

Ontario

Ontario's curriculum documents are detailed and extensive. They also have similarities with the other provinces with respect to strands taught in English and Math as well as the use of the Pan-Canadian Science outcomes. The Social Studies curriculum offers many different specialty areas that cover a wide variety of topics. There are many spaces for teachers to introduce content related to Indigenous environmental topics through both general and specific outcomes that relate or could relate to environmental education and Indigenous cultures.

English

Ontario's English curriculum has a publication date range from 2006-2007 and is a spiraled to encourage teachers to build on previous outcomes. Similar to English curricula in other regions, there are strong foci on reading, writing, and oral communication, with an additional strand for media literacy. Even with no explicit connections to Indigenous environmental topics, teachers could use curricular outcomes within the context of a project, for example, as they explore how language is used for a variety of purposes. One general outcome that runs through the grade levels includes students using a variety of texts, which could allow teachers to bring in Indigenous authors with content related to this project. Within the media literacy strand, students explore how point of views and perspectives are expressed which could present an opportunity for teachers to look at how Indigenous environmental movements are portrayed in the media.

High school in Ontario typically begins in Grade 9 and English is streamed into ability levels at that point. In the front matter of the Grade 9 and 10 curriculum documents, anti-discrimination education is presented as part of a context within which teachers encourage students to think critically about the world around them as well as themselves and their role in society. The strands continue from elementary, however media literacy grows into media studies and reading becomes reading and literature studies. General outcomes are spread throughout concerning critical literacy, which again leaves flexibility for teachers to question perspectives and biases present in texts, language, and how beliefs, values, and identity are shaped. Ontario's English curriculum not only fosters learning within critical literacy but also with student self-reflection and their place in their communities.

Math

Ontario's Math curriculum documents range in publication date from 2005-2007 and contain anti-discrimination content in the front matter. There is also a note within the anti-discrimination section about gendered curriculum with respect to Mathematics that raises the notion of gender having an impact on learning. For example, teachers are encouraged to provide male students with literacy support in Math whereas female students may need to see female role models in the field. Therein also, teachers are encouraged to assist students in becoming more "sensitive" to diverse cultures, specifically Aboriginal people, and teachers are encouraged to use culturally authentic activities when teaching Math. While such gender and culture-related dynamics are certainly important to consider, we found ourselves uncomfortable with the reductionist underpinnings of such suggestions that apply broad generalizations to particular

groups of students that may actually result in further perpetuation of stereotypes and ignore individual strengths, challenges, and perspectives (St. Denis, 2007).

Ontario's Math curriculum documents are organized in grade groupings. Grades 1-8 could all be linked to Indigenous environmental topics through a Data Management and Probability strand by, for example, using environmental data related to a current event or controversy. Grades 9-10 are also grouped together however there is less opportunity to link to the themes of this inquiry. Grades 11-12 are linked; they also offer less opportunity for connections other than in Grade 12 courses using data management wherein teachers could again refer to environmental data, for example.

Science

Within the front matter of Ontario's Science curriculum, which has a publication date range of 2007-2008, themes such as anti-discrimination education, critical thinking, and environmental education provide opportunities for teachers to link to content related to Indigenous environmental topics. The curricular outcomes are structured around big ideas and fundamental concepts that then narrow in scope to each grade level. Each document is also organized into grade groupings: Grades 1-8, 9-10, and 11-12.

Elementary outcomes include content related to sustainability and stewardship in Grade 1, the relationship between humans, animals, and the environment in Grade 2 as well as air and water in the environment. Grade 3 addresses growth and changes in plants and soils and Grade 4 has outcomes related to habitats and communities that could all relate to this inquiry. Grade 5 contains a "Big Idea" on energy and conservation that looks at the effects of energy and resources on society and the environment. Grade 6 considers human impacts on biodiversity with an explicit outcome that ties to this inquiry:

