trade on Indigenous peoples; loss of First Nations' access to lands for sustenance and to support ways of life)

A3.7 Describe some significant differences among Indigenous peoples and between selected Indigenous and European communities in what would eventually become Canada (e.g., with reference to governance and economic organization; spiritual and/or cultural practices; land use/ownership; attitudes towards the environment; the roles of men, women, and children), and identify some of the reasons for these differences (e.g., climate; availability of resources and arable land; the culture, customs, and economic and political system in the mother country; individualistic versus communal world views; familiarity with the land and its resources)



People and Environments: The Role of Government and Responsible Citizenship

Overall Expectations

-Assess responses of governments in Canada, including First Nations, Métis, and Inuit governments, to some significant issues, and develop plans of action for governments and citizens to address social and environmental issues

- Use the social studies inquiry process to investigate Canadian social and/or environmental issues from various perspectives, including those of Indigenous peoples as well as of the level (or levels) of government responsible for addressing the issues

-Demonstrate an understanding of the roles and key responsibilities of citizens and of the different levels of government in Canada, including First Nations, Métis, and Inuit governments

Specific Expectations:

Application: Governments and Citizens Working Together

B1.3 Create a plan of action to address an environmental issue of local, provincial/territorial, and/or national significance (e.g., managing waste disposal, regulating industrial practices that damage the environment, ensuring safe drinking water, expanding availability of energy from renewable sources, reducing vehicle emissions, addressing land and water contamination on

First Nations territory), specifying the actions to be taken by the appropriate government or governments, including Indigenous governments, as well as by citizens

Inquiry: Differing Perspectives on Social and Environmental Issues

B2.1 Formulate questions to guide investigations into social and/or environmental issues in Canada from various perspectives, including the perspective of Indigenous peoples and of the level (or levels) of government responsible for addressing the issues (e.g., the perspectives of different levels of government, non-governmental organizations [NGOs], professionals in the field, and people directly affected by an issue such as child poverty on and off reserves, preservation of traditional languages, homelessness, bullying in schools, access to health care, climate change in the Arctic, waste disposal, or deforestation)

Understanding Context: Roles and Responsibilities of Government and Citizens

B3.8 Explain why different groups may have different perspectives on specific social and environmental issues (e.g., why oil industry representatives, farmers, environmentalists, and the Alberta government might differ on development of the oil sands; why the federal government and First Nations band councils might have different perspectives on housing problems on reserves)

B3.9 Describe some different ways in which citizens can take action to address social and environmental issues (e.g., by determining the position of their local candidates on various issues and supporting/voting for the one whose position they agree with; through the court system; by organizing petitions or boycotts; by volunteering with organizations that work on specific issues; by writing to their elected representatives or to the media; by creating or participating in art projects that bring attention to an issue)



Grade 6

Science and Technology Understanding Life Systems

Overall Expectations:

1. Assess human impacts on biodiversity, and identify ways of preserving biodiversity;
2. Investigate the characteristics of living things, and classify diverse organisms according to specific characteristics;
3. Demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans.

Specific Expectations:

Relating Science and Technology to Society and the Environment

1.1 Analyse a local issue related to biodiversity taking different points of view into consideration, propose actions that can be taken to preserve biodiversity, and act on the proposal

1.2 Assess the benefits that human societies derive from biodiversity (e.g., thousands of products such as food, clothing, medicine, and building materials come from plants and animals) and the problems that occur when biodiversity is diminished (e.g., monocultures are more vulnerable to pests and diseases).

Developing Investigation and Communication Skills

2.1 Follow established safety procedures for outdoor activities and field work;

2.2 Investigate the organisms found in a specific habitat and classify them according to a classification system;

2.3 Use scientific inquiry/research skills to compare the characteristics of organisms within the plant or animal kingdoms.

