

Grade	Subject	Outcomes Related to Energy and the Environment
Seven	Science	<p>Aim and Goals</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>Goals 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"> • Understand the Nature of Science and STSE Interrelationships: 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. • Construct Scientific Knowledge: 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.

- **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.*⁷ 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 seven

- Relate key aspects of Indigenous knowledge to their understanding of ecosystems.
 - Observe, illustrate, and analyze living organisms within local ecosystems as part of interconnected food webs, populations, and communities.
 - Observe, illustrate, and analyze living organisms within local ecosystems as part of interconnected food webs, populations, and communities.
 - Analyze how ecosystems change in response to natural and human influences, and propose actions to reduce the impact of human behaviour on a specific ecosystem.
 - Assess the impact of past and current heating and cooling technologies related to food, clothing, and shelter on self, society, and the environment.
 - Analyze societal and environmental impacts of historical and current catastrophic geological events, and scientific understanding of movements and forces within Earth's crust.
 - Identify locations and processes used to extract Earth's geological resources and examine the impacts of those locations and processes on society and the environment.
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- Investigate the characteristics and formation of the surface geology of Saskatchewan, including soil, and identify correlations between the surface geology and past, present, and possible future land uses..

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 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
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the natural environment, and contribute to sustainable development (RW)

Grade seven

DR7.1 Analyze and use various types of maps (that provide differing perspectives and information for differing purposes) in order to situate current issues in Canada, and in a selection of Pacific Rim and northern circumpolar countries.

- f. Describe the nature of the physical, political, and population geography of Pacific and northern Canada, and of a selection of Pacific Rim and circumpolar countries using data from various maps, charts, and graphs.
- g. Construct generalizations about the nature of the physical, political, and population geography in Pacific and northern Canada, and in a selection of Pacific Rim and circumpolar countries.

DR7.2 Appraise the impact of human habitation on the natural environment in Canada, and in a selection of Pacific Rim and northern circumpolar countries.

- a. Identify the influence of physical features such as water bodies, topography, and natural resources on the location of people in Pacific and northern Canada (including the traditional homelands of indigenous peoples) and in a selection of Pacific Rim and circumpolar countries.
 - b. Examine the effects of humans and their technology on the natural environment in Canada, and in a selection of Pacific Rim and circumpolar countries, including the consequences for indigenous peoples who inhabit those regions (e.g., over harvesting of salmon fishery, increased incidence of severe weather, influence of logging industry on the natural world and ecosystems, effects of deforestation and coral removal, and efforts to reclaim shorelines and restore the natural barriers).
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- c. Explore situations where changes in the environment, induced naturally or by humans, have resulted in the relocation of peoples in Canada, and in a selection of Pacific Rim and circumpolar countries, including indigenous peoples who inhabit those regions. Explain the reasons for the relocation and its consequences.
 - d. Trace examples of current effects of climate change on the movement of peoples (e.g., melting of the polar icecap and greater accessibility to the North-West Passage and the oil underneath) and hypothesize about the potential effects of climate change on the movement of peoples in the future.
 - e. Explore the Treaty relationship and the values and beliefs associated with sharing the land.

DR7.3 Analyze the relationship between current and historical events and the physical and social environments in Pacific and northern Canada and in a selection of Pacific Rim and circumpolar countries.

- a. Relate current issues to location by using physical maps, political maps, and population maps of Canada, and a selection of Pacific Rim and circumpolar countries in order to understand the role of geography in shaping political events (e.g., sovereignty over the North-West Passage, Western intervention in other countries, political alliances, adoption of a system of government) and economic activity (e.g., economic alliances, trading partners, exploitation of resources, impact of the reserve system on First Nations populations) in Canada, and a selection of Pacific Rim and circumpolar countries.
 - b. Examine the effects of natural or human catastrophes on affected populations, and, by extension, on the history of human habitation of the region.
 - e. Conduct an inquiry synthesizing the link between historical events, population dynamics, and
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environment.

- a. Debate the positions of circumpolar and Pacific Rim countries with respect to climate change.

RW7.2 Investigate the influence of resources upon economic conditions of peoples in circumpolar and Pacific Rim countries.

- a. Formulate a definition of a natural resource, and differentiate between renewable and non-renewable resources.
- b. Identify the locations of natural resources of circumpolar and Pacific Rim countries using appropriate maps, and analyse the impact of the resources on local communities.
- d. Correlate the presence of resources and industries to the gross national product of circumpolar and Pacific Rim countries.

RW7.3 Assess the ecological stewardship of economies of Canada and the circumpolar and Pacific Rim countries.

- a. Research and illustrate the origins and current meanings of the words “steward” and “stewardship”.
- b. Define the word “sustainable”, and discriminate between the concepts of sustainable and unsustainable as they apply to resources and industry.
- c. Examine the sustainability of the economies of a selection of circumpolar and Pacific Rim countries, and propose practices which might increase the level of sustainability.

**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

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:

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.
