

## Environment-related Concepts in Alberta Curriculum

*Examples of learning outcomes from Alberta programs of study that refer to the environment and/or sustainable development are listed below by subject/discipline area.*

Science
<b>Grades 1–6: Attitudes</b> <ul style="list-style-type: none"><li>• <i>Students will show growth in acquiring respect for living things and environments, and commitment for their care.</i></li></ul>
<b>Grade 1, 2: Attitudes</b> <ul style="list-style-type: none"><li>• <i>Students will show growth in acquiring a sense of responsibility for actions taken.</i></li></ul>
<b>Grade 3, 4: Attitudes</b> <ul style="list-style-type: none"><li>• <i>Students will show growth in acquiring a sense of responsibility for personal and group actions.</i></li></ul>
<b>Grade 3: Animal Life Cycles</b> <ul style="list-style-type: none"><li>• <i>Students will identify examples of environmental conditions that may threaten animal survival, and identify examples of extinct animals.</i></li><li>• <i>Students will recognize that habitat preservation can help maintain animal populations, and identify ways that student actions can assist habitat preservation.</i></li></ul>
<b>Grade 4: Waste and Our World</b> <ul style="list-style-type: none"><li>• <i>Students will recognize that human activity can lead to the production of wastes, and identify alternatives for the responsible use and disposal of materials.</i></li></ul>
<b>Grade 4: Plant Growth and Changes</b> <ul style="list-style-type: none"><li>• <i>Students will describe the importance of plants to humans and their importance to the natural environment. Students who meet this expectation should be able to give examples of plants being used as a source of food of shelter, and be aware of the role plants play in the environment; e.g., preventing erosion, maintaining oxygen.</i></li></ul>
<b>Grade 5, 6: Attitudes</b> <ul style="list-style-type: none"><li>• <i>Students will show growth in acquiring a sense of personal and shared responsibility for actions taken.</i></li></ul>
<b>Grade 5: Electricity and Magnetism</b> <ul style="list-style-type: none"><li>• <i>Students will interpret and explain efficiency labels on electrical appliances.</i></li></ul>
<b>Grade 5: Weather Watch</b> <ul style="list-style-type: none"><li>• <i>Students will recognize that human actions can affect climate, and identify human actions that have been linked to the greenhouse effect.</i></li></ul>
<b>Grade 5: Wetland Ecosystems</b> <ul style="list-style-type: none"><li>• <i>Students will identify human actions that can threaten the abundance or survival of living things in wetland ecosystems; e.g., adding pollutants, changing the flow of water, trapping or hunting pond wildlife.</i></li><li>• <i>Students will identify individual and group actions that can be taken to preserve and enhance wetland habitats.</i></li><li>• <i>Students will recognize that changes in part of an environment have effects on the whole environment.</i></li></ul>
<b>Grade 6: Trees and Forests</b> <p><i>Students will:</i></p> <ul style="list-style-type: none"><li>• <i>Identify reasons why trees and forests are valued. Students meeting this expectation should be aware that forests serve as habitat for a variety of living things and are important to human needs for recreation, for raw materials and a life-supporting environment.</i></li><li>• <i>Identify human actions that enhance or threaten the existence of forests.</i></li></ul>
<b>Grade 7–8–9: Attitudes</b>

*Students will be encouraged to:*

- *Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds.*
- *Develop responsibility in the application of science and technology in relation to society and the natural environment.*
- *Be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.*

### **Grade 7: Interactions and Ecosystems**

*Students will:*

- *Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.*
- *Identify human impacts on ecosystems, and investigate and analyze the link between these impacts and the human wants and needs that give rise to them.*
- *Analyze personal and public decisions that involve consideration of environmental impacts, and identify needs for scientific knowledge that can inform those decisions.*
- *Describe the relationships among knowledge, decisions and actions in maintaining life-supporting environments.*
- *Identify intended and unintended consequences of human activities within local and global environments.*
- *Describe and interpret examples of scientific investigations that serve to inform environmental decision making.*
- *Illustrate, through examples, the limits of scientific and technological knowledge in making decisions about life-supporting environments.*
- *Analyze a local environmental issue or problem based on evidence from a variety of sources, and identify possible actions and consequences.*
- *Identify science-related issues (e.g., identify a specific issue regarding human impacts on environments)*
- *Identify questions to investigate arising from practical problems and issues (e.g., identify questions, such as: “What effects would an urban or industrial development have on a nearby forest or farming community?”)*