Understanding Basic Concepts

3.1 Identify and describe the distinguishing characteristics of different groups of plants and animals, and use these characteristics to further classify various kinds of plants and animals;

3.2 Demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them;

3.3 Describe ways in which biodiversity within species is important for maintaining the resilience of those species;

3.4 Describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities (e.g., having a variety of species of wheat allows for some part of the crop to survive adverse conditions)

3.5 Describe interrelationships within species, between species (e.g., birds and bees take sustenance from plants and carry pollen between plants), and between species and their environment (e.g., algae and water lilies compete for sunlight in a pond), and explain how these interrelationships sustain biodiversity;

3.6 Identify everyday products that come from a diversity of organisms (e.g., traditional pain relievers are derived from the bark of the white willow tree; tofu is made from soybeans; silk is made from silkworm cocoons; nutritional supplements, shampoos, toothpastes, and deodorants contain pollen collected by bees);

3.7 Explain how invasive species (e.g., zebra mussel, Asian longhorned beetle, purple loosestrife) reduce biodiversity in local environments.



Health and Physical Education

Social-Emotional Learning Skills

Overall Expectations:

- A1. Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

A1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

A1.6 Use a range of critical and creative thinking processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education.

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Making Healthy Choices

D2.1 Apply their knowledge of medical, emotional, practical, and societal factors that influence eating habits and food choices (e.g., allergies and sensitivities, likes and dislikes, feelings of stress, dental health, food availability, media influence, cultural influence of family and friends, school food and beverage policies, environmental impact, cost) to develop personal guidelines for healthier eating

D2.3 Apply social-emotional learning skills (e.g., self-awareness and self-management skills, including anger management; communication skills, including listening skills and assertiveness skills) to promote positive interaction and avoid or manage conflict in social situations, in person or online (e.g., classroom groups, groups of friends, sports teams, school clubs, social media sites, online games)

Making Connections for Healthy Living

D3.1 Explain how healthy eating and activeliving work together to improve a person's overall physical and mental health and well-being (e.g., both provide more energy and contribute to improved self-concept and body image, greater resistance to disease, and better overall health; both help a person to maintain a weight that is healthy for them) and how the benefits of both can be promoted to others

D3.2 Recognize the responsibilities and risks associated with caring for themselves and others (e.g. preparing meals), and demonstrate an understanding of related safety practices and appropriate procedures for responding to dangerous situations (e.g., safe practices for preparing food; responses to allergic reactions).



Social Studies

Heritage and Identity: Communities in Canada Past and Present

Overall Expectations:

- Assess contributions to Canadian identities made by various groups and communities, including First Nations, Métis, and Inuit communities, and by various features of Canadian communities and regions
- Use the social studies inquiry process to investigate different perspectives on the historical and/or contemporary experiences of a few distinct communities, including First Nations, Métis, and/or Inuit communities, in Canada
- Demonstrate an understanding of significant experiences of, and major changes and aspects of life in, various historical and contemporary communities, including First Nations, Métis, and Inuit communities, in Canada

Specific Expectations:

Application: Diversity, Inclusiveness, and Canadian Identities

- A1.2 Analyse some of the contributions that various First Nations, Métis, and Inuit communities and individuals have made to Canada (e.g., with reference to artists such as wood, bone, and soapstone carvers, painters and printmakers, bead workers, and/or the Indigenous Group of Seven; Inuit understanding of life and travel in the Arctic; the democratic ideas/practices of the Haudenosaunee; guidance/aid provided by First Nations, Métis, and Inuit people to European fur traders and explorers; modes of transportation such as canoes and kayaks; Indigenous knowledge of plants and medicines; technologies used for fishing, aquaculture, and agriculture)

People and Environments: Canada's Interactions with the Global Community

Overall Expectations:

- Explain the importance of international cooperation in addressing global issues, and evaluate the effectiveness of selected actions by Canada and Canadian citizens in the international arena
- Use the social studies inquiry process to investigate some global issues of political, social, economic, and/or environmental importance, their impact on the global community, and responses to the issues
- Describe significant aspects of the involvement of Canada and Canadians in some regions around the world, including the impact of this involvement

Specific Expectations:

Application: Canada and International Cooperation

- B1.3 Explain why some environmental issues are of international importance and require the participation of other regions of the world, along with that of Canada, if they are to be effectively addressed (e.g., issues such as global warming, carbon dioxide and sulphur dioxide emissions, ownership and availability of fresh water, deforestation, overfishing, invasive species, habitat protection of migrating species, or disposal of electronic waste)