- 1.1 Analyse a local issue related to biodiversity (e.g., the effects of human activities on urban biodiversity, flooding of traditional Aboriginal hunting and gathering areas as a result of dam construction). Taking different points of view into consideration (e.g., the points of view of members of the local community, business owners, people concerned about the environment, mine owners, local First Nations, Métis, Inuit), propose action that can be taken to preserve biodiversity, and act on the proposal (p. 113)

Also in Grade 6, the electricity unit has an outcome in which students must examine the short and long-term effects of electricity generation. Grade 7's big idea includes one that explores interactions with the environment and assesses the impacts of human activities and technologies including one explicit outcome:

- 3.9 Describe Aboriginal perspectives on sustainability and describe ways in which they can be used in habitat and wildlife management (p. 128)

Grade 8 looks at water systems and has an outcome that could be easily linked to Indigenous environmental topics:

- 1.2 Assess how various media sources (e.g., Canadian Geographic; the science section in newspapers; Internet websites; local, national, and international news on television and radio) address issues related to the impact of human activities on the long-term sustainability of local, national, or international water systems (p. 150)

High school streams into more specialty areas with few obvious connections to this inquiry within Chemistry and Physics, other than perhaps considering soil chemistry in relation to a contemporary pollution issue or similar. However, Biology offers more promising opportunities.

One Biology unit in Grade 9 Science looks at the impact of human activity on the environment and in Grade 10 Science the Earth and Space Science unit looks at climate change. Biology offers further space for connection to critical environmental topics in Grade 11 under Big Ideas such as the Diversity of Living Things; Evolution; and Plants, Anatomy, Growth and Function. Other Fundamental Concepts are emphasized in the front matter of Grade 11 Biology such as Sustainability and Stewardship as well as Change and Continuity. There is less explicit opportunity for connection in Grade 12 Biology, however the Fundamental Concepts of Sustainability and Stewardship as well as Change and Continuity still provide general opportunities for connection.

Ontario's Grade 12 Earth and Space Science course also provides opportunities for connection to this inquiry within the Earth's Geological History and Earth materials unit wherein students explore Earth's resources and the climate. Environmental Science courses in Grade 11 also offer numerous points of connection to this inquiry through some of the suggested units such as Science Solutions to Environmental Challenges, Human Health and Environment, Human Impact on the Environment, Energy conservation, and Natural Resource Science and Management. While there are no explicit outcomes in these courses, teachers could consider their own regional context to make connections with Indigenous environmental topics.

Social Studies

Ontario Social Studies curricula range in date of publication from 2013-2015 and are broken into Social Studies for Grades 1-6, History and Geography for Grades 7-8, then further specialty areas in high school under the more specific umbrellas of Social Sciences and Humanities, Canadian and World Studies, and Native Studies. Teachers may also wish to explore the development of their own unique courses through the Interdisciplinary Studies elective stream, which can allow for bridging with other disciplinary areas. The front matter of the curriculum includes many openings for teachers to connect with Indigenous environmental topics through a critical and social justice tone. Broader themes such as the role of mental health, connections to current events, encouragement of engagement with a local field study, environmental education, equity and inclusion, and critical thinking and literacy round out the front matter. Within the equity and inclusion section, there is specific mention of Indigenous cultures and using curriculum to dismantle stereotypes, and within the environmental education section students are encouraged to develop an action plan that encourages sustainability and stewardship.

Grade 1 looks at roles and responsibilities including treating the environment with respect. Grade 2 looks at local and global communities and diverse groups of people with an outcome that focuses on the importance of sustainability in peoples' relationships with their

communities. A suggested teaching strategy includes interviewing a local Elder who can speak to ancestral lands and how traditions and heritage are passed down. Grade 3 looks at communities between 1780 and 1850 after contact. There are multiple connections within several outcomes as well as connections to Indigenous and land-related concepts such as:

- A3 Understanding context: Identify some of the communities in Canada around the beginning of the nineteenth century, and describe their relationships to the land and to each other (p. 86)

Within this defined time period, the outcomes share a colonized story of Indigenous people after contact and, while there is some content that looks at the challenges Indigenous people faced, there is an avoidance of the impact of Indian Residential Schools (however, see below) and various forms of displacement on Indigenous people, for example within this outcome:

- A3.7 Describe how some different communities in Canada related to each other during this period, with a focus on whether the relationships were characterized by conflict or with cooperation (e.g., cooperation between First Nations and settler communities with respect to the sharing of medicines and technologies; intermarriage between First Nations women and European men; cooperative efforts to establish farms and villages; conflict as settlers impinged on First Nations lands; conflicts between different religious or ethnic groups) (p. 89)

In an age appropriate manner, teachers could still interpret outcomes such as the one above to critically explore the impact of colonization on Indigenous people as well as the effects still lingering today.

