

Ontario

Curricular Connections for Plants, People + Climate Change



Lesson # 1 – Plants, Planet, People

Grade 3

- **Science**
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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants
- **Science**
3.1 Describe the basic needs of plants, including air, water, light, warmth, and space
- **Science**
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)
- **Science**
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)
- **Science**
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.)
- **Science**
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)
- **Science**

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)

- **Science**

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

Soil

- **Science**

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

- **Science**

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

- **Science**

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)

- **Social Studies**

B1.2 Describe some major connections between features of the natural environment and the type of employment that is available in a region, with reference to two or more municipal regions in Ontario (e.g., in the District Municipality of Muskoka, which is known for its lakes, beaches, and many islands, some of the employment opportunities are seasonal jobs in the recreation industry; Dryden and its surrounding area is heavily forested, so there are a number of employment opportunities in the pulp and paper industry; the natural attraction of Niagara Falls led to the development of the area around it as a tourist centre, so the region offers many jobs in tourist and service industries)

Grade 4

Habitats and Communities

- **Science**

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

- **Science**

2.5 Use appropriate science and technology vocabulary, including habitat, population, community, adaptation, and food chain, in oral and written communication

- **Science**
3.1 Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)
- **Science**
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)
- **Science**
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
- **Science**
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)
- **Science**
3.5 Classify organisms, including humans, according to their role in a food chain (e.g., producer, consumer, decomposer)
- **Science**
3.9 Demonstrate an understanding of why all habitats have limits to the number of plants and animals they can support
- **Social Studies**
A2.1 Formulate questions to guide investigations into ways of life and relationships with the environment in two or more early societies, 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, types of work; the impact of agriculture or the development of towns and cities on the environment)

Lesson # 2 – Plant Needs

Grade 3

- **Science**
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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants
- **Science**
2.5 Use scientific inquiry/experimentation skills (see page 12), and knowledge acquired from previous investigations, to investigate a variety of ways in which plants meet their basic needs
- **Science**
2.6 Use appropriate science and technology vocabulary, including stem, leaf, root, pistil, stamen, flower, adaptation, and germination, in oral and written communication
- **Science**

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

- **Science**

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)

- **Science**

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.)

- **Science**

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)

Soil

- **Science**

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

- **Science**

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

- **Science**

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)

Grade 4

Habitats and Communities

- **Science**

3.1 Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)

- **Science**

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

Lesson # 3 – Plant Adaptations

Grade 3

- **Science**
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)
- **Science**
2.2 Observe and compare the parts of a variety of plants (e.g., roots of grass, carrot, dandelion; stem of cactus, carnation, tree; leaves of geranium, spider plant, pine tree)
- **Science**
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)
- **Science**
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)
- **Science**
2.5 Use scientific inquiry/experimentation skills (see page 12), and knowledge acquired from previous investigations, to investigate a variety of ways in which plants meet their basic needs
- **Science**
2.6 Use appropriate science and technology vocabulary, including stem, leaf, root, pistil, stamen, flower, adaptation, and germination, in oral and written communication
- **Science**
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)
- **Science**
3.1 Describe the basic needs of plants, including air, water, light, warmth, and space
- **Science**
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)
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- **Science**

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

Soil

- **Science**

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

- **Science**

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

- **Science**

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)

Grade 4

Habitats and Communities

- **Science**

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

Lesson #4 – Plants, Us and Climate Change

Grade 3

Forces Causing Movement

- **Science**

Assess the effects of the action of forces in nature (natural phenomena) on the natural and built environment, and identify ways in which human activities can reduce or enhance this impact

- **Science**

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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants

- **Science**

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

- **Science**

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)

- **Science**

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)

- **Science**

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

- **Science**

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 such as construction, use of gas-powered personal watercraft on lakes)

Soil

- **Science**

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

- **Science**

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

- **Science**

- **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)

- **Social Studies**

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

- **Social Studies**

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)