Understanding Context: Canada's Global Interactions

- B3.9 describe some ways in which Canada's interactions with other regions of the world have affected the environment (e.g., the impact of Canada's participation in the African tree-planting campaign of the United Nations Environment Programme; the proliferation of invasive species in the Great Lakes as a result of international trade/ transportation; over-farming and loss of production for local markets as a result of Canadians' desire for cheap cotton, sugar, cocoa, and tea)



Mathematics

Operations

Overall Expectations:

- B2. Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Specific Expectations:

Properties and Relationships

- B2.1 Use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations
- B2.10 Divide whole numbers by proper fractions, using appropriate tools and strategies

Measurement

Overall Expectations:

- E2. Compare, estimate, and determine measurements in various contexts

Specific Expectations:

The Metric System

- E2.1 Measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa

Data Literacy

Overall Expectations:

- D1. Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Specific Expectations:

Data Collection and Organization

- D1.1 Describe the difference between discrete and continuous data, and provide examples of each

- D1.2 Collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals

Data Visualization

- D1.3 Select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

- D1.4 Create an infographic about a data set, representing the data in appropriate ways, including in tables, histograms, and broken-line graphs, and incorporating any other relevant information that helps to tell a story about the data



Grade 7

Science and Technology

Understanding Life Systems

Overall Expectations:

1. Assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts;
2. Investigate interactions within the environment, and identify factors that affect the balance between different components of an ecosystem;
3. Demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment.

Specific Expectations:

Relating Science and Technology to Society and the Environment

- 1.2 Analyse the costs and benefits of selected strategies for protecting the environment;

Developing Investigation and Communication Skills

- 2.1 Follow established safety procedures for investigating ecosystems;

2.2 Design and construct a model ecosystem (e.g., a composter, a classroom terrarium, a greenhouse), and use it to investigate interactions between the biotic and abiotic components in an ecosystem;

● Sample guiding questions: What are some biotic components of this ecosystem? What are some abiotic components? How do these components affect each other (abiotic and abiotic; biotic and biotic; abiotic and biotic)? What are some of the interactions that are occurring in the model ecosystem?

Understanding Basic Concepts

3.1 Demonstrate an understanding of an ecosystem (e.g., a log, a pond, a forest) as a system of interactions between living organisms and their environment;

3.2 Identify biotic and abiotic elements in an ecosystem, and describe the interactions between them (e.g., between hours of sunlight and the growth of plants in a pond; between a termite colony and a decaying log; between the soil, plants, and animals in a forest);

3.3 Describe the roles and interactions of producers, consumers, and decomposers within an ecosystem (e.g., Plants are producers in ponds. They take energy from the sun and produce food, oxygen, and shelter for the other pond life. Bacteria and fungi are decomposers. They help to maintain healthy soil by breaking down organic materials such as manure, bone, spider silk, and bark. Earthworms then ingest the decaying matter, take needed nutrients from it, and return those nutrients to the soil through their castings.);

3.4 Describe the transfer of energy in a food chain and explain the effects of the elimination of any part of the chain;

3.5 Describe how matter is cycled within the environment and explain how it promotes sustainability (e.g., bears carry salmon into the forest, where the remains decompose and add nutrients to the soil, thus supporting plant growth; through crop rotation, nutrients for future crops are created from the decomposition of the waste matter of previous crops);



- 3.7 Explain why an ecosystem is limited in the number of living things (e.g., plants and animals, including humans) that it can support;
- 3.8– Describe ways in which human activities and technologies alter balances and interactions in the environment
 - 3.9 Describe Aboriginal perspectives on sustainability and describe ways in which they can be used in habitat and wildlife management (e.g., the partnership between the Anishinabek Nation and the Ministry of Natural Resources for managing natural resources in Ontario).

Understanding Earth and Space Systems

Overall Expectations:

- 3. Demonstrate an understanding of heat as a form of energy that is associated with the movement of particles and is essential to many processes within the earth's systems

Specific Expectations:

Understanding Basic Concepts

- 3.8 Identify common sources of greenhouse gases (e.g., carbon dioxide comes from plant and animal respiration and the burning of fossil fuels; methane comes from wetlands, grazing livestock, termites, fossil fuel extraction, and landfills; nitrous oxide comes from soils and nitrogen fertilizers), and describe ways of reducing emissions of these gases



Health and Physical

Education

Social-Emotional Learning Skills

Overall Expectations:

1. Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

1.4 Apply skills that help them build relationships, develop empathy, and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D3. Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being.

