

# ENVIRONMENTAL ASSESSMENT AND INCREASING SCHOOL'S BIODIVERSITY

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## STAO Classroom Catalyst Project 2018

Woburn Collegiate Institute

### SNC1D1 Grade 9 Science Academic

The project put together for the STAO 2018 session represents the result of the work done collaboratively by the science department team members over the last couple of years and reflects the need to accomplish the main goals of the science program, as listed by the 2008 Ontario Curriculum, Grades 9 and 10.

The project has as objective the need to help students understand that classroom learning has to be linked to real-life problems in order to become meaningful. Students are learning the basic concepts related to science, technology and environment and work collaboratively to understand the long-term impacts of the humans on the environment.

This learning experience, based on real life issues, requires real-life solutions and during the interaction students learn to ask meaningful questions, plan their work and use the results as a way to analyze, interpret and communicate their findings. The project promotes the use of Inquiry, Problem Based Learning, STEM, and online learning environments provided by the GAFE (Google Apps for Education).

Students use an outdoor trip as a source of data collection that allows them to further engage in classroom collaborative learning.

Students are given the opportunity to successfully engage in course work that prepares them for future STEM careers. The activity exposes students to a learning that is problem-based, cross-curricular and engages them in a collective inquiry process meant to extend the learning beyond classroom into the real world.

The use of a STEM approach allows students and teachers to explore real-life problems from angles that pertain to Science, Technology, Engineering and Mathematics. In this way students learn to integrate their learning in the context offered by several curriculum expectations, an approach that brings classroom learning closer to real life situations.

Learning goes beyond the classroom, involves science, technology, engineering and mathematics, uses real-life situations, generates concrete experiences, offers opportunities for engaged learning, facilitates the development of problem-solving skills, supports collaborative learning, promotes innovation and reflects the needs of the current job market.

In addition, student learn to use online learning environments that create opportunities for asynchronous learning opportunities. As a result, the technology becomes a tool that facilitates the way students interact and expand their experiences.

## Environmental Assessment Project 2017

Students are introduced to the concept of environmental assessment, its purposes, the set of knowledge and skills required for data collection and interpretation.

The Habitat Analysis forms used in the Claremont investigation were provided by the Claremont Outdoor Education Center team and allow students to identify a variety of abiotic and biotic factors present in a particular ecosystem. These documents are an integral part of the STEM and Environmental Assessment Presentation Eureka 2017 and are attached as a resource to the Classroom Catalyst project.

In addition, students and teachers developed a set of co-constructed success criteria that was used to create a marking scheme.

The results of the data analysis were used for group presentations, also attached to the STEM and Environmental Assessment Presentation 2017.

The Presentations were followed by the administration of a Google Form Environmental Assessment Feedback and the responses are attached to the project.

Students were encouraged to reflect on their learning experience, identify sources of errors and engage in a constructive improvement of the learning experience.

As a result, student had the chance to experience the so-called Engineering Design Process that helps them identify the best solution for a problem, initiate its implementation and evaluate constructively its outcomes.

In addition, students decided that it would be beneficial to design a Google Site that would prepare future generations of grade 9 students for the environmental assessment process.

### Increasing School's Biodiversity 2018

The second project offered students the chance to evaluate the biodiversity of an ecosystem by using a simple method of calculation and to use the results in order to understand the way humans impact the environment. The evaluation of the biodiversity around the school was supplemented by the assessment of the biodiversity of a site located on the Military Trail, less influenced by the human impact.

In addition, students were involved in analyzing the way school ecosystems are linked to the well being of all those attending the schools.

In order to improve the school's biodiversity, students were invited to use Infographics as tools to illustrate the way school ecosystems can be improved in a sustainable way, create a Logo to promote sustainable Ecosystems for future generations and suggest an action plan to improve the biodiversity around the schools. Students conclusion was that in order to increase the biodiversity of the school, more plants should be planted around it. As a result, student applied successfully for \$250 Grant with TakingItGlobal and used the money to buy some perennial grasses such as Miscanthus sinensis. The grasses were planted in front of the school and maintained by the grade 9 classes involved in the project and currently are doing well. The results were presented at the 2018 Student Inovative voices symposium and can be seen in the Google slides " Increasing the Biodiversity at Woburn CI"




