- **Social Studies**

B2.3 Analyse and construct print and digital maps, including thematic maps, as part of their investigations into the environmental impact of land and/or resource use in different municipal regions (e.g., use maps and atlases to locate information about the spatial boundaries of municipal areas and the different land uses within them; use an interactive atlas to identify natural resources in your local area)

- **Social Studies**

B2.4 Interpret and analyse information and data relevant to their investigations, using a variety of tools (e.g., use a graphic organizer to help them determine the environmental impact of an aggregate mine; plot trends in forest cover of a municipal region on a line or bar graph and compare it to a graph showing land-use trends for the same municipal region)

- **Social Studies**

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)

Grade 4

Habitats and Communities

- **Science**

1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts

- **Science**

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

- **Science**

3.1 Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)

- **Social Studies**

B1.1 Analyse some of the general ways in which the natural environment of regions in Canada has affected the development of industry (e.g., how the characteristics of the Canadian Shield made possible the development of mining and smelting, forestry, fresh water fisheries, pulp and paper; how the characteristics of the Maritime provinces made possible the development of fisheries, coal mining, agriculture, off-shore oil drilling; how the topography and climate of the Prairies make the region suitable for large-scale farming and ranching)

- **Social Studies**

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

- **Social Studies**

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

- **Social Studies**

B2.2 Gather and organize information and data from various sources to investigate 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 (e.g., spatial technologies and satellite images showing physical features; print and digital thematic maps showing land use or population; climate graphs for various regions; writer views with peers from different regions using electronic communications; an interview with a First Nation or Inuit Elder or a Métis Senator)

- **Social Studies**

B2.3 Analyse and construct print and/or digital maps, including thematic maps, as part of their investigations into balancing human needs/ wants and activities with environmental stewardship in Canada (e.g., analyse population settlement maps; construct natural resource maps, using symbols to represent different resources; construct physical region maps, using shading to represent elevation change)

- **Social Studies**

B2.5 Evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada

- **Social Studies**

B2.6 Communicate the results of their inquiries using appropriate vocabulary (e.g., mountains, foothills, prairies, tundra, wetlands, forestry, mining, agriculture, fish farming, tourism, commerce, hydroelectricity, wind farms) and formats (e.g., a poster explaining the chosen location for a hydro-electric project; a cooperatively produced big book of photos from a field study or from the Internet about how companies are responding to their role as environmental stewards; a brochure outlining the steps an industry is taking to help protect the local area; a song, rap, or poem from the perspective of an animal that is losing its habitat because of a new housing development)

Lesson #5 – Plant Needs and Climate Change

Grade 3

Forces Causing Movement

- **Science**

Assess the effects of the action of forces in nature (natural phenomena) on the natural and built environment, and identify ways in which human activities can reduce or enhance this impact

- **Science**

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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants

- **Science**

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

- **Science**

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)

- **Science**

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)

- **Science**

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- **Science**

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 such as construction, use of gas-powered personal watercraft on lakes)

Soil

- **Science**

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

- **Science**

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

- **Science**

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)

Grade 4

Habitats and Communities

- **Science**

1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts

- **Science**

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

- **Science**

3.1 Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)

- **Social Studies**

B1.1 Analyse some of the general ways in which the natural environment of regions in Canada has affected the development of industry (e.g., how the characteristics of

the Canadian Shield made possible the development of mining and smelting, forestry, fresh water fisheries, pulp and paper; how the characteristics of the Maritime provinces made possible the development of fisheries, coal mining, agriculture, off-shore oil drilling; how the topography and climate of the Prairies make the region suitable for large-scale farming and ranching)

- **Social Studies**

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

- **Social Studies**

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

- **Social Studies**

B2.2 Gather and organize information and data from various sources to investigate 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 (e.g., spatial technologies and satellite images showing physical features; print and digital thematic maps showing land use or population; climate graphs for various regions; writer views with peers from different regions using electronic communications; an interview with a First Nation or Inuit Elder or a Métis Senator)

