

Grade	Subject	Outcomes Related to Energy and the Environment
Five	Science	<p><b>Aim and Goals</b></p> <p>The aim of K-12 science education is to enable all Saskatchewan students to develop scientific literacy. Scientific literacy today embraces Euro-Canadian and Indigenous heritages, both of which have developed an empirical and rational knowledge of nature. A Euro-Canadian way of knowing about the natural and constructed world is called science, while First Nations and Métis ways of knowing nature are found within the broader category of Indigenous knowledge.</p> <p>Diverse learning experiences based on the outcomes in this curriculum provide students with many opportunities to explore, analyze, evaluate, synthesize, appreciate, and understand the interrelationships among science, technology, society, and the environment (STSE) that will affect their personal lives, careers, and future.</p> <p><b>Goals</b> are broad statements identifying what students are expected to know and be able to do upon completion of the learning in a particular area of study by the end of Grade 12. The four goals of K-12 science education are to:</p> <ul style="list-style-type: none"> <li>• <b>Understand the Nature of Science and STSE Interrelationships:</b> Students will develop an understanding of the nature of science and technology, their interrelationships, and their social and environmental contexts, including interrelationships between the natural and constructed world.</li> <li>• <b>Construct Scientific Knowledge:</b> Students will construct an understanding of concepts, principles, laws, and theories in life science, physical science, earth and space science, and Indigenous knowledge of nature, then apply these understandings to interpret, integrate, and extend their knowledge.</li> </ul>

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• **Develop Scientific and Technological Skills:**

Students will develop the skills required for scientific and technological inquiry, problem solving, and communicating; for working collaboratively; and for making informed decisions.

*K-12 Goals for Developing Social Responsibility:* • *using moral reasoning* • *engaging in communitarian thinking and dialogue* • *taking social action.*<sup>7</sup> Science 1

• **Develop Attitudes that Support Scientific**

**Habits of Mind:** Students will develop attitudes that support the responsible acquisition and application of scientific, technological, and Indigenous knowledge to the mutual benefit of self, society, and the environment.

**Grade five**

- a. Investigate the interdependence of plants and animals, including humans, within habitats and communities.
- b. Analyze the structures and behaviours of plants and animals that enable them to exist in various habitats.
- c. Assess the effects of natural and human activities on habitats and communities, and propose actions to maintain or restore habitats.
- d.

Social Studies

**Social Studies General**

Values and attitudes that support active and responsible citizenship are central to social studies learning. These include respect for democratic ideals such as justice and equality, and appreciation of the rights, privileges, and responsibilities of citizenship. Active citizenship also involves willingness to engage in discussion, negotiation, debate, and action regarding Canadian and global social issues. Students will examine the contribution individuals can make to the economic, environmental, and social sustainability of communities.

Goals are broad statements identifying what students are expected to know and be able to do upon

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completion of the learning in a particular area of study by the end of Grade 12. The four goals of K-12 Social Studies and Social Sciences education are to:

- examine the local, indigenous, and global interactions and interdependence of individuals, societies, cultures, and nations (IN).
- analyze the dynamic relationships of people with the land, environments, events, and ideas as they have affected the past, shape the present, and influence the future (DR).
- investigate the processes and structures of power and authority, and the implications for individuals, communities, and nations (PA).
- examine various worldviews about the use and distribution of resources and wealth in relation to the needs of individuals, communities, nations, and the natural environment, and contribute to sustainable development (RW)

#### **Grade five**

##### ***IN5.1 Demonstrate an understanding of the Aboriginal heritage of Canada.***

f. Paraphrase a traditional narrative about the origins of the First Nations or Inuit peoples, about the relationship with the natural environment, and connections between spirituality and the natural environment.

##### ***DR5.1 Analyze the historic and contemporary relationship of people to land in Canada.***

- a. Distinguish between physical and political maps and investigate the application of mapping and data management (i.e., geographic information systems) technology.
  - b. Differentiate between Canada's various geopolitical constructs, including a country, a province, and a municipality.
  - c. Outline the predominant physical features of the
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regions of Canada, including the Western Cordillera, Interior Plains, Canadian Shield, Great Lakes/St. Lawrence Lowlands, Appalachian, and Arctic/Inuitian regions (e.g., vegetation zones, resources, bodies of water, and principal landforms).

- d. Undertake an inquiry investigating the relationship between Canada's physical geographic features and the population distribution.
- e. Explain the meaning and origin of a variety of Canadian symbols and consider the purposes of such symbols (e.g., coat of arms, motto, flag, beaver, feather, drum, RCMP, national anthem).
- f. Investigate reasons for western expansion of Canada in the 19th and early 20th centuries, and the consequences of the expansion.

***DR5.2 Assess the impact of the environment on the lives of people living in Canada.***

- a. Describe the climate of different regions of Canada, and investigate how population distribution in Canada is related to climate, resources, and topographical features.
- b. Explain how different traditional worldviews of Earth affect the use of resources in Canada (e.g., Aboriginal and European attitudes toward ownership, Treaties, Crown land, homesteads, and the seigniorial system).
- c. Investigate the relationship of various First Nations peoples with the environment, including economic relationships, migration, and settlement patterns prior to Confederation.

