

SDWF MISSION

- 🔹 **Encourage** the universality of safe drinking water by supporting innovative research and development.
- 🔹 **Increase** awareness of health concerns from consumption of poor quality water.
- 🔹 **Act** as a policy advocate to ensure appropriate action is taken to provide safe drinking water to all people.

SCHOOL PROGRAMS

- 🔹 Available to all schools anywhere in North America!
- 🔹 All lessons can be downloaded directly from our website.
- 🔹 Curriculum connections for all provinces and applicable subjects are listed online.

All of these programs and more information about water quality issues (fact sheets, webinar videos, and much much more) can be found at www.safewater.org

SDWF EDUCATION PROGRAMS

- 🔹 We are humbled to be recognized as Environmental Programs of Excellence by Green Street since 2002.
- 🔹 Apply online at www.imagine-action.ca for funds for your school to receive OWD, OWP or OWB kits and to undertake other projects related to drinking water issues!

SDWF SCHOOL PROGRAMS

Operation Water Drop | Operation Water Pollution | Operation Water Health | Operation Water Flow | Operation Water Spirit | Operation Water Biology | Operation Community Water Footprint

OPERATION WATER DROP (OWD)

Dates for Distribution of kits – Elementary and/or High School:

2011 – September 12, September 26, October 11, October 24 & November 7.

2012 – March 5, March 19, April 2, April 16, April 30, May 14 & May 28.



- 🔹 **Elementary teachers** can demonstrate eight scientific tests on their own community drinking water: Alkalinity | Colour | Total Hardness | Chlorine | Copper | Ammonium pH | Sulphate
- 🔹 **High School teachers** can guide their students to work in groups and test for the above eight compounds as well as an additional five analytical tests: Arsenic | Manganese Heterotrophic Plate Count | Iron | Nitrate
- 🔹 Using the High School kits, students can compare their local water to three other water samples as well as to a control medium.



- 🔹 The other water samples should include an urban treated drinking water, a rural treated drinking water and a raw untreated source water.
- 🔹 Available in French and English.

OPERATION WATER DROP (OWD) - Continued

How it works

- Lesson plans, PowerPoint presentations and all other resources are available online. These materials can be downloaded by the teacher for review prior to receiving the OWD kits.

Cost

- The cost of an Elementary OWD kit (for grades 4-8) is \$70 and the cost of a High School OWD kit (for grades 9-12) is \$140. Many school kits are available free of charge thanks to the generosity of sponsors such as Imagineaction and the TD Friends of the Environment Foundation. Contact info@safewater.org for more information and to find out if there is a sponsored kit available for your school!



End Goals

- To encourage students to develop “critical thinking skills” which will empower them to become actively involved in issues such as ensuring safe drinking water within their community, and on a global scale.

OPERATION WATER POLLUTION (OWP)



- Designed for use in both elementary and high school classrooms. Available in French and English.
- Directly connects with science and social studies curricula and is set up as content-integrated lessons. The series of eleven lessons guides students through an examination of water pollution issues.
- The students discover how water pollution is reversed and what they can do to affect change in their community with regards to water pollution.
- Every lesson includes additional suggested activities and resources, along with references to other sources of information.

How it works

- Lesson plans, PowerPoint presentations and all other resources are available online. These materials can be downloaded by the teacher for review prior to receiving the TDS and pH meters.

Cost

- The cost of an OWP kit is \$140 and includes both a TDS and pH meter. It should be noted that each meter is reusable and remains viable for approximately two years. Many school kits are available free of charge thanks to the generosity of sponsors such as Imagineaction and the TD Friends of the Environment Foundation.

End Goals

- Students develop definitions of polluted drinking water that serve as the backbone for the other lessons in this program.

OPERATION WATER BIOLOGY (OWB)



- A series of eight lesson plans designed for use with students in grades nine to 12.
- Directly connects with science, chemistry and biology curricula.
- Covers a few different aspects of drinking water treatment; the major topics are chlorine, chloramine, ammonia and iron. For each of these there is a discussion explaining what it is and its importance to drinking water treatment. There are also lab activities for each which allow students to work with small amounts of these substances and see them in action.

- Students will demonstrate the idea of chlorine demand; create chloramine through a simple chemical reaction, test local samples of drinking water for chlorine and ammonia and filter water samples with iron oxidized by different processes to determine if one is superior.
- Every lesson includes additional suggested activities and resources, along with references to other sources of information.

How it works

- Lesson plans and resources are available online. All resources can be downloaded by the teacher for review prior to receiving the OWB kit. OWB kits are sent on the same distribution dates as OWD kits.

Cost

- The cost of an OWB kit is \$140. Many school kits are available free of charge thanks to various sponsors. Our sponsors include Imagineaction and TD Friends of the Environment Foundation.

End Goals

- Students will learn about the chemical reactions and biological interactions involved in drinking water treatment processes and understand how useful and important applied science can be. Students will have interesting, meaningful, and educational laboratory experiences. Students will develop an appreciation for environmentally friendly engineering solutions and an interest in pursuing scientific endeavors.

