

Grade	Subject	Outcomes Related to Energy and the Environment
Four	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 four

- Investigate the characteristics, including soil composition and ability to absorb water, of different types of soils in their environment.
- Analyze the interdependence between soil and living things, including the importance of soil for individuals, society, and all components of the environment.
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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 the natural environment, and contribute to sustainable development (RW)

Grade 4

DR4.1 Correlate the impact of the land on the lifestyles and settlement patterns of the people of Saskatchewan.

- a. Locate Saskatchewan on a map of Canada, North America, and the world.
 - b. Locate the geographic centre of Saskatchewan on a map.
 - c. Make inferences about why people in Saskatchewan settled particular locations, including settlement patterns before and after coming together of First Nations and European peoples using a variety of maps (e.g., near waterways, sources of water, rail lines, natural resources, low population density in rural areas).
 - d. Identify the characteristics of the unique geographic regions in Saskatchewan.
 - e. Identify the impact of geography on the architecture of Saskatchewan, including how styles, materials, and cultural traditions have been affected by interaction with the land and other people in the province.
 - f. Analyze the influence of geography on the lifestyle of people living in Saskatchewan (e.g., flora and fauna, pastimes, transportation, cost of food, type of food, occupations, availability of services such as education and
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health care).

g. Conduct an inquiry investigating how residents of Saskatchewan came to occupy the land that is now our province (e.g., First Nations, early Europeans, and Métis).

RW4.1 Analyze the strategies Saskatchewan people have developed to meet the challenges presented by the natural environment.

a. List the challenges and opportunities climate presents for residents of Saskatchewan.

b. Determine safety measures necessary for living in the Saskatchewan climate (e.g., clothing; safety package for vehicle; never leave vehicle when stranded in winter; checking highway hotline; not licking frozen metal).

c. Retell the stories of Elders, traditional knowledge keepers, and senior citizens about surviving weather extremes (e.g., drought, cold, blizzards, tornadoes, extreme heat).

d. Collect the natural weather forecasting techniques of Elders, traditional knowledge keepers, senior citizens, and others with local knowledge.

e. Represent the traditions and practices Saskatchewan people developed when faced with isolation, including First Nations practices adopted by Europeans.

f. Research past and present technologies used to withstand the Saskatchewan climate.

g. Investigate the technological evolution of farming practices in Saskatchewan, including crop variety development, pesticide and herbicide use, and soil and water conservation.

h. Graph the typical energy consumption in Saskatchewan for an average year, and investigate energy efficient technologies being developed in Saskatchewan.

RW4.2 Investigate the importance of agriculture to the economy and culture of Saskatchewan.

a. Identify and locate various types of farms in Saskatchewan.

b. Research production practices of various types of crop and livestock farms.

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- c. Identify various farm stewardship practices (e.g., how farmers care for the land, animals, water supply, natural vegetation, and air quality).
 - d. Compile an inventory of Saskatchewan agricultural food and by-products.
 - e. Identify agricultural products used in daily life in Saskatchewan.
 - f. Trace the steps of a food product from the farm to the plates of consumers, and identify the various careers that contribute to this process in the agriculture and food processing industries.
 - g. Analyze the significance of Saskatchewan agricultural commodity exports to the province.

RW4.3 Assess the impact of Saskatchewan resources and technological innovations on the provincial, national, and global communities.

- a. Represent on a map the major resources in Saskatchewan (e.g., minerals, potash, oil, uranium, natural gas, lumber, water, crop and livestock production).
- b. Locate on a map the major industries in Saskatchewan (e.g., agriculture processing, mining, manufacturing, forestry products, energy refinement, tourism, livestock production).
- c. Identify the natural resources and industries found in the local community, and analyze their impact upon the community.
- d. Illustrate the goods made from the major natural resources, the consumers of those goods, and the export destinations.
- e. Differentiate between primary and secondary industry.
- f. Examine the environmental impact of the development of natural resources on the local community, the province, and the world.
- g. Describe the impact of technological innovations originating in Saskatchewan on the global community (e.g., farm machinery, varieties of grain, automated teller machines, fibre optics, communications technologies, pesticides and herbicides, vaccines).

Language Arts

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.
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- **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 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.