Specific Expectations:

Making Healthy Choices

D2.1 Demonstrate the ability to develop healthier eating patterns, using information about the role that different foods play as contributing or preventive factors in a variety of health disorders (e.g., cancer, Type 2 diabetes, cardiovascular disease, obesity, food allergies and anaphylaxis, tooth decay, osteoporosis)

Making Connections for Healthy Living

D3.1 Demonstrate an understanding of personal and external factors that affect people's food choices and eating habits (e.g., personal: likes and dislikes, basic food skills, busy schedules, food allergies or sensitivities, health conditions, personal values, cultural practices or teachings; external: family or household budget, cost of foods, access to clean drinking water, type of food available at home, at school, or in the community), and identify ways of encouraging healthier eating practices



Mathematics

Number Sense and Operations

Overall Expectations:

- B1. Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life
- B2. Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Specific Expectations:

Fractions, Decimals, and Percents

B1.5 Generate fractions and decimal numbers between any two quantities

B1.7 Convert between fractions, decimal numbers, and percents, in various contexts

Math Facts

B2.2 Understand and recall commonly used percents, fractions, and decimal equivalents

Data Literacy

Overall Expectations:

- Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Specific Expectations:

Data Collection and Organization

D1.2 Collect qualitative data and discrete and continuous quantitative data to answer questions of interest, and organize the sets of data as appropriate, including using percentages

Data Visualization

D1.3 Select from among a variety of graphs, including circle graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

D1.4 Create an infographic about a data set, representing the data in appropriate ways,

including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data



Geography

A. Physical Patterns in a Changing World

Overall Expectations:

- A1. **Application:** analyse some challenges and opportunities presented by the physical environment and ways in which people have responded to them
- A2. **Inquiry:** use the geographic inquiry process to investigate the impact of natural events and/or human activities that change the physical environment, exploring the impact from a geographic perspective
- A3. **Understanding Geographic Context:** demonstrate an understanding of significant patterns in Earth's physical features and of some natural processes and human activities that create and change those features

Specific Expectations:

Application: Interrelationships between People and the Physical Environment

A1.1 Describe various ways in which people have responded to challenges and opportunities presented by the physical environment (e.g., building dams, levees, or dikes to contain water and/or reclaim land; building terraces or irrigation systems to permit farming on inhospitable land; designing buildings suited to local climatic conditions or natural events such as earthquakes; specialized economic development such as resource towns in areas rich with ore, or tourism in areas of natural beauty or with a desirable climate), and analyse short- and long-term effects of some of these responses (e.g., water pollution from industry and agriculture; loss of animal habitat and wilderness areas as human settlement expands; deforestation and its consequences; the development of provincial or national parks to protect wilderness areas);

A1.2 Compare and contrast the perspectives of some different groups (e.g., Indigenous peoples living on the land, organic versus large-scale farmers, industrial and agrarian societies, owners of resource-extraction companies, environmental organizations, land developers) on the challenges and opportunities presented by the natural environment.

A2. Inquiry: Investigating Physical Features and Processes

A2.1 Formulate questions to guide investigations into the impact of natural events and/or human activities that change the physical environment (e.g., the social, political, economic, and environmental impact of natural events such as earthquakes, volcanic eruptions, drought, floods, hurricanes, typhoons, or tsunamis; the economic and environmental impact of industrial pollution on a river system; the social, economic, and environmental impact of agricultural practices; the social, political, economic, and environmental impact of land reclamation projects; the political, economic, and environmental impact of transportation systems), ensuring that their questions reflect a geographic perspective.

A3. Understanding Geographic Context: Patterns in the Physical Environment

A3.10 Describe some key natural processes and human activities (e.g., natural and human influenced climate change, erosion of top soil, deforestation, the use of chemical fertilizers and practice of monoculture, grazing of domestic animals, activities that introduce invasive species into an environment) that create and change natural vegetation patterns.



