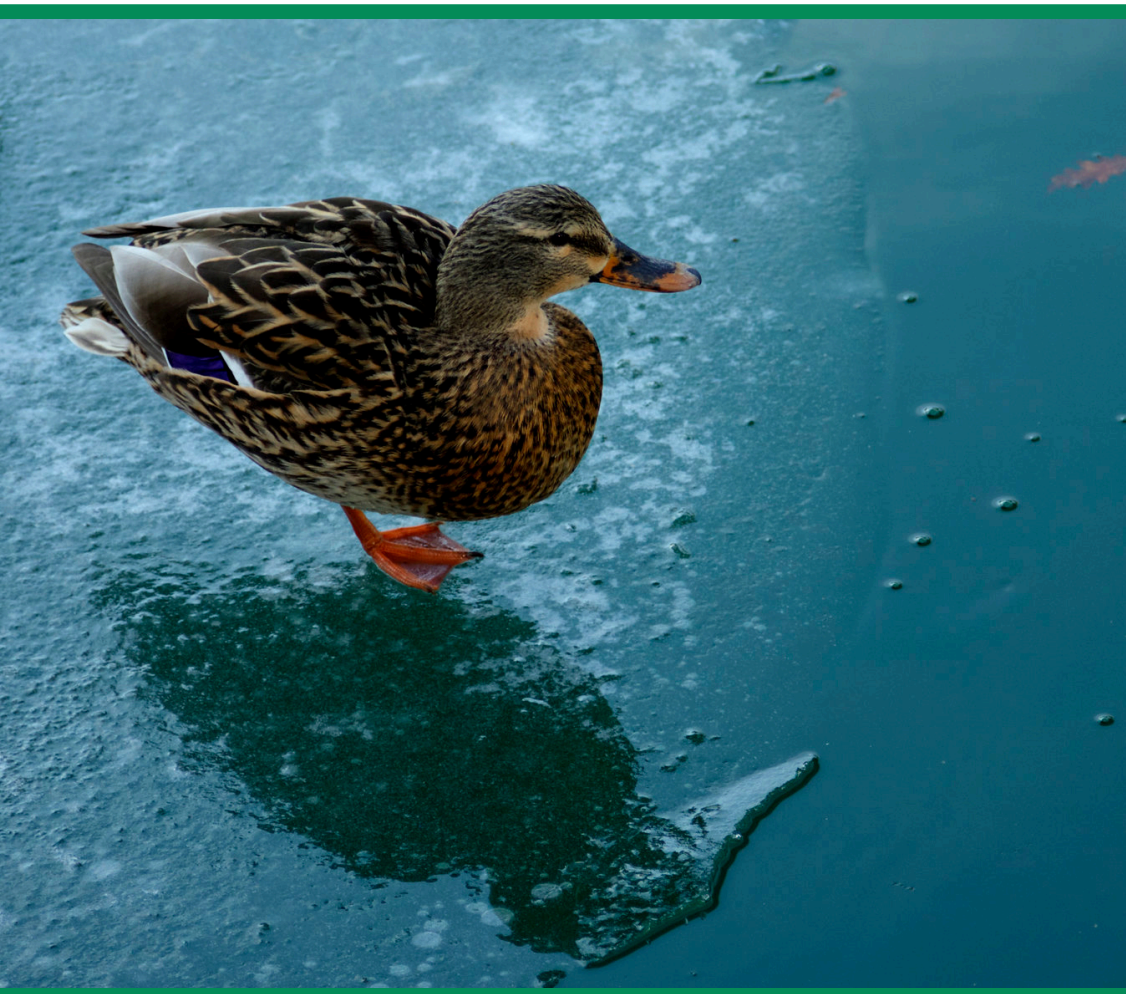


How Do I Connect My Local Community to Science Education/STEM?

Grades 6 - 8



If you are interested in learning more, please provide your contact information and a brief summary of your interest to: xfazio@brocku.ca



Why Does This Matter?

- The children of today will become the citizens of tomorrow.
- Students require global competencies in order to participate actively in society in the future.
- Students must create meaningful connections to their local—communities to begin developing an interest in science-based issues and sustainability.
- When local issues are not addressed, students and teachers remain vulnerable to those challenges, especially in marginalized communities.

What is the Issue?

- Science teachers often struggle to connect science curriculum to their local community all while managing behaviour, working through time and administrative constraints, interpreting mandated documents, and so on.
- For students to become scientifically literate and participate in a continuously evolving society, they must explore relevant, localized socioscientific issues (SSI), or community-based issues and topics that they will encounter in the future.
- Student disengagement threatens deep learning in Science/STEM. We need innovative approaches to the science curriculum that are locally informed in order to create meaningful connections between Science/STEM and the world outside of the classroom.

Ask Yourself...