Grade 4 looks at social organization and relationships with the environment that existed between 3000 BCE and 1500 BCE around the world and students need to conduct an inquiry into issues associated with balancing human needs and wants as well as activities with the environment. Grade 5 includes characteristics of First Nations and European settler communities in New France up to 1713 from the perspectives of each group. There are connections to environmental and social issues within this context, and one particular outcome that could be connected to this inquiry:

- B1 Assess responses of governments in Canada to some significant issues, and develop plans of action for governments and citizens to address social and environmental issues (p. 112)

Grade 6 also has some Indigenous content within the context of historical and contemporary Canada and how diverse perspectives contribute to a Canadian identity. Within this grade there is a suggested cue for teaching:

- A3.4 What impact did the residential school experience have on First Nations families and communities (p. 122)

While not directly tied to this inquiry, this could be the beginning of a conversation that does tie into Indigenous environmental topics.

Grades 7 and 8 in Ontario mark a shift towards splitting Social Studies into Geography and History with a focus in History on social, political, economic, and legal changes in Canada between 1713 and 1850. Similar to Grade 6, there are Indigenous references throughout but the suggestions are not mandatory, only cues for teaching. In Grade 8 there are two references to Indian Residential Schools. Geography 7 and 8 look at the physical nature of the world, including sustainability as well as global settlement and inequalities. One outcome in Grade 7 ties directly to this project:

- B1.3 Assess the efforts of some groups, agencies, and/or organizations (e.g., the United Nations Environmental Programme; non-governmental organizations [NGO's] such as Friends of the Earth International, Rainforest Alliance, or the Nature Conservancy; indigenous groups; different national governments) in helping to preserve natural resources (p. 170)

As such, with this outcome, teachers have explicit license to look at critical Indigenous environmental issues. Grade 8 adopts more of a global focus, however teachers could still tie some outcomes to this inquiry if desired.

Grade 9 Geography has a focus on looking at the physical environment and human activities with a small scattering of Indigenous content spread throughout. General themes of sustainability of resources and communities offer connections to this inquiry as does this specific outcome:

- E2 Impacts of land use: Analyse impacts of land use in Canada on communities and the natural environment (p. 89)

Grade 10 History focuses on historical and political events beginning in 1914. There is some Indigenous content spread throughout both ability streams (Academic and Applied), including references to Residential Schools that could be tied to this inquiry. Outcomes of particular note include:

- D3.3 Explain some significant events, developments, and/or issues that affected First Nations, Inuit, and/or Métis people in Canada during this time period (p. 120)
- E1.1 Describe various social and cultural trends and developments in Canada since 1982 (p. 122)
- E1.1 Identify some key developments and issues that have affected the relationship between the federal/provincial governments and First Nations, Métis, and Inuit peoples since 1982 (e.g., changes in immigration; an increasingly multicultural society; continuing movement from rural to urban areas; the growth of social advocacy groups, including environmental and human rights groups), and assess their significance for the lives of different people in Canada (p. 138)

An interesting note regarding the two levels of ability groupings in Grade 10 History is that the Academic stream has less caveats to teaching within the context of this inquiry than does the less Applied stream. Additionally, there seems to be more content related to Indigenous culture in the non-academic stream.