### **Grade 7: Plants for Food and Fibre**

*Students will:*

- *Investigate trends in land use from natural environments to managed environments and describe changes.*
- *Investigate practical problems and issues in maintaining productive plants within sustainable environments, and identify questions for further study.*
- *Identify practices that may enhance or degrade soils in particular applications.*
- *Describe and interpret the consequences of using herbicides, pesticides and biological controls in agriculture and forestry.*
- *Investigate and identify intended and unintended consequences of environmental management practices (e.g., identify problems arising from mono-cultural land use in agricultural and forestry practices, such as susceptibility to insect infestation or loss of diversity).*
- *Identify the effects of different practices on the sustainability of agriculture and environmental resources (e.g., identify positive and negative effects of using chemical fertilizers and pesticides and of using organic farming practices).*

### **Grade 7: Heat and Temperature**

*Students will:*

- *Identify examples of personal and societal choices in using energy resources and technology (e.g., identify choices that affect the amount of hot water used in their daily routines; identify choices in how that water is heated).*
- *Investigate and describe practical problems in controlling and using thermal energy (e.g., heat losses, excess energy consumption, damage to materials caused by uneven heating, risk of fire).*

### **Grade 7: Heat and Temperature**

*Students will:*

- *Analyze issues related to the selection and use of thermal technologies, and explain decisions in terms of advantages and disadvantages for sustainability*
  - *Identify and evaluate different sources of heat and the environmental impacts of their use (e.g., identify advantages and disadvantages of fossil fuel use;*

*compare the use of renewable and nonrenewable sources in different applications).*

- *Compare the energy consumption of alternative technologies for heat production and use, and identify related questions and issues (e.g., compare the energy required in alternative cooking technologies, such as electric stoves, gas stoves, microwave ovens and solar cookers; identify issues regarding safety of fuels, hot surfaces and combustion products).*
- *Identify positive and negative consequences of energy use, and describe examples of energy conservation in their home or community.*

#### **Grade 7: Structures and Forces**

*Students will:*

- *Identify environmental factors that may affect the stability and safety of a structure, and describe how these factors are taken into account (e.g., recognize that snow load, wind load and soil characteristics need to be taken into account in building designs; describe example design adaptations used in earthquake-prone regions).*
- *Analyze and evaluate a technological design or process on the basis of identified criteria, such as costs, benefits, safety and potential impact on the environment.*

#### **Grade 8: Mechanical Systems**

*Students will:*

- *Evaluate the design and function of a mechanical device in relation to its efficiency and effectiveness, and identify its impacts on humans and the environment.*
- *Develop and apply a set of criteria for evaluating a given mechanical device, and defend those criteria in terms of relevance to social and environmental needs.*
- *Illustrate how technological development is influenced by advances in science, and by changes in society and the environment.*

#### **Grade 8: Freshwater and Saltwater Systems**

*Students will:*

- *Identify evidence of glacial action, and analyze factors affecting the growth and attrition of glaciers and polar icecaps.*
- *Analyze human water uses, and identify the nature and scope of impacts resulting from different uses.*
- *Identify current practices and technologies that affect water quality, evaluate environmental costs and benefits, and identify and evaluate alternatives.*

#### **Grade 9: Biological Diversity**

*Students will identify impacts of human action on species survival and variation within species, and analyze related issues for personal and public decision making:*

- *Describe ongoing changes in biological diversity through extinction and extirpation of native species, and investigate the role of environmental factors in causing these changes (e.g., investigate the effect of changing river characteristics on the variety of species living in the river; investigate the effect of changing land use on the survival of wolf or grizzly bear populations).*

#### **Grade 9: Biological Diversity**

*Students will identify impacts of human action on species survival and variation within species, and analyze related issues for personal and public decision making:*

- *Evaluate the success and limitations of various local and global strategies for minimizing loss of species diversity (e.g., breeding of endangered populations in zoos, designating protected areas, development of international treaties regulating trade of protected species and animal parts).*
- *Investigate and describe the use of biotechnology in environmental, agricultural or forest management; and identify potential impacts and issues (e.g., investigate issues related to the development of patented crop varieties and varieties that require extensive chemical treatments; identify issues related to selective breeding in game farming and in the rearing of fish stocks).*