B. Natural Resources Around the World: Use and Sustainability

Overall Expectations:

- B1. Application:** analyse aspects of the extraction/harvesting and use of natural resources in different regions of the world, and assess ways of preserving these resources (FOCUS ON: Spatial Significance; Interrelationships);
- B2. Inquiry:** use the geographic inquiry process to investigate issues related to the impact of the extraction/harvesting and/or use of natural resources around the world from a geographic perspective (FOCUS ON: Geographic Perspective);
- B3. Understanding Geographic Context:** demonstrate an understanding of the sources and use of different types of natural resources and of some of the effects of the extraction/ harvesting and use of these resources (FOCUS ON: Spatial Significance; Geographic Perspective).

Specific Expectations:

B1. Application: Natural Resources and Sustainability

B1.1 Analyse interrelationships between the location/accessibility, mode of extraction/harvesting, and use of various natural resources (e.g., with reference to the relationship between mining techniques and the type and location of the deposit; types of electrical power generation in different regions of Europe; methods of harvesting trees);

B2. Inquiry: Investigating Issues Related to Natural Resources

B2.1 Formulate questions to guide investigations into issues related to the impact of the extraction/harvesting and/or use of natural resources around the world from a geographic perspective (e.g., the social, economic, political, and environmental impact of overfishing; the economic, social, and environmental impact of deforestation and the adequacy of reforestation programs; the social and economic impact on indigenous people of resource extraction in their traditional territories; the economic, political, and environmental impact of developments in the alternative energy sector; the economic, political, and environmental impact of using fossil fuels);

B3. Understanding Geographic Context: Using Natural Resources

B3.1 Identify Earth's renewable, non-renewable, and flow resources (e.g., renewable: trees, natural fish stocks, soil, plants; non-renewable: fossil fuels, metallic minerals; flow: solar, running water, ocean currents, tides, wind), and explain their relationship to Earth's physical features;

B3.3 Identify significant short- and long-term effects of natural resource extraction/harvesting and use on people and the environment (e.g., deforestation, desertification, smog, acid rain, climate change, soil contamination, habitat destruction, flooding);

B3.5 Describe some responses to social and/or environmental challenges arising from the use of natural resources (e.g., the increased use of wind, solar, or tidal energy; reduced consumption; promotion of energy-saving strategies such as the use of energy-efficient appliances; promotion of fair trade; marketing of "ethical" products such as "ethical oil" or "ethical diamonds"; boycotting less sustainable products or companies using unsustainable practices)



Grade 8

Science and Technology

Understanding Life Systems: Cells

Overall Expectations:

1. Assess the impact of cell biology on individuals, society, and the environment;

Specific Expectations:

Relating Science and Technology to Society and the Environment

- 1.2 Assess the potential that our understanding of cells and cell processes has for both beneficial and harmful effects on human health and the environment, taking different perspectives into account (e.g., the perspectives of farmers, pesticide manufacturers, people with life threatening illnesses)
 - Sample issues: (b) Scientists can develop pest-resistant crops that reduce the need for chemical pesticides. But there are some concerns that these crops may cross-breed with native plants and disrupt natural populations and balances.

Understanding Structures and Mechanisms: Systems in Action

Overall Expectations:

1. Assess the personal, social, and/or environmental impacts of a system, and evaluate improvements to a system and/or alternative ways of meeting the same needs;
2. Investigate a working system and the ways in which components of the system contribute to its desired function;
3. Demonstrate an understanding of different types of systems and the factors that contribute to their safe and efficient operation.

Specific Expectations:

Understanding Basic Concepts

- 3.2 Identify the purpose, inputs, and outputs of various systems (e.g., a garden – purpose: to grow things; input: seeds, water, fertilizer; output: flowers, food).

Understanding Earth and Space Systems: Water Systems

Overall Expectations:

1. Assess the impact of human activities and technologies on the sustainability of water resources;
2. Investigate factors that affect local water quality;
3. Demonstrate an understanding of the characteristics of the earth's water systems and the influence of water systems on a specific region.

Specific Expectations:

Understanding Basic Concepts

- 3.2 Demonstrate an understanding of the watershed as a fundamental geographic unit, and explain how it relates to water management and planning
- 3.3 Explain how human and natural factors cause changes in the water table (e.g., lawn watering, inefficient showers and toilets, drought, floods, overuse of wells, extraction by bottled water industry).



Health and Physical Education

Social Emotional Learning Skills

Overall Expectations:

- A1. Apply, to the best of their ability, a range of social-emotional learning skills as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade.

