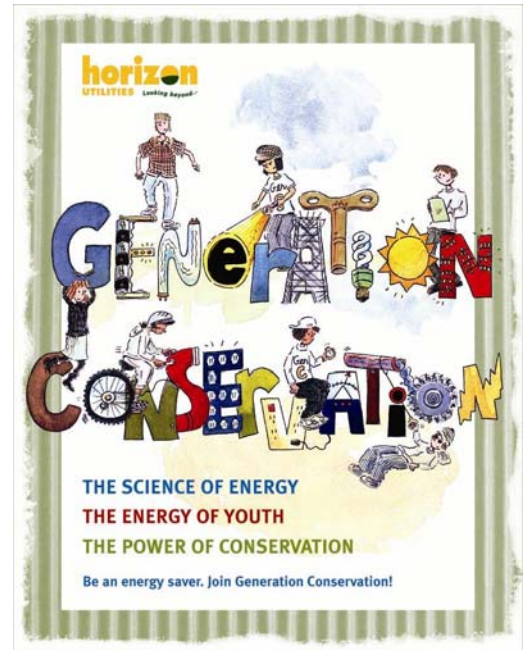


Generation Conservation Backgrounder

Generation Conservation is an innovative and exciting Grade Five curriculum-based school program that aims to do for energy conservation what was done for recycling – mobilize youth to become a generation of conservers.



Program Development

Generation Conservation was developed in 2006/07 in the Durham Region of Ontario by CGC Educational Communications (CGC). The two local school boards and the three local energy companies were brought together to form a development partnership. The program was successfully pilot-tested in 16 classrooms with over 400 students.

This model of community cooperation is unique. Often community-based programs are developed without school involvement. Hence they rarely meet educational needs and are ineffective. This program was built from the ground up through cooperation between the school districts and the local electricity distribution companies.



In 2007, believing that education is key to meeting Ontario's energy challenges, Horizon Utilities researched various methods of providing energy conservation education to children in Hamilton and St. Catharines under the **kidzpower™** brand. After exploring a number of options, Horizon Utilities asked CGC to determine the interest of the public and Catholic school boards in Hamilton and St. Catharines in adopting an updated version of Generation Conservation that would align with the new Science curriculum anticipated to be released in the fall of 2007. All four school boards in these communities felt that the program warranted Horizon's support.

Under *Generation Conservation*, Horizon Utilities is providing teachers' guides and workshops, student workbooks, and classroom materials, free of charge to 195 schools, 400 teachers and 7,500 students and their families.

Horizon Utilities has also involved the public libraries in Hamilton and Niagara to provide lists of research materials available through the library system along with recommended Internet connections. In addition, the libraries stock Kill a Watt™ meters supplied by Horizon Utilities. These units are used to measure the consumption of appliances and other electrical devices in *Generation Conservation*.

Meeting Curriculum Needs for Wide Adoption

Generation Conservation has been built on provincial curriculum needs from the outset. At the same time, it is transferring knowledge about energy sources and the latest approaches to energy conservation direct from energy experts to educators. Not only is *Generation Conservation* effective at carrying forward the conservation message, it is also effective at improving science education - the subject area where conservation is taught and where teachers commonly feel less prepared. It has been written to support all of the outcomes of the draft Science curriculum, the final version of which is due to be released in the fall of 2007.

Students Must Understand the Science of Energy in Order to be Effective at Conservation

Energy is an abstract concept that must be made more concrete in order for students and their families to change their behaviours and take action to conserve energy. Ultimately, the only way for conservation to be successful is through effective science education and an increase in science literacy. *Generation Conservation* achieves these goals.

A Model of Youth Empowerment

The *Generation Conservation* model is to empower youth to be a member of "Gen C" or to become a "Gen Con Kid." The ten student activities are an initiation process to joining *Generation Conservation*. Three to six months after completing the program, students work together as a class to estimate how much energy they have conserved through their own actions. At this point, they receive a t-shirt or a certificate, officially recognizing them as members of *Generation Conservation*.