- *How is SSI currently presented in the classroom? Are they topics addressed? How do students engage with and react to these issues?*
- *What is happening in your local school community that allows for actionable solutions? What knowledge and skills do students need to help them create change?*
- *How comfortable do you feel exploring these issues with your students? Do you feel equipped to address particular topics of interest?*

Consider This:

A community-based curriculum helps create meaningful and authentic learning experiences that align with the science and technology curriculum standards. Using locally relevant SSI can make abstract concepts concrete that are found in Ontario Science and Technology curriculum:

- **HALTON:** Tackling climate change [6. Strand A, B, C, E/ 7. Strand A, B, C, E/ 8. Strand A, D, E], Protecting monarch butterflies during migration [6. Strand A, B/ 7. Strand A, B, C], Concerns of Air Pollution [6. Strand A, B, C/ 7. Strand A, D, E], Watershed Report Card [7. Strand A, B, C/ 8. Strand A, C, D, E]
- **PEEL:** Ecological impact of Highway 413 [6. Strand A, B, D/ 7. SA, B, C, D/ 8. SA, D], Analysis of air pollution and social vulnerability [6. Strand A, B, E/ 7. SA E/ 8. SA, B, D], Regulating GMOs [6. Strand A, B, 7. SA, B/ 8. Strand A, B, D]
- **NIAGARA:** Restoration efforts for the Niagara River [6. Strand A, B, C/ 7. Strand A, B, C, D/ 8. Strand A, B, D, E], Climate change and sustainability plans [6. Strand A, B, C, E/ 7. SA, B, C, E/ 8. Strand A, D, E], Challenges in farming communities [6. Strand A, B, D/ 7. Strand A, B, C, D/ 8. Strand A, D]
- **HAMILTON:** Water pollution in the Hamilton Harbour [6. Strand A, B/ 7. Strand A, B, C/ 8. Strand A, C, D, E], Industrial air pollution and its impact on residents [6. Strand A, B, C/ 7. Strand A, D, E]
- **BRANT-HALDIMAND-NORFOLK:** Fragmentation of natural habitats [6. Strand A, B, D/ 7. SA, B, C, D/ 8. Strand A, D], Turtle stewardship [6. Strand A, B/ 7. Strand A, B, D/ 8. Strand A, D, E], Efforts to protect pollinators [6. Strand A, B/ 7. SA, B, C], Benzene emissions are causing illnesses in Indigenous communities [6. Strand A, B, 7. Strand A, B, / 8. Strand A, B, D, E], Climate Change Adaption Plan [6. Strand A, B, C, E/ 7. Strand A, B, C, E/ 8. Strand A, D, E]

One of the primary aims of science education is to draw attention to the multitude of SSI increasingly impacting society. It is important to prepare students for what lies ahead, and in doing so they become equipped with the knowledge and tools necessary to thrive and create meaningful change in their school community.

Where You Can Start

- Develop a firm understanding of SSI and community-based education. SSIs are complex, real-world problems that involve the intersection of scientific knowledge, ethical considerations, and societal values. They require students to engage in informed decision-making as well as multiple forms of discourse. Examples include climate change, habitat loss/ destruction, vaccinations, genetic testing, pollution. To enhance your knowledge, explore professional development opportunities, curricular and pedagogical resources (e.g. Green Learning, Earth Force, LSF-LST, EcoSchools, NSTA, OSEE, etc.), different branches of the Ontario Teachers' Federation, Ministry of Education documents (e.g. Acting Today, Shaping Tomorrow, Ontario Science and Technology curriculum), and evidence-based strategies that utilize SSI science education.
- Practically, you can begin by exploring and researching your local school community. Do a community walk with a colleague and check out the local news. Contact community organizations (e.g. Canadian Wildlife Federation, Let's Talk Science, STAO, Earth Rangers, Ontario Nature, Halton Environmental Network, Oakville Green, etc.), review local government meeting briefs, and so on. Sometimes, students may bring particular local topics that they see to your attention. You can start small in your school's backyard, for instance (e.g. creating a pollinator garden). This can be an excellent opportunity to connect curriculum to students' experiences.
- Invite experts into your classroom (e.g. farmers, members of local organizations, NGO, scientists, farmers, university and college professors) to help expand on curricular topics you are teaching and speak on issues they are facing. Prior to someone coming in, discuss what you are hoping they explain in their conversations with students and understand their perspectives.
- Ensure that the SSI that you select is relevant to students, manageable, and actionable. Students may have a more difficult time maintaining interest if what they feel they are doing has no impact. The charge that science curriculums address civic, social, and political SSI to support sustainability becomes a tall order when factoring in the current constraints facing the field of education. Remind your students that a solution may not be found quickly, but small actions can help create change.
- Incorporate an inquiry stance into your practice and act primarily as a facilitator (see Figure 1). Allow students to take the lead and participate in more self-directed learning and offer opportunities for collaboration and discussion. Students tend to feed off of each other's ideas and build from each other's thoughts. Encourage them to use evidence to support their ideas and to look at the issue being addressed from a variety of perspectives