- **Social Studies**

B2.3 Analyse and construct print and/or digital maps, including thematic maps, as part of their investigations into balancing human needs/ wants and activities with environmental stewardship in Canada (e.g., analyse population settlement maps; construct natural resource maps, using symbols to represent different resources; construct physical region maps, using shading to represent elevation change)

- **Social Studies**

B2.5 Evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada

- **Social Studies**

B2.6 Communicate the results of their inquiries using appropriate vocabulary (e.g., mountains, foothills, prairies, tundra, wetlands, forestry, mining, agriculture, fish farming, tourism, commerce, hydroelectricity, wind farms) and formats (e.g., a poster explaining the chosen location for a hydro-electric project; a cooperatively produced big book of photos from a field study or from the Internet about how companies are responding to their role as environmental stewards; a brochure outlining the steps an industry is taking to help protect the local area; a song, rap, or

poem from the perspective of an animal that is losing its habitat because of a new housing development)

Lesson #6 – Soil and Climate Change

Grade 3

Forces Causing Movement

- **Science**
Assess the effects of the action of forces in nature (natural phenomena) on the natural and built environment, and identify ways in which human activities can reduce or enhance this impact
- **Science**
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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants
- **Science**
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
- **Science**
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)
- **Science**
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)
- **Science**
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- **Science**
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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

- **Science**
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 such as construction, use of gas-powered personal watercraft on lakes)

Soil

- **Science**
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
- **Science**
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
- **Science**
2.1 Follow established safety procedures during science and technology investigations (e.g., wash hands after working with soil samples)
- **Science**
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
- **Science**
2.3 Use scientific inquiry/experimentation skills (see page 12), and knowledge and skills acquired from previous investigations, to determine which type(s) of soil (e.g., sandy soil, clay soil, loam) will sustain life
- **Science**
2.5 Use appropriate science and technology vocabulary, including clay, sand, loam, pebbles, earth materials, and soil, in oral and written communication
- **Science**
2.6 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., record in words and pictures what happens when soil and water are shaken together in a container; prepare a display comparing the composition of soils from different locations)
- **Science**
3.1 Identify and describe the different types of soils (e.g., Sandy soil is made up of minerals and tiny pieces of rock that have come from the erosion and weathering of rocks. It feels gritty and does not stick together well. Sandy soil drains easily and quickly after a rain and warms up quickly in the spring, but does not hold water and nutrients as well as clay soil, and is eroded more easily. Loamy soil is made up of sand, silt, and clay in relatively equal amounts. It sticks together better than sand but not as well as clay. Loamy soil holds water and nutrients well, and also drains well so that sufficient air can reach the roots. Clay soil is a very fine-grained soil that

is plastic when wet but hard when dried. It feels slick and smooth. Clay soils have poor drainage and aeration.)

- **Science**
3.2 Identify additives that might be in soil but that cannot always be seen (e.g., pesticides, fertilizers, salt)
- **Science**
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)
- **Science**
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)

Grade 4

Habitats and Communities

- **Science**
1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts
- **Science**
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
- **Science**
2.1 Follow established safety procedures for working with soils and natural materials (e.g., wear gloves when handling soils to set up a working terrarium)
- **Social Studies**
B1.1 Analyse some of the general ways in which the natural environment of regions in Canada has affected the development of industry (e.g., how the characteristics of the Canadian Shield made possible the development of mining and smelting, forestry, fresh water fisheries, pulp and paper; how the characteristics of the Maritime provinces made possible the development of fisheries, coal mining, agriculture, off-shore oil drilling; how the topography and climate of the Prairies make the region suitable for large-scale farming and ranching)
- **Social Studies**
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

Lesson #7 – Food Waste

Grade 3

- **Science**
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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants
- **Science**
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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants
- **Science**
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
- **Science**
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)
- **Science**
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
- **Science**
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 such as construction, use of gas-powered personal watercraft on lakes)

Soil

- **Science**
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
- **Science**