***RW5.1 Explain the importance of sustainable management of the environment to Canada's future.***

- a. Differentiate between renewable resources (e.g., forests, fish, water) and non-renewable resources (e.g., oil, minerals).
  - b. Create an inventory of current non-sustainable
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practices (e.g., presence of plastics, packaging, dumping of waste into river systems).

- c. List the possible consequences of non-sustainable practices related to the use of resources (e.g., lack of resources for future generations, endangered species, climate change).
- d. Taking one resource as an example, illustrate how resource use and the extraction process of the resource affects the environment (e.g., forests, tar sands, coal, uranium, potash).
- e. Give examples of policies and actions that contribute to sustainability (e.g., water conservation, informed decisions by consumers, reusing materials).

**RW5.2 Hypothesize about economic changes that Canada may experience in the future.**

- a. Using factual data and statistics, predict the future demographic make-up of Canada (e.g., growth in senior citizen population, Aboriginal population, rates of immigration, birth rates, rural depopulation).
- b. Describe the effect the movement of people has on local and provincial communities.
- c. Predict which industries will be of future significance in Canada using factual information, statistics, and other data to support your prediction.
- d. Give examples of possible changes in Canada's principal industries (e.g., large agricultural companies replacing family farms; the importance of technological industries).
- e. Speculate upon how contrasting worldviews toward the natural environment may affect the use of resources.

**English  
Language Arts**

ELA implicitly connects to environmental education because it is processed based.

Goals of K-12 English Language Arts:

- Comprehend and Respond (CR). Children will
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extend their abilities to view, listen to, read, comprehend, and respond to a range of contemporary and traditional grade-level texts in a variety of forms (oral, print, and other texts) from First Nations/Métis, and other cultures for a variety of purposes including for learning, interest, and enjoyment.

- Compose and Create (CC). Children will extend their abilities to speak, write, and use other forms of representation to explore and present thoughts, feelings, and experiences in a variety of forms for a variety of purposes and audiences.
- Assess and Reflect (AR). Children will assess their own language skills; discuss the skills of effective viewers, representers, listeners, speakers, readers, and writers; and set goals for future improvement.
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## Mathematics

Mathematics outcomes, whether process or content oriented, can be readily set in the context of energy and environmental issues, notably through problem solving and other real world and other real world applications.

The four goals for K-12 mathematics are broad statements that identify the knowledge, understandings, skills, and attitudes in mathematics that students are expected to develop and demonstrate by the end of grade twelve. Within each grade level, outcomes are directly related to the development of one or more of these goals.

The goals for K-12 mathematics are:

- **Logical Thinking:** Develop and be able to apply mathematical reasoning processes, skills, and strategies to new situations and problems.
  - **Number Sense:** Develop an understanding of the meaning of, relationships between, properties of, roles of, and representations (including symbolic) of numbers and apply this understanding to new situations and problems.
  - **Spatial Sense:** Develop an understanding of 2-D shapes and 3-D objects and the relationships between geometrical shapes and objects, and numbers and apply this understanding to new
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situations and problems.

- **Mathematical Attitude:** Develop a positive attitude towards the ability to understand mathematics and to use it to solve problems.

**Physical Education**

Physical Education outcomes readily invite the use of outdoor environments as a context for learning activities, incorporating active, physical components into cross-curricular studies in energy and the environment.

**K–12 Aim and Goals of Physical Education**

The K–12 **aim** of the physical education curriculum is to support students in becoming physically educated individuals who have the understandings and skills to engage in movement activity, and the confidence and disposition to live a healthy, active lifestyle.

The K-12 **goals** are broad statements identifying what students are expected to know and be able to do upon completion of study in a particular area of study. The goals of physical education **are interdependent and are of equal importance**. The three goals for students from Kindergarten to Grade 12 are:

- **Active Living** – Enjoy and engage in healthy levels of participation in movement activities to support lifelong active living in the context of self, family, and community.
- **Skillful Movement** – Enhance quality of movement by understanding, developing, and transferring movement concepts, skills, tactics, and strategies to a wide variety of movement activities.
- **Relationships** – Balance self through safe and respectful personal, social, cultural, and environmental interactions in a wide variety of movement activities.

**Arts Education**

Arts Education implicitly connects to environmental education because it is processed based.

The three goals of arts education from Kindergarten to Grade 12 are:

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**Cultural/Historical (CH)** - Students will investigate the content and aesthetics of the arts within cultural, historical, and contemporary contexts and understand the connection between the arts and the human experience.

**Critical/Responsive (CR)** - Students will respond to artistic expressions of Saskatchewan, Canadian, and International artists using critical thinking, research, creativity, and collaborative inquiry.

**Creative/Productive (CP)** - Students will inquire, create, and communicate through dance, drama, music, and visual art.

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