### **Grade 9: Environmental Chemistry**

*Students will:*

- *describe the uptake of materials by living things through ingestion or absorption, and investigate and describe evidence that some materials are difficult for organisms to break down or eliminate (e.g., DDT, mercury).*
- *Identify questions that may need to be addressed in deciding what substances—in what amounts—can be safely released into the environment (e.g., identify questions and considerations that may be important in determining how much phosphate can be released into river water without significant harm to living things).*
- *Identify processes for measuring the quantity of different substances in the environment and for monitoring air and water quality:*
  - *describe and illustrate the use of biological monitoring as one method for determining environmental quality (e.g., assess water quality, by observing the relative abundance of various vertebrate and invertebrate species).*
  - *identify chemical factors in an environment that might affect the health and distribution of living things in that environment (e.g., available oxygen, pH, dissolved nutrients in soil).*
- *Comprehend information on the biological impacts of hazardous chemicals on local and global environments, by:*
  - *interpreting evidence for environmental changes in the vicinity of a substance release.*
  - *interpreting LD50 data and other information on toxicity.*
  - *identifying concerns with the disposal of domestic wastes, such as paints and oils, and industrial wastes.*
- *Describe and evaluate methods used to transport, store and dispose of hazardous household chemicals.*
- *Investigate and evaluate potential risks resulting from consumer practices and industrial processes, and identify processes used in providing information and setting standards to manage these risks.*
- *Identify and evaluate information and evidence related to an issue in which environmental chemistry plays a major role (e.g., evaluate evidence that the use of insecticides to control mosquitoes has an effect/has no effect on bird populations).*

### **Grade 9: Electrical Principles and Technologies**

*Students will describe and discuss the societal and environmental implications of the use of electrical energy:*

- *Identify and evaluate sources of electrical energy, including oil, gas, coal, biomass, wind and solar (e.g., identify and evaluate renewable and non-renewable sources for generating electricity; evaluate the use of batteries as an alternative to internal combustion engines).*
- *Describe the by-products of electrical generation and their impacts on the environment (e.g., identify by-products and potential impacts of coal-fired electricity generation).*
- *Identify example uses of electrical technologies, and evaluate technologies in terms of benefits and impacts (e.g., identify benefits and issues related to the use of electrical technologies for storing and transmitting personal information).*
- *Identify concerns regarding conservation of energy resources, and evaluate means for improving the sustainability of energy use.*

### **Grade 9: Space Exploration**

*Students will:*

- *Identify and analyze factors that are important to decisions regarding space exploration and development (e.g., identify examples of costs and potential benefits that may be considered; investigate and describe political, environmental and ethical issues related to the ownership and use of resources in space).*

### **Science 10: Aboriginal Perspectives**

*Science 10 incorporates Aboriginal perspectives in order to develop, in all students, an appreciation of the cultural diversity and achievements of First Nations, Métis and Inuit (FNMI) peoples. Science 10 is designed to develop the concept of our connectivity to the natural world and the importance of*

*caring for the environment.*

**Science 10: Attitudes**

- *Students will be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.*

**Science 10: Energy and Matter in Chemical Change**

- *Students will outline the issues related to personal and societal use of potentially toxic or hazardous compounds (e.g., health hazards due to excessive consumption of alcohol and nicotine; exposure to toxic substances; environmental concerns related to the handling, storage and disposal of heavy metals, strong acids, flammable gases, volatile liquids).*

**Science 10: Energy Flow in Technological Systems**

- *Students will compare the energy content of fuels used in thermal power plants in Alberta, in terms of costs, benefits, efficiency and sustainability.*
- *Students will explain the need for efficient energy conversions to protect our environment and to make judicious use of natural resources (e.g., advancement in energy efficiency; Aboriginal perspectives on taking care of natural resources).*

**Science 10: Energy Flow in Global Systems**

*Students will:*

- *Describe and explain the greenhouse effect, and the role of various gases—including methane, carbon dioxide and water vapour—in determining the scope of the greenhouse effect identify the potential effects of climate change on environmentally sensitive biomes (e.g., impact of a reduction in the Arctic ice pack on local species and on Aboriginal societies that rely on traditional lifestyles).*
- *Investigate and interpret the role of environmental factors on global energy transfer and climate change:*
  - *Investigate and identify human actions affecting biomes that have a potential to change climate (e.g., emission of greenhouse gases, draining of wetlands, forest fires, deforestation) and critically examine the evidence that these factors play a role in climate change (e.g., global warming, rising sea level(s)).*
  - *Assess, from a variety of perspectives, the risks and benefits of human activity, and its impact on the biosphere and the climate (e.g., compare the Gaia hypothesis with traditional Aboriginal perspectives on the natural world; identify and analyze various perspectives on reducing the impact of human activity on the global climate).*

