



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

**Unit Title:** Work Collaboratively – Solving an Environmental Problem

**Time Frame:** 4 – 5 days

**Unit Developer(s):** Rebecca Yanch

**Developed for Course Name and Course Code:** Geography of Canada, Grade 9 Academic (CGC1D)

**Strand(s) and Curriculum Learning Expectations Addressed:**

**Human-Environment Interactions Strand**

**HE1.01** – explain how human activities (e.g., agricultural and urban development, waste management, parks development, forest harvesting, land reclamation) affect, or are affected by, the environment

**HE1.04** – identify the role of government in managing resources and protecting the environment

**HE2.04** – assess how the effects of urban growth (e.g., development on former farm lands, destruction of wildlife habitats, draining of marshes) alter the natural environment

**HE3.02** – evaluate solutions to environmental problems proposed by various groups (e.g., by government, industry, environmentalists, community members) and make recommendations for sustainable resource use

**Understanding and Managing Change Strand**

**UM2.01** – analyse different perspectives on a geographic issue (e.g., clear-cutting, waste disposal, urban sprawl) and present arguments supporting a point of view

**Methods of Geographic Inquiry Strand**

**MI1.02** – gather geographic information from primary sources (e.g., field research, surveys, interviews) and secondary sources (e.g., reference books, mainstream and alternative media, CD-ROMs, the Internet) to research a geographic issue

**MI2.06** – provide appropriate and sufficient geographic evidence and well-reasoned arguments, to support opinions and conclusions

**MI3.01** – communicate the results of geographic inquiries, for different audiences and purposes, using a variety of forms (e.g., reports, role plays, presentations, essays) and including geographic visual supports, both conventional (e.g., photographs, charts, graphs, models, organizers, diagrams, maps) and geotechnological (e.g., computer-generated maps and graphs, aerial photographs, satellite images)

**MI3.03** – use appropriate terminology (e.g., location, place, region, pattern, urban, suburban, rural, wilderness) to communicate results of geographic inquiries



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

### **Desired Results**

#### **Unit Description:**

Teaching students about the difficulty of solving environmental problems and working together is important in any course. This unit provides an in-depth, fictional environmental case study in which students play roles to represent different 'stakeholders' in order to solve an environmental problem. This environmental problem takes place in the fictional town of Crookstown where it is becoming apparent that something is wrong with the water supply. The town has a rural, agricultural area, a new subdivision being built, a chocolate factory, a golf course, sewage treatment plant and a garbage dump – all within town limits – as well as many other possible sources of water contamination.

Students must debate in the form of a town hall meeting about the source of the problems and possible solutions to the problem. The goal of this unit is to get students to work collaboratively when solving environmental problems and to understand the difficulties in coming to a resolution when everyone has a different 'stake' in the problem. In this unit there is no right or wrong way to answer the problem and no one person/organization is entirely to blame. The outcome of the town hall meeting will be class dependent.

Students are given a summary of the environmental situation, a map of the areas to set the context as well as an outline of the unique role that they will play (ex. farmer, factory worker). Students will prepare their role (1 day – outline, discussion and research), conduct research into water contamination problems in Canada on the internet (1 day) take part in a town hall meeting (1-2 days) and follow-up class discussion (0.5 - 1 day), and write a reflection paper on what they have learned (1 day). A debate and participation rubric are included with this unit.

#### **Enduring Understandings / Learning:**

Students will learn:

- problem solving skills
- that working together is difficult but necessary when solving environmental (and other) problems
- that there is often not just one answer to any problem
- to reflect on their experiences in the role play and apply this to a real-life situation



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

### Assessment Tasks

#### **Performance Tasks and Other Evidence That Will Demonstrate the Knowledge and Skills Acquired:**

- participation in town hall meeting (assess learning skills of teamwork and initiative as well as participation in a debate – see **Appendix D**)
- reflection paper (see **Appendix E**)

#### **Assessment Criteria:**

- debate rubric (**Appendix D**)
- reflection paper rubric (**Appendix E**)

### Unit Planning Notes

#### **Prior Learning Necessary:**

- research skills
- basic knowledge of water pollution issues and sources in Canada
- appropriate participation in a debate (this may be completed as part of this unit or done at a separate time)