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

Grade 4

Habitats and Communities

- **Science**

1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts

- **Science**

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

- **Social Studies**

B1.1 Analyse some of the general ways in which the natural environment of regions in Canada has affected the development of industry (e.g., how the characteristics of the Canadian Shield made possible the development of mining and smelting, forestry, fresh water fisheries, pulp and paper; how the characteristics of the Maritime provinces made possible the development of fisheries, coal mining, agriculture, off-shore oil drilling; how the topography and climate of the Prairies make the region suitable for large-scale farming and ranching)

- **Social Studies**

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

- **Social Studies**

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

- **Social Studies**

B2.2 Gather and organize information and data from various sources to investigate 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 (e.g., spatial technologies and satellite images showing physical features; print and digital thematic maps showing land use or population; climate

graphs for various regions; writer views with peers from different regions using electronic communications; an interview with a First Nation or Inuit Elder or a Métis Senator)

- **Social Studies**

B2.3 Analyse and construct print and/or digital maps, including thematic maps, as part of their investigations into balancing human needs/ wants and activities with environmental stewardship in Canada (e.g., analyse population settlement maps; construct natural resource maps, using symbols to represent different resources; construct physical region maps, using shading to represent elevation change)

- **Social Studies**

B2.5 Evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada

- **Social Studies**

B2.6 Communicate the results of their inquiries using appropriate vocabulary (e.g., mountains, foothills, prairies, tundra, wetlands, forestry, mining, agriculture, fish farming, tourism, commerce, hydroelectricity, wind farms) and formats (e.g., a poster explaining the chosen location for a hydro-electric project; a cooperatively produced big book of photos from a field study or from the Internet about how companies are responding to their role as environmental stewards; a brochure outlining the steps an industry is taking to help protect the local area; a song, rap, or poem from the perspective of an animal that is losing its habitat because of a new housing development)

Lesson #8 – Take Action

Grade 3

Forces Causing Movement

- **Science**

Assess the effects of the action of forces in nature (natural phenomena) on the natural and built environment, and identify ways in which human activities can reduce or enhance this impact

- **Science**

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 home builders, gardeners, nursery owners, vegetarians), and suggest ways in which humans can protect plants

- **Science**

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

- **Science**

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)

- **Science**

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

Soil

- **Science**

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

- **Science**

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

- **Social Studies**

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

- **Social Studies**

B2.5 Evaluate evidence and draw conclusions about some of the short- and long-term effects on the environment of different types of land use in municipal regions of Ontario and about key measures to reduce the negative impact of that use

- **Social Studies**

B2.6 Communicate the results of their inquiries, using appropriate vocabulary (e.g., municipality, county, reserve, population, pollution, deforestation, rehabilitation, public transportation, ecological footprint, natural resources, traditional ecological knowledge [TEK]) and formats (e.g., a plan of action to address a local land-use issue; a cooperatively produced book of photos showing the environmental impact of a mine; a report on the benefits of forestry in provincial parks; song lyrics, a rap, or a poem about the effects of industrial pollution on a local waterway; an informational poster on what individuals can do to reduce their ecological footprint)

Grade 4

Habitats and Communities

- **Science**

1.1 Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts

- **Science**

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

- **Social Studies**

B1.1 Analyse some of the general ways in which the natural environment of regions in Canada has affected the development of industry (e.g., how the characteristics of the Canadian Shield made possible the development of mining and smelting, forestry, fresh water fisheries, pulp and paper; how the characteristics of the Maritime provinces made possible the development of fisheries, coal mining, agriculture, off-shore oil drilling; how the topography and climate of the Prairies make the region suitable for large-scale farming and ranching)

- **Social Studies**

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

- **Social Studies**

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

- **Social Studies**

B2.2 Gather and organize information and data from various sources to investigate 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 (e.g., spatial technologies and satellite images showing physical features; print and digital thematic maps showing land use or population; climate graphs for various regions; writer views with peers from different regions using electronic communications; an interview with a First Nation or Inuit Elder or a Métis Senator)