**Science 14–24: Attitudes**

*Students will be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.*

**Science 14: Understanding Energy Transfer Technologies**

*Students will explain the need to encourage and support the development of machines that are efficient and rely upon renewable energy sources.*

**Science 14: Investigating Matter and Energy in the Environment**

*Students will:*

- *Assess the costs and benefits of technological developments that produce materials the ecosystem cannot recycle.*
- *Compare the recycling of matter by society with the natural cycling of matter through ecosystems.*
- *Assess the impact of modern agricultural technology on the natural pathways of recycling matter.*
- *Identify and assess the needs and interests of society that have led to technologies with unforeseen environmental consequences.*
- *Explain how various factors influence the size of populations; i.e., immigration and emigration, birth and death rates, food supply, predation, disease, reproductive rate, number of offspring produced, and climate change.*
- *Describe the relationship between land use practices and altering ecosystems.*
- *Trace the development of a technological application that has altered an ecosystem.*

**Science 24: Understanding Common Energy Conversion Systems**

Students will:

- *Devise a plan for making more efficient use of household energy conversion devices.*
- *Assess the impact of fossil fuel based technologies on the environment.*
- *Describe the importance of combustion reactions to a modern industrial society, and describe the implications of depleting fossil fuel reserves.*

**Science 24: Disease and Human Health**

Students will:

- *Describe, in general terms, how human diseases may arise from an interaction of variables, including poor nutrition, stress, pathogens and environmental contamination.*
- *Trace, from a historical perspective, the connection between diseases and contaminated drinking water, air pollution and personal hygiene.*
- *Analyze the impact of public health initiatives and maintaining high standards of personal hygiene in fostering healthier societies and individuals.*

**Science 20–30, Biology 20–30, Physics 20–30, Attitudes-Stewardship**

Students will be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment; e.g.,

- *Assume part of the collective responsibility for the impact of humans on the environment.*
- *Participate in civic activities related to the preservation and judicious use of the environment and its resources.*
- *Encourage their peers or members of their community to participate in a project related to sustainability.*
- *Consider all perspectives when addressing issues, weighing scientific, technological and ecological factors.*
- *Discuss both the positive and negative effects on human beings and society of environmental changes caused by nature and by humans.*
- *Participate in the social and political systems that influence environmental policy in their community.*
- *Promote actions that are not injurious to the environment.*
- *Make personal decisions based on a feeling of responsibility toward less privileged parts of the global community and toward future generations.*
- *Be critical-minded regarding the short- and long-term consequences of sustainability.*

**Science 20–30, Biology 20–30, Chemistry 20–30, Physics 20–30, Science, Technology and Society**

- *Students will discuss the appropriateness, risks and benefits of technologies, assessing each potential application from a variety of perspectives, including sustainability.*
- *Students will explain that society and technology have both intended and unintended consequences for humans and the environment.*
- *Students will explain that the appropriateness, risks and benefits of technologies need to be assessed for each potential application from a variety of perspectives, including sustainability.*
- *Students will explain that the goal of technology is to provide solutions to practical problems and that the appropriateness, risks and benefits of technologies need to be assessed for each potential application from a variety of perspectives, including sustainability.*
- *Students will explain that the products of technology are devices, systems and processes that meet given needs and that the appropriateness, risks and benefits of technologies need to be assessed for each potential application from a variety of perspectives, including sustainability.*

**Science 20: Chemical Changes**

Students will describe the properties of simple hydrocarbons and describe hydrocarbon-based industrial processes that are important in Alberta.

**Science 20: Changes in Living Systems**

- *Students will describe the potential impact of habitat destruction on an ecosystem.*

- *Students will describe the effects of introducing a new species into, or largely removing an established species from, an environment.*
- *Students will describe artificial and natural factors that affect the biogeochemical cycles:*
  - *nitrogen cycle; e.g., automobile, agricultural and industrial contributions to NO<sub>x</sub> combining with water to produce nitric acid, nitrogen in manure and fertilizers.*
  - *carbon cycle; e.g., emissions of carbon oxides from extraction, distribution and combustion of fossil fuels, releases associated with deforestation and cement industries.*
  - *water cycle; e.g., extraction of ground water, dams for hydro-electricity and irrigation.*
- *Students will describe how factors including space, accumulation of wastes (e.g., salinization of soil), competition, technological innovations, irrigation practices (e.g., Hohokam farmers) and the availability of food impact the size of populations.*