#### **Preparation Notes:**

- access to computers for internet research (students will need to research water pollution problems and solutions in Canada) — if this is unavailable, some articles about water pollution may need to be found to help students understand the context of this type of problem

### Learning Plan

#### **Lesson 1**

- Read together the summary of the situation in Crookstown (**Appendix A** and **Appendix B**)



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

- Brainstorm the possible sources of water contamination in Crookstown. This can be completed in a class or as small groups that will present to the larger class group.
- Hand out roles (**Appendix C**). You may want to choose certain people to complete certain roles. Encourage students to 'dress the part' of their role. It is often easier for them to get into their character. Students can prepare for their roles by writing down what their character thinks the problem is and how possible solutions will impact them. Have students share these with a partner. There are 18 full roles and 7 roles to be 'made up'. These may be for students who are reluctant to join in the role play or for students that are so excited to get to play something that they can create their own role. Please note that the roles are written in a way that each role has a particular 'bias' and in some cases more than one agenda for the town hall meeting. They are written to be fun although many come from stereotypes.
- Go over the evaluation rubric for the debate so that students know how they will be evaluated.
- Go over rules for the town hall meeting. If you haven't talked about rules for a 'town hall' meeting you need to go over them now. Another possibility is that the class comes up with the rules ahead of time. Ensure that everyone understands them.

### Lesson 2

- Students will research water contamination problems and solutions in Canada using the internet. Have students take notes and record sources so that they can refer to them in the town hall meeting.

### Lesson 3

- Give reminders of the appropriate rules for the town hall meeting. A chart of the 'rules is often helpful. Remind the student playing the provincial court judge that they are in charge of how the town hall meeting goes.
- Begin town hall meeting. Give students a few minutes to get into character. You may choose to have the students introduce themselves, in character to those at the town hall meeting. Have them call the meeting to order and proceed with meeting. This should take the entire class. You can observe or take part in the meeting.

### Lesson 4

- Follow-up from yesterday (the town hall meeting may need to be continued until today). Finish up any debating that still needs to be done. The student playing the provincial court judge can make their



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

recommendations about what they think should be done with the situation.

- Discuss the debate as a class – what went well, what did not, was there a solution – this can be done as a class or in small groups that report to the larger group.
- Record important points on chart paper.

### Lesson 5

- Students will write a reflection paper on what they have learned during the course of the town hall meeting (see **Appendix E**). This can be done by hand or on the computer. This could also be completed at an at-home task.

## Appendices

Appendix A: Background Context: Water Contamination in Crookstown

Appendix B: Map of Crookstown

Appendix C: Student Roles

Appendix D: Debate Participation Rubric

Appendix E: Reflection Paper Outline and Rubric

## Other Possible Course Applications

### **CGC1P, Geography of Canada, Grade 9 Applied**

This unit can be modified slightly for use in the Applied Grade 9 Geography. For example, instead of writing a reflection paper, the students could write a reaction to the town hall meeting from the perspective of their character. Students could write all of their own roles based on the characters that they are given. There may also be increased reluctance to complete a role play exercise, so this unit should be used with caution.

### **CGW4U, Canadian and World Issues: A Geographic Analysis**

This activity could be modified for the Canadian and World Issues course by having students complete more in-depth research into water contamination problems in Canada and throughout the world. Instead of a reflection paper, students could write a case-study analysis of a global water issue with special emphasis on how the problem was identified and how the solution was arrived at.

### **CGR4M, The Environment and Resource Management**

This unit could be modified for the Environment and Resource Management Course by having students



## Socially-based Curriculum Unit: Work Collaboratively – Solving an Environmental Problem

---

complete the role play, analyze the difficulties coming to a consensus and then applying this to a different water contamination issue (or other environmental issue). Students could write roles for themselves based on a case study being studied.

### **SNC2D, Science, Grade 10 Academic**

The expectations from the strand the Sustainability of Ecosystems fit well with this unit's theme. Slight modifications could be made to make this more science-based: more in-depth study of water contamination issues, with a focus on water quality; and/or complete a research paper analyzing a water contamination problem in Canada that utilizes references instead of a reflection paper.