Generation Conservation Aims to Build a Culture of Conservation in the Classroom and at Home

The program consists of a workbook that students keep for their sole use. The students complete many of the workbook activities at home, including a home energy audit. This interaction between students and families results in families learning how simple changes in behaviour start conserving energy, saving money and improving the environment. It also provides a family forum to discuss how the adoption of conservation technologies adds to the savings. A teacher's guide, classroom materials and teacher workshops support the student activities.

Developed by Established Leaders in Energy Education in Consultation With Local School Boards and Electricity Distribution Companies

CGC Educational Communications were responsible for the development and implementation of the Grade 4 - 6 Using Energy Wisely program. This Ontario Hydro sponsored program was implemented across Ontario from 1993 to 1999. Using Energy Wisely was adopted as a core curriculum resource in most Ontario school districts.

The organizations involved in the original development of *Generation Conservation* in 2006/2007 for the Durham Region were: the Durham Catholic District School Board, Durham District School Board, Oshawa PUC Networks, Whitby Hydro, and Veridian Corporation.

Generation Conservation - Program Content Overview

Generation Conservation is a 10-lesson program developed in close consultation with teachers in Durham Region and based on the Ontario Grade 5 Science and Technology curriculum—Conservation of Energy.

Lesson 1 – EnerToys – An Introduction to Forms of Energy

Students use wind-up toys to investigate what energy is, how it is stored and how it is transferred. They also discover the Law of Conservation of Energy.

Lesson 2 – Turbine Fan – The Applications of Energy

Students conduct hands-on investigations with a model wind powered turbine - which can also become a fan – using a small electric motor to explore how it works with a battery and then how the motor can be reversed to generate electricity.

Lesson 3 – Energy Explorers – An Examination of Energy Sources

Working in groups, students trace an energy web and then construct energy pyramids showing the energy transference in generating electricity from various sources. They explore the differences between renewable and non-renewable sources.

Lesson 4 – Appliance Tester – The Amount of Energy Appliances Really Use

Students use a Kill-a-Watt meter to measure the actual amount of electrical energy used by small appliances. They investigate the differences between energy-efficient and traditional appliances. Students calculate the cost of using appliances over their lifetime, comparing the most energy-efficient devices to their current home appliances.

Lesson 5 — Energy at Home - The Amount of Energy Used in Households

Students conduct an audit of the energy use in their home focusing on significant parts of their home. They also keep an energy use diary to chronicle how family members use energy at home. These are used to identify key “energy hogs” that should be the focus of conservation activities.

Lesson 6 – Energy Savers – An Introduction of Energy Saving Device

Students use a Kill-a-Watt meter to evaluate traditional lighting as opposed to compact fluorescents and LEDs. The students use a math activity to compare how much money can be saved using energy-efficient devices and technologies.

Lesson 7 - Smog City - Connections Between Energy Use and Air Quality

Students use a royalty-free computer simulation game – Smog City – to explore how energy use effects the environment, particularly air quality. They develop tips on improving the air quality where they live and develop posters to communicate these tips.

Lesson 8 –Energy Peaks – Exploring Changing Demands for Energy

Students interview their family members to determine the times of day at which they use the most energy in order to determine their families’ peak energy use. They apply strategies to conserving energy and to change the times when some of the energy is used.

Lesson 9 – Energy Mix - The Mix of Energy Needed for a City

Students work together in groups as energy companies to develop a mix of energy sources that will provide the electricity required to meet the needs of their community. The students must develop an energy mix that is reliable and as environmentally friendly as possible.

Lesson 10 – Generation Conservation Action

Students develop their own Personal Energy Plan – citing the personal behaviours they will modify to conserve energy. As well, students develop two 30-second Public Service Announcements that encourage others to conserve energy.

Follow-Up – Earth Day

Students estimate the energy they have conserved by executing their Personal Energy Plans over a 4-6 month period. As a class, students are officially certified as members of Generation Conservation.