### **Science 30: Chemistry and the Environment**

*Students will:*

- *Outline the chemical reactions (e.g., combustion reactions) that produce air pollutants (i.e., sulfur dioxide and nitrous oxides) that, when combined with water, ultimately result in acid deposition.*
- *Describe impacts on the biotic and abiotic components of the environment caused by acid deposition; e.g., lowered pH in water systems, accelerated corrosion, metal leaching from bedrock, the impact of leached metals on plants and the food chain.*
- *identify and explain how human activities and natural events contribute to the production of photochemical smog, the depletion of the ozone layer and increased concentrations of organic compounds in the environment; e.g., driving a car, use of CFCs, agricultural practices.*
- *Explain how the introduction of environmental contaminants, i.e., herbicides, pesticides, dichlorodiphenyltrichloroethane (DDT), CFCs, SO<sub>2</sub> (g), CO<sub>2</sub>(g), particularly persistent organic pollutants (POPs), affects living systems globally.*
- *Describe the risks and benefits of using chemical processes that may produce products and/or by-products that have the potential to harm the environment.*
- *Describe technologies used to reduce the production and emission of chemical compounds that have the potential to harm the environment; e.g., activities related to internal combustion engines, smelting, pesticide production, sweetening of sour gas.*
- *Describe alternatives to the use of chemical technologies; e.g., bioremediation for contaminated soil, biological controls for pests, biodegradable products.*

### **Science 30: Energy and the Environment**

*Students will:*

- *Apply the concept of sustainable development to increasing the efficient use of energy; e.g., efficient use of energy in the home, in industry and in transportation.*
- *Explain the need to develop technologies that use renewable and nonrenewable energy sources to meet the increasing global demand.*
- *describe the environmental impact of developing and using various energy sources; i.e., conventional oil, oil sands, solar power, wind power, biomass, hydroelectricity, coal-burning power, nuclear power, geothermal.*
- *Describe how the Aboriginal perspective of an interconnected environment demonstrates the need to balance resource extraction with environmental impact.*
- *Investigate and assess the need for strategies (e.g., co-generation, waste-energy recovery, electrical load scheduling) and policies to increase energy efficiency as a means of balancing global energy demands with maintaining a viable biosphere.*
- *Describe the conversion of solar energy into renewable forms (e.g., wind, hydropower, chemical potential energy by photosynthesis) and nonrenewable forms (e.g., coal, oil and gas) and further conversion into electrical and thermal energy.*
- *Describe the functioning of renewable energy technologies and assess their advantages and disadvantages, including active and passive solar-heating technologies, wind turbines, hydroelectric power, biomass energy, geothermal energy, hydrogen fuel cells.*

- Evaluate the environmental and economic implications of energy transformation technologies; e.g., nuclear, geothermal, fossil fuel, hydroelectric, wind, tidal power or hydrogen-cell power in a risk-benefit analysis.

**Biology 20: Energy and Matter in the Biosphere**

Students will:

- Describe the geologic evidence (stromatolites) and scientific explanations for change in atmospheric composition, with respect to oxygen and carbon dioxide, from anoxic conditions to the present, and describe the significance to current biosphere equilibrium.

**Chemistry 20: Attitudes-Stewardship**

Students will be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment; e.g.,

- Remain critical-minded regarding the short- and long-term consequences of human actions.
- Consider a variety of perspectives when addressing issues, weighing scientific, technological, economic, political and ecological factors.
- Evaluate the contributions of technological innovations to quality of life and care of the environment.

**Chemistry 30: Attitudes, Stewardship**

Students will be encouraged to demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment; e.g.,

- Consider a variety of perspectives when addressing issues related to energy use, weighing scientific, technological and ecological factors.
- Develop a sense of responsibility toward the use of energy.
- Develop a sense of responsibility regarding the use and disposal of chemicals and materials.
- Identify and evaluate ways of using chemical potential energy sources efficiently.
- Develop awareness that the application of technology has risks and benefits.
- Evaluate the contributions of technological innovations to quality of life and care of the environment.
- Evaluate the choices that scientists and technologists make when carrying out controversial research.