Specific Expectations:

Healthy Relationships

A1.4 Apply skills that help them build relationships, develop empathy and communicate with others as they participate in learning experiences in health and physical education, in order to support healthy relationships, a sense of belonging, and respect for diversity

Self-Awareness and Sense of Identity

A1.5 Apply skills that help them develop self-awareness and self-confidence as they participate in learning experiences in health and physical education, in order to support the development of a sense of identity and a sense of belonging

Critical and Creative Thinking

A1.6 Apply skills that help them think critically and creatively as they participate in learning experiences in health and physical education, in order to support making connections, analysing, evaluating, problem solving, and decision making

Healthy Living

Overall Expectations:

- D1. Demonstrate an understanding of factors that contribute to healthy development;
- D2. Demonstrate the ability to apply health knowledge and social-emotional learning skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- D2.1. Evaluate personal eating habits and food choices on the basis of the recommendations in Canada's Food Guide, taking into account behaviours that support healthy eating (e.g., mindful eating, enjoying your food, choosing a variety of healthy foods, awareness of food marketing, using food labels, making water your drink of choice more often)

Making Connections for Healthy Living

- D3.1 Identify strategies for promoting healthy eating habits and food choices within the school, home, and community (e.g., implementing school healthy food policies, launching healthy-eating campaigns, choosing healthy food items to sell in fundraising campaigns, getting involved in family meal planning, learning food preparation skills, urging local restaurants to highlight healthy food choices)



Geography

A. Global settlement: patterns and sustainability

Overall Expectations:

- A1. **Application:** analyse some significant interrelationships between Earth's physical features and processes and human settlement patterns, and some ways in which the physical environment and issues of sustainability may affect settlement in the future
- A2. **Inquiry:** use the geographic inquiry process to investigate issues related to the interrelationship between human settlement and sustainability from a geographic perspective
- A3. **Understanding Geographic Context:** demonstrate an understanding of significant patterns and trends related to human settlement and of ways in which human settlement affects the environment

Specific Expectations:

A1. Application: Interrelationships between Settlement and the Environment

A1.3 Describe possible features of a sustainable community in the future (e.g., energy-efficient buildings, use of renewable sources of energy, a comprehensive public transportation system, community gardens, roof gardens, green canopy, naturalized parks with native species, programs for waste and water recycling), and analyse some challenges associated with creating such a community (e.g., cost, population growth, increasing urbanization, continued dependence on fossil fuels).

A2. Inquiry: Human Settlements and Sustainability

A2.1 Formulate questions to guide investigations into issues related to the interrelationship between human settlement and sustainability from a geographic perspective (e.g., social, economic, and environmental perspectives on land-reclamation projects in the Netherlands or Japan; social, economic, political, and environmental perspectives on land-use conflicts in Brazil, Mexico, or Kenya, or on the global trend towards increased urbanization).

A3. Understanding Geographic Context: Settlement Patterns and Trends

A3.3 Identify significant land-use issues (e.g., competition for land for agriculture, industry, housing, transportation, recreation, wilderness areas; land claims by indigenous groups; development in ecologically sensitive areas), and describe responses of various groups to these issues (e.g., municipal, state/provincial/regional, and/or national governments; local residents; environmental, indigenous, or grassroots groups; non-governmental organizations);

A3.5 Describe various ways in which human settlement has affected the environment (e.g., water pollution from industry, agriculture, human waste; air pollution from vehicle and industrial emissions; soil contamination from pesticides, industrial byproducts, garbage dumps; deforestation and loss of habitat from expanding settlement; loss of agricultural land to urban sprawl; light pollution from large cities; disruption of migratory routes of different species; desertification from unsustainable agricultural practices);

A3.6 Describe some practices that individuals and communities have adopted to help make human settlements more sustainable (e.g., reducing water use, increasing recycling and composting, limiting the construction of housing on land that could be used for agriculture, using public transit, planting and maintaining trees).



Mathematics

Grade 8 – Garden

Connections

Measurement

Overall Expectations:

- Compare, estimate, and determine measurements in various contexts

Specific Expectations:

Length, Area, and Volume

- E2.3** Solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas
- B2.4** Describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle