

## Lesson 11 – Ask an Engineer

Grade 5–8 (science and social studies)  
Grade 9–12 (science and social studies)

**Topic:** Presentation from an engineer (or water treatment plant operator) and water keeper.

**Time:** 60 minutes

**Methodology:** Class discussion, guest speakers

**Space Requirement:** Regular classroom

**Materials:** No materials required for this lesson

**Objectives:** Students will develop a list of necessary steps to take prior to building a water treatment facility. Students will also explore the perspectives of an engineer and a water keeper, including what steps are taken in preparing to build a water treatment facility, who should be consulted and what they are responsible for.

**For the Teacher:** The goal for this lesson is for students to critically think about what work has to be done before a water treatment plant is built. The students can then see how their ideas compare with those of the engineer and water keeper. The students should also notice a difference in the way water is treated in the business of the engineer and the life of the water keeper.

All efforts should be made to get a civil engineer and a water keeper to come to the class. If you cannot find the engineer who designed your water treatment plant, you could invite another civil engineer or the water treatment plant operator. Whether you invite an engineer or the plant operator, make sure that the brainstormed questions for the presenters are appropriate to their profession. Water keepers are the individuals responsible for water in Aboriginal communities.

**Directions/Procedure:**

1. At the beginning of class, remind students to have their lists of what steps they considered in the previous class about designing a water treatment

- facility, and their questions for the guest speakers. Suggest that if they think of other questions during the presentation, simply write them down for the end of the presentation. (2 min)
2. Introduce and welcome the engineer and water keeper and facilitate the presentation. (30 – 40 min or so)
  3. Ask for questions from the students: (15 min)
    - a. The students should ask what steps the engineer and water keeper would take before beginning a water treatment facility.
    - b. The students should also ask how valuable water is to the engineer and the water keeper.
  4. Be sure to thank the guests for coming to the class.
  5. After the guests have left, debrief the presentation with the class to determine what they learned, what was unsaid, what was worrisome, what was hopeful, and if they noticed a difference between the engineer and the water keeper in terms of how they thought of water. (10 min or so)
  6. Note: if a guest speaker is not available, consider requesting a power point presentation from the water keeper and the engineer, outlining and explaining their roles and responsibilities. They may have this available, or may be able to direct you to another source of information to use instead.
  7. Optional assignment: Give the students the following statements to complete as a writing assignment: “As an engineer building a water treatment facility I would…” and “As a Water Keeper being consulted about a water treatment facility I would…”. The students could choose either perspective, or both. The teacher may determine the length of writing as appropriate to the class (i.e. half to one page on each topic) and when it may be due. (5 min)

**Evaluation:** The evaluation can be based on the student’s participation in the class discussion, the writing assignment and the student’s behaviour and attitude during the presentation from the engineer and water keeper.

**Resources:** There are no additional resources or handouts required for this lesson.

**Extension Activity:** The Safe Drinking Water Foundation has other educational programs that can be taught with this set of lessons. Operation Water Drop examines the chemical contaminants that can be found in water; this program is designed for a science class. Operation Water Flow explores the use of water and where it comes from; this program is designed for a Social studies and Math



collaboration. Operation Water Spirit presents a First Nations perspective of water and water issues and is designed for a Native Studies or Social Studies class. Operation Water Health explores common health issues surrounding drinking water in Canada and around the world and is designed for a Health, Science and Social Studies collaboration. To access more information on these and other educational activities visit the Safe Drinking Water Foundation website at [www.safewater.org](http://www.safewater.org).

**Sources and Related Links:**

[Inuktitut](#) – a SDWF fact sheet

[Ojibway](#) – a SDWF fact sheet

[Operation Water Pollution Lesson 2: Types of Water Pollution](#)

[Operation Water Pollution Lesson 3: Cause and Effect of Water Pollution](#)

[Operation Water Pollution Lesson 4: Demonstration of Water Pollution](#)

[The Cree Language](#) – a SDWF fact sheet