**Physics 20: Circular Motion, Work and Energy**

- Students will evaluate whether Canadian society supports scientific research and technological development to facilitate a sustainable society, economy and environment.

**Social Studies**

**Grade 1: Citizenship: My World: Home, School, and Community**

Students will value self and others as unique individuals in relation to their world:

- Students will demonstrate respect for their individual rights and the rights of others

Students will determine what makes their communities thrive by exploring and reflecting upon the following question for inquiry:

- How does caring for the natural environment contribute to the well-being of our community?

**Grade 2: Canada's Dynamic Communities**

Students will investigate the economic characteristics of communities in Canada by exploring and reflecting upon the following question for inquiry

- What impact does industry have on the communities (i.e., agriculture, manufacturing)?

Students will appreciate the physical and human geography of the communities studied:

- demonstrate care and concern for the environment

**Grade 3: Communities in the World**

*Students will examine the social, cultural and linguistic characteristics that affect quality of life in communities in other parts of the world by exploring and reflecting upon the following questions for inquiry:*

- *How does access to public services affect the communities (e.g., schools, hospitals, libraries, transportation systems)?*

*Students will examine the geographic characteristics that shape communities in other parts of the world by exploring and reflecting upon the following questions for inquiry:*

- *In what ways do the people in the communities depend on, adapt to and change the environment in which they live and work?*
- *In what ways do the communities show concern for their natural environment?*

### **Grade 3: Global Citizenship**

*Students will explore the concept of global citizenship by reflecting upon the following questions for inquiry:*

- *What are some environmental concerns that Canada and communities around the world share?*
- *In what ways can individuals and groups contribute to positive change in the world?*
- *How do international organizations support communities in need throughout the world (e.g., UNICEF, Red Cross, Development and Peace)?*
- *What are examples of international organizations formed by individuals (e.g., Free the Children, Médecins sans frontières (Doctors Without Borders))?*

### **Grade 4, Alberta: A Sense of Land**

*Students will value Alberta's physical geography and natural environment:*

- *appreciate the diversity of elements pertaining to geography, climate, geology and paleontology in Alberta*
- *appreciate how Alberta's fossil heritage contributes to the province's unique character*
- *appreciate the variety and abundance of natural resources in Alberta*
- *appreciate the environmental significance of national and provincial parks and protected areas in Alberta*
- *appreciate how land sustains communities and quality of life*
- *demonstrate care and concern for the environment through their choices and actions*

### **Grade 4, Alberta: A Sense of Land**

*Students will examine, critically, the physical geography of Alberta by exploring and reflecting upon the following questions and issues:*

- *What are the significant natural resources in Alberta, and where are they located (e.g., mineral deposits, coal, natural gas and oil, forests)?*
- *How are Alberta's provincial parks and protected areas and the national parks in Alberta important to the sustainability of Alberta's natural environment?*

*Students will analyze how Albertans interact with their environment by exploring and reflecting upon the following questions and issues:*

- *In what ways do the physical geography and natural resources of a region determine the establishment of communities?*
- *How are natural resources used by Albertans (i.e., agriculture, oil and natural gas, forests, coal)?*
- *How do Albertans deal with competing demands on land use (e.g., conservation, solar and wind power, recreation, agriculture, oil exploration, forestry)?*

*Whose responsibility should it be to ensure the preservation of national parks, provincial parks and protected areas in Alberta?*

### **Grade 4: The Stories, Histories and Peoples of Alberta**

*Students will assess, critically, how the cultural and linguistic heritage and diversity of Alberta has evolved over time by exploring and reflecting upon the following questions and issues:*

- *What do the stories of Aboriginal peoples tell us about their beliefs regarding the relationship between people and the land?*

### **Grade 4, Alberta: Celebrations and Challenges:**

*Students will appreciate the factors contributing to quality of life in Alberta:*

- *appreciate the influence of the natural environment and resources on the growth and development of Alberta*
- *value and respect their relationships with the environment*

*Students will examine recreation and tourism in Alberta by exploring and reflecting upon the following questions and issues:*

- *To what extent do recreation and tourism foster appreciation of Alberta's natural regions and environment?*
- *In what ways do interests concerning tourism and the natural environment conflict?*

### **Grade 5: Physical Geography of Canada**

*Students will value Canada's physical geography and natural environment:*

- *appreciate the environmental significance of national parks and protected areas in Canada*
- *appreciate how the land sustains communities and the diverse ways that people have of living with the land*
- *demonstrate care and concern for the environment through their choices and actions (GC, LPP)*