The curricular documents for Grade 11 and 12 Social Studies (under the umbrella of Canadian and World Studies) in Ontario are approximately 600 pages in total as there is an expansive program including specific subjects such as Economics, Geography, History, Law, and Politics with further streaming in foci and ability levels (College/ University preparation vs. Workplace). Geography 11 considers sustainability and stewardship of natural resources as well as issues associated with relationships between governmental organizations and agreements related to climate change and the rights of Indigenous people. Economics 11 includes an outcome that relates specifically to this inquiry:

- E1.2 Analyse how First Nations, Métis, and/or Inuit people have responded to issues related to scarce resources (e.g., with reference to land claims, fishing rights, resource development on and/or environmental degradation of Aboriginal land), and explain similarities and differences between their responses and those of other groups in Canada, including government (p. 88)

Forces of Nature 11 (University/ College preparation), a course that falls under the Grade 11 Geography umbrella, connects well to this inquiry through introducing topics such as the impacts of climate change globally and within students' local communities. Additionally, this course looks at environmental concerns in tourism and how to protect spaces and species. Outcomes of particular note include:

- B2.1 Analyse differences in views that various groups of people, including indigenous peoples, hold about the natural environment (p. 234)
- E1.3 Analyse a local, national, or global environmental issue and a range of possible solutions, and create an action plan to address the issue (p. 241)

Another course of note, American History 11 (University preparation), explicitly begins at pre-contact to present and compares the views of Indigenous people and the United States prior to European contact. The course also looks at challenges and opportunities presented between views with respect to the environment and reform movements through different eras including 1791-1867 and 1945 and onwards. A selection of World History courses in Grade 11 have limited explicit connections to this inquiry, but one course (CHT30-Since 1900) mentions social movements, including environmental and Aboriginal movements:

- D3.3 Describe some of the main social movements in two or more regions of the world during this period (e.g., civil rights, feminist, peace, environmental, Aboriginal, anticolonial movements), and assess their significance (p. 364)

Grade 12 Forces of Nature (University/ College preparation) also has one outcome that ties to this inquiry:

- C1.3 Analyse the influence of the values and beliefs of individuals and groups (e.g., environmental non-governmental organizations [NGO's]; business advocacy groups; First Nations, Inuit, and Métis people) in shaping public opinion about environmental sustainability (p. 212)

World Geography 12 (University/ College preparation) includes content related to students exploring their role in sustainability and different points of view on local issues. World Issues 12 also draws on sustainability through an environmental stewardship focus as well as looking at human rights violations. Living in a Sustainable World 12 (Workplace preparation) also looks at environmental stewardship and how organizations work to protect the environment. Canada: History, Identity, and Culture 12 (University preparation), has some Indigenous content regarding the interactions between Indigenous people and the government with a stated focus on positive changes and unresolved conflicts. Here teachers could look at Indigenous environmental issues within the time-period of origins to 1774 with less of a focus on current events, but more on the extent of some of the lingering impacts of early colonization, for example. World History since the Fifteenth Century 12 (University/ College preparation), looks at the impact of exploration and the relationship between colonizers and colonized Indigenous peoples including the loss of land, assimilation, loss of traditional culture and the social and environmental impact of exploitation of colonial resources and resistance to colonial practices.

Of further note are several courses in Law, which do have relevance to this inquiry including opportunities to consider legislation related to Indigenous rights. Racial profiling and the 60s Scoop are also discussed as are environmental protection laws. As previously mentioned, courses under the Native Studies umbrella also contain extensive opportunities to connect to Indigenous environmental topics. Other courses were also reviewed but did not provide strong connections to this inquiry.

References

Council of Ministers of Education of Canada (1997). *Pan-Canadian science framework*.

Retrieved from

<https://ia800508.us.archive.org/17/items/commonframework00coun/1996330.pdf>

Ontario Ministry of Education (2018). *Elementary curriculum*. Retrieved from

<http://www.edu.gov.on.ca/eng/curriculum/elementary/index.html>

Ontario Ministry of Education (2018). *Secondary curriculum*. Retrieved from

<http://www.edu.gov.on.ca/eng/curriculum/secondary/index.html>

St. Denis, V. (2007). Aboriginal education and anti-racist education: Building alliances across cultural and racial identity. *Canadian Journal of Education*, 30(4), 1068-1092.