OPERATION COMMUNITY WATER FOOTPRINT (OCWF)



- Designed for use with students in grades six to 12.
- Directly connects with science, social studies and math curricula and is set up as content-integrated lessons.
- Students learn about their local drinking water treatment facility and distribution system by undertaking a research project as a class.
- Students will calculate how much water (source water) is needed in order to produce one litre of drinking water in their community (including water used in the treatment process, water lost in distribution, etc.)

- “Put Your School on the Map” on the SDWF website! This application allows students to put a pin on a map of Canada with information about their community’s water footprint, water related issues being faced by their community and details on the actions they are taking to alleviate the problems and/or to inform others. Each pin placed by different schools will be displayed on the map so that students can compare their results to those of other communities across Canada.

OPERATION COMMUNITY WATER FOOTPRINT (OCWF) - Continued

How it works

- Lesson plans and all resources such as the web application calculates your community's water footprint and the "Put Your School on the Map" application are available online, free of charge.

Cost

- There is no cost for the program; lessons may be downloaded and web applications may be accessed at any time from the Safe Drinking Water Foundation website free of charge.

End Goals

- Students will learn how much source water is needed to produce one litre of drinking water in their community, they will take action to make a difference regarding drinking water related issues in their community and they will learn what actions people in other communities are taking to spread awareness of, and alleviate, drinking water problems.

OPERATION WATER HEALTH (OWH)



- Designed for use in both elementary and high school classrooms. Available in English, French and Cree!
- Directly connects with health, science and social studies curricula and is set up as content-integrated lessons.
- Teachers may choose to present one of the lessons or all of the lessons as they find the material to be most suitable or applicable for their students and related subject lesson plans.
- Through a variety of activities and cooperative learning strategies, the students explore common disease-causing microbes found in water, how these microbes are removed or inactivated in water with water treatment, and the diseases these microbes cause when they are not identified and treated in drinking water systems.

How it works

- Lesson plans, PowerPoint presentations and all resources are available online, for review and for teachers to print.

Cost

- There is no cost for the program; lessons may be downloaded at any time from the Safe Drinking Water Foundation's website free of charge.

End Goals

- Students develop definitions for both healthy and unhealthy drinking water and these definitions serve as the backbone for the other lessons in this program.

OPERATION WATER FLOW (OWF)



- 💧 OWF encourages teachers of math, chemistry, biology and social studies to support the science teacher in order to give students a more thorough understanding of issues surrounding drinking water.
- 💧 OWF is available in both English and French.
- 💧 OWF encourages students to establish the true cost of water (economic and environmental); the social responsibilities of providing safe drinking water; the need for national regulations; and the need for water conservation and source water protection, etc.
- 💧 OWF supports and encourages a broad understanding of information related to drinking water issues and is available for grades 6 to 12.

Math or Social Studies?

- 💧 Indian and Northern Affairs Canada allow people in Aboriginal communities 235 litres per day of safe water!
- 💧 Non-Aboriginal communities are under provincial laws which vary, but they are probably similar to Saskatchewan which allows non-Aboriginal people approx. 456 litres per day!
- 💧 The Grade 9 lesson “I use **that** much water?” takes a close look at ways to conserve water.
- 💧 The SDWF believes non-Aboriginal people should have no problem living with the same water consumption as Aboriginal people!

How it works

- 💧 Lesson plans and all resources are available online, for review and for teachers to print.

Cost

- 💧 There is no cost for the program; lessons may be downloaded at any time from the Safe Drinking Water Foundation’s website free of charge.

End Goals

- 💧 That students incorporate their newfound knowledge into their presentations of their Operation Water Drop results.

OPERATION WATER SPIRIT (OWS)

- ▲ OWS is a collection of thematic units and lesson plans which will reinforce Aboriginal culture and perspectives for Aboriginal students – while at the same time provide an Aboriginal perspective to non-Aboriginal students.
- ▲ OWS invites teachers to encourage classroom discussions to enable students to gain a closer understanding of Aboriginal issues and perspectives surrounding drinking water.
- ▲ OWS is available for grades K to 12 and is available in both English and Cree.
- ▲ Students will learn that not everyone has safe drinking water and Aboriginal people are the greatest protectors of our environment, encouraging the need for water conservation and source water protection, etc.



Expectations of Teachers

- ▲ To present Operation Water Spirit in an open and caring atmosphere to encourage students to view Aboriginal issues by “walking in their moccasins” for the duration of these lessons.

Expectations of Students

- ▲ To be receptive to new perspectives and to leave all racial prejudice behind.

How it works

- ▲ Lesson plans and all resources are available online, for review and for teachers to print.

Cost

- ▲ There is no cost for the program; lessons may be downloaded at any time from the Safe Drinking Water Foundation’s website free of charge.

End Goals

- ▲ A closer relationship and understanding of water issues between Aboriginal and non-Aboriginal students.