*Students will examine, critically, the physical geography of Canada by exploring and reflecting upon the following questions and issues:*

- *How are Canada's national parks and protected areas important to the sustainability of Canada's natural environment?*
- *How do landforms, bodies of water and natural resources affect the quality of life in Canada?*
- *In what ways do natural resources and the physical geography of a region determine the establishment of communities?*

*Students will analyze how people in Canada interact with the environment by exploring and reflecting upon the following questions and issues:*

- *How are natural resources used, exchanged and conserved in Canada?*
- *Whose responsibility should it be to ensure the preservation of Canada's national parks and protected areas?*

### **Grade 6: Citizens Participating in Decision Making**

*Students will recognize how individuals and governments interact and bring about change within their local and national communities:*

- *value the role of the Canadian Charter of Rights and Freedoms in protecting individual and collective rights and freedoms*

*Students will analyze how the democratic ideals of equity and fairness have influenced legislation in Canada over time by exploring and reflecting upon the following questions and issues:*

- *How does the Canadian Charter of Rights and Freedoms protect collective rights in Canada (i.e., Aboriginal rights, the linguistic rights of official language minorities)?*

*Students will analyze how individuals, groups and associations within a community impact decision making of local and provincial governments by exploring and reflecting upon the following questions and issues:*

*How can individuals, groups and associations within a community participate in the decision-making process regarding current events or issues (i.e., lobbying, petitioning, organizing and attending local meetings and rallies, contacting elected representatives)?*

### **Grade 9: Issues for Canadians: Economic Systems in Canada and the United States**

*Students will appreciate the impact of the Canadian Charter of Rights and Freedoms on rights and governance in Canada.*

*Students will appreciate how emerging issues impact quality of life, citizenship and identity in Canada.*

*Students will assess, critically, the interrelationship between political decisions and economic systems by exploring and reflecting upon the following questions and issues:*

- *How do government decisions on environmental issues impact quality of life (i.e., preservation, exploitation and trade of natural resources)?*
- *How does individual consumer behaviour impact quality of life (e.g., environmental issues)?*

*Students will assess, critically, the impact of the Canadian Charter of Rights and Freedoms on the legislative process in Canada by exploring and reflecting upon the following questions and issues:*

- *How does the Canadian Charter of Rights and Freedoms support individuals in exercising their rights?*
- *In what ways has the Canadian Charter of Rights and Freedoms affected conditions in the workplace (i.e., issues of gender, age, race, religion)?*

### **Social Studies 10-1: To what extent should we embrace globalization?**

*Students will:*

- *examine the impact of communications technology and media on diversity (universalization of pop culture, hybridization, diversification)*
- *analyze opportunities presented by globalization to identities and cultures (acculturation, accommodation, cultural revitalization, affirmation of identity, integration)*
- *analyze challenges presented by globalization to identities and cultures (assimilation, marginalization, accommodation, integration, homogenization)*
- *exhibit a global consciousness with respect to the human condition*
- *accept social responsibilities associated with global citizenship*
- *recognize and appreciate multiple perspectives that exist with respect to the relationships among politics, economics, the environment and globalization*
- *recognize and appreciate impacts of globalization on the interdependent relationships among people, the economy and the environment*
- *analyze political and economic challenges and opportunities of globalization (trade liberalization, foreign investment, economic growth, privatization, outsourcing, knowledge economy)*

**Social Studies 10-1: To what extent should we embrace globalization?**

*Students will:*

- *explore multiple perspectives regarding the relationship among people, the land and globalization (spirituality, stewardship, sustainability, resource development)*
- *evaluate actions and policies associated with globalization that impact the environment (land and resource use, resource development agreements, environmental legislation)*
- *analyze multiple perspectives on sustainability and prosperity in a globalizing world*
- *recognize and appreciate the importance of human rights in determining quality of life accept political, social and environmental responsibilities associated with global citizenship*

**Social Studies 20-2: To what extent should we embrace nationalism?**

*Students will:*

- *demonstrate a global consciousness with respect to the human condition and global affairs*
- *analyze the extent to which selected organizations promote internationalism (United Nations, World Council of Indigenous Peoples, European Union, l'Organisation internationale de la Francophonie, Arctic Council)*
- *examine impacts of the pursuit of internationalism in addressing contemporary global issues (conflict, poverty, debt, disease, environment, human rights)*