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## RESOURCES

-  STEM and Environmental Assessment with STEM Implications (<https://docs.google.com/presentation/d/1i609OyWC78NETJOPiY7Nyk2nolhnxrI0coPLGfvlxvl/edit>)
-  Increasing the Biodiversity at Woburn CI ([https://docs.google.com/presentation/d/16lXAvjh7\\_nALPL7t3lZtluxCgOyiLaMH2L2v90hn9S8/edit](https://docs.google.com/presentation/d/16lXAvjh7_nALPL7t3lZtluxCgOyiLaMH2L2v90hn9S8/edit))
-  Biodiversity and School's Wellbeing (<https://docs.google.com/presentation/d/1wS4r9ijSAv17JkkjzdTYMp-gdgQ6KmXz4KeoYJ9Ha4Y/edit>)
-  Calculation Simpson Index of Diversity Examples ([https://docs.google.com/document/d/1m6tFVuP-3nOmGKO-gQ8D\\_\\_dNjicid7yYn6SSuwNsrwk/edit](https://docs.google.com/document/d/1m6tFVuP-3nOmGKO-gQ8D__dNjicid7yYn6SSuwNsrwk/edit))
-  Simpson Diversity Index (<http://www.statisticshowto.com/simpsons-diversity-index/>)
-  Outdoor Activity Handout (<https://docs.google.com/document/d/1EbMtNehGkWX3osR7HiiXJ20Rq-elShYLoQkgrvg1Jk/edit>)
-  The Ontario Curriculum, Grades 9 and 10, Science 2008 (Revised Edition) ([http://www.edu.gov.on.ca/eng/curriculum/secondary/science910\\_2008.pdf](http://www.edu.gov.on.ca/eng/curriculum/secondary/science910_2008.pdf))
-  Canadian Biodiversity (<http://www.biodivcanada.ca/default.asp>)
-  Bioblitz Canada (<http://www.bioblitzcanada.ca/default.aspx>)
-  Climate Change Education (<http://edu.yorku.ca/files/2015/12/CCE-ActingForChange.pdf>)
-  About Biodiversity Education (<https://biodiversityeducation.ca/about/>)
-  Biodiversity Audit Individual Portfolio 2018 modified based on student feedback (<https://drive.google.com/open>)
-  Initial Biodiversity Audit document (<https://drive.google.com/open>)
-  Create infographics using Piktochart (<https://piktochart.com/>)
-  Create a free Logo (<https://www.freelogodesign.org/>)
-  Create a collage (<https://www.befunky.com/features/collage-maker/>)
-  TakingItGlobal, Get Funding to Improve your community (<https://funding.tigweb.org/>)
-  Native Grass for Woburn Collegiate Institute ([https://en.wikipedia.org/wiki/Miscanthus\\_sinensis](https://en.wikipedia.org/wiki/Miscanthus_sinensis))
-  Native Grasses for the Modern Landscape ([http://cwf-fcf.org/en/news-features/articles/native-grasses-for-the-modern\\_resource.html](http://cwf-fcf.org/en/news-features/articles/native-grasses-for-the-modern_resource.html))
-  Woburn CI work to increase school's Biodiversity (<https://twitter.com/riliesc2016/status/1005888369929306112>)
-  Students plant the grass (<https://drive.google.com/file/d/0B8ngX32Z3iG5cV8yOC1PNms4SmZ4aTJVTUlyNGZSOFN1WIFV/view>)
-  Students plant the grass (<https://drive.google.com/file/d/0B8ngX32Z3iG5OE4xTGlpOExlSGxvWjNOTFZnZlJXbVdzdWg0/view>)
-  Calculations Simpson Index of Diversity for two different communities (<https://docs.google.com/document/d/1jwK-hD19FUeUcvtK8URFLrOFqvgj63S8Sg74jMFoX2c/edit>)
-  biodiversity audit 1.docx ([https://connex.stao.ca/sites/default/files/biodiversity\\_audit\\_1.docx](https://connex.stao.ca/sites/default/files/biodiversity_audit_1.docx))
-  environmental Assessment and improving schools biodiversity ([https://connex.stao.ca/sites/default/files/environmental\\_assessment\\_and\\_improving\\_schools\\_biodiversity\\_0.docx](https://connex.stao.ca/sites/default/files/environmental_assessment_and_improving_schools_biodiversity_0.docx))

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