- **Social Studies**

B2.3 Analyse and construct print and/or digital maps, including thematic maps, as part of their investigations into balancing human needs/ wants and activities with environmental stewardship in Canada (e.g., analyse population settlement maps; construct natural resource maps, using symbols to represent different resources; construct physical region maps, using shading to represent elevation change)

- **Social Studies**
B2.5 Evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada
- **Social Studies**
B2.6 Communicate the results of their inquiries using appropriate vocabulary (e.g., mountains, foothills, prairies, tundra, wetlands, forestry, mining, agriculture, fish farming, tourism, commerce, hydroelectricity, wind farms) and formats (e.g., a poster explaining the chosen location for a hydro-electric project; a cooperatively produced big book of photos from a field study or from the Internet about how companies are responding to their role as environmental stewards; a brochure outlining the steps an industry is taking to help protect the local area; a song, rap, or poem from the perspective of an animal that is losing its habitat because of a new housing development)

Other Relevant Curricular Connections (English, Art, Math & Health)

Grade 3

Fine Arts

A1.1 Imitate movements found in their natural environment in a variety of ways and incorporate them into a dance phrase (e.g., modify the movements of animals, snow falling to the ground, ice melting, plants growing; connect a series of insect-like movements together to make a phrase)

A1.2 Use dance as a language to represent ideas from diverse literature sources, with a focus on time and energy (e.g., interpret stories, poems, and texts from other subject areas through dance; respond to a story about insects by depicting the sustained lifting and pulling actions of ants versus the sustained floating actions of butterflies)

B1.1 Engage in dramatic play and role play, with a focus on exploring themes, ideas, characters, and issues from imagination or in stories from diverse communities, times, and places (e.g., act out moments from “a day in the life” of a main character from a story; improvise a short dialogue between two characters who are seeking a solution to a problem [as in Aboriginal teacher/trickster stories])

D1.1 Create two- and three-dimensional works of art that express personal feelings and ideas inspired by the environment or that have the community as their subject (e.g., make a symmetrical sculpture of an insect or a flower, using natural materials such as wood, pebbles, dry seed pods, feathers; draw a picture depicting a solution to the problem of litter)

in their community; make a painting of nature, focusing on a feature of personal interest or meaning to themselves)

Health

1.5 Use a range of critical and creative thinking skills and 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 (e.g., Active Living: come up with ideas for ways in which they could be physically active inside their family's house or apartment; Movement Competence: after performing a movement sequence, reflect on what they could have done differently to make the transitions from one movement to another smoother; Healthy Living: plan what they might bring to a family picnic, focusing on local foods, and give reasons for their choices)

C1.1 Demonstrate an understanding of how the origins of food (e.g., where the food is grown, how it is made) affect its nutritional value and environmental impact [CT]

Grade 4

Fine Arts

A1.1 Translate into dance a variety of movement sequences observed in nature (e.g., wind developing into a tornado; water freezing and melting on a landscape; rain transforming into a storm; a caterpillar evolving into a butterfly)

Health

1.1 Use self-awareness and self-monitoring skills to help them understand their strengths and needs, take responsibility for their actions, recognize sources of stress, and monitor their own progress, as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living (e.g., Active Living: explain what makes them enjoy their favourite activities, and consider what this tells them about themselves; Movement Competence: identify which skills they perform with the most confidence and which ones are most difficult for them; Healthy Living: set a healthy eating goal connected to Canada's Food Guide serving requirements for their age)

C1.1 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

C2.1 Analyse personal food selections through self-monitoring over time, using the criteria in Canada's Food Guide (e.g., food groups, portion size, serving size), and develop a simple healthy eating goal appropriate to their age and activity level (e.g., eat breakfast every day;

include at least one fruit or vegetable at each meal and snack; help with food shopping and meal preparation at home; plan a meal using the First Nation, Inuit, and Métis food guide)
[CT]

C3.1 Identify ways of promoting healthier food choices 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)
[CT]