**Social Studies 30-1: To what extent should we embrace an ideology?**

*Students will:*

- *analyze the evolution of modern liberalism as a response to classical liberalism (labour standards and unions, universal suffrage, welfare state, protection of human rights, feminism)*
- *analyze the extent to which modern liberalism is challenged by alternative thought (Aboriginal collective thought, environmentalism, religious perspectives, neo-conservatism, postmodernism, extremism)*
- *evaluate the extent to which the principles of liberalism are viable in the context of contemporary issues (environment concerns, resource use and development, debt and poverty, racism, pandemics, terrorism, censorship, illiberalism)*
- *accept responsibilities associated with individual and collective citizenship*
- *develop strategies to address local, national and global issues that demonstrate individual and collective leadership*
- *explore opportunities to demonstrate active and responsible citizenship through individual and collective action*

## Career and Technology Foundations (CTF)

CTF has the potential to address the area of sustainable development based on the type of project that a teacher might choose to create. It provides the flexibility for this important theme to be incorporated into a CTF project, if a teacher chooses to include this area as part of the learning experience being created. CTF is currently being prototyped to inform refinement of the program of studies and is scheduled for implementation in September 2014.

## Career and Technology Studies (CTS)

### Agriculture Occupational Area

Students will:

- *demonstrate an understanding of the economic, environmental and social significance of agriculture;*
- *analyze a range of economic, environmental and social issues in agriculture;*
- *describe techniques used to manage industry practices, including the application of economic principles, product quality and safety, and environmental impact.*

### Environmental Stewardship Occupational Area

Students will:

- *propose shared and personal actions that foster sustainable management of the environment;*
- *analyze the potential environmental and economic impacts of a variety of current and future renewable and non-renewable energy sources; and*
- *present a plan for the sustainable development and integrated use of a land resource.*

### Forestry Occupational Area

Students will:

- *explain how the consumptive and non-consumptive use of forests has created a need for sustainable management of forested regions;*
- *demonstrate, through personal and shared actions, commitment to environmental responsibility/citizenship; and*
- *demonstrate individual and shared actions that foster the sustainable management of forested regions.*

### Primary Resources Occupational Area

Students will:

- *explain the social, economic and environmental significance of hydrocarbon and mineral resources in Alberta;*
- *explain current and potential contributions of renewable hydrocarbons to sustainable energy development;*
- *explain environmental assessment and management practices conducted by the oil/gas industry throughout exploration operations; and*
- *explain environmental assessment and management practices conducted by the oil/gas industry throughout recovery and production operations.*

### Wildlife Occupational Area

Students will:

- *explain the difference between wildlife conservation and preservation;*
- *describe the impact of personal needs, wants, beliefs and actions on wildlife and wildlife habitats; and*
- *demonstrate commitment to environmental responsibility, through individual and shared actions.*

## Environmental and Outdoor Education

Students will recognize that:

- *they as individuals are part of a complex global environment and that they both affect and are affected by their environment;*
- *human life and lifestyles are dependent on environmental resources; and*

- *humans influence environments through direct and indirect means.*

*Students will understand the following principles of conservation:*

- *sustained yield;*
- *maintenance of life-supporting environments; and*
- *maintenance of species diversity.*

### Health and Life Skills (K–9)

#### **Grade 2: Wellness Choices**

*Students will describe the effects of combining healthy eating and physical activity.*

#### **Grade 6: Wellness Choices**

*Students will examine and evaluate the risk factors associated with exposure to blood-borne diseases—HIV, AIDS, hepatitis B/C.*

#### **Grade 9: Relationship Choices**

*Students will model integrity and honesty in accordance with ethical principles.*

#### **Grade 9: Life Learning Choices**

*Students will analyze the potential impact of volunteerism on career opportunities.*

### Physical Education (K–12)

#### **Grade 3: Benefits Health**

*Students will understand the connections between physical activity and emotional well-being.*

#### **Grade 5: Cooperation**

*Students will select and demonstrate responsibility for various roles while participating in physical education; and, accept ideas from others that relate to changing/adapting, movement experiences.*

#### **Grade 6: Benefits Health**

*Students will acknowledge the perceptions that occur as a result of media influence on body types in relation to physically active images.*

#### **Grade 9: Cooperation**

*Students will identify and discuss the positive behaviors that are demonstrated by active living role models.*

#### **Grade 12: Cooperation**

*Students will identify and demonstrate positive behaviors that show respect for self and others.*