



BIOMIMICRY - Learning from Nature

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Project Description

The major aim of our project was to link the human experience to that of other living things by learning about biomimicry. From the beginning we backwards planned our project as our final goal was to have a whole school Bio Fair, where students would be able to present their projects and design inventions, which parents would be invited to attend. Our project included all students from kindergarten to grade 6 and introduced each group with a different learning theme all based on the principals of biomimicry. The final themes and units developed included plant and animal patterns in nature, sustainable “green towns”, renewable energy, animal form and function, animal structures and bio engineers.

What Went Well

The two teachers involved in this project are currently working together at the same school and have worked together in the past. As such, we had a good working relationship and the time that we spent together on this project was used efficiently as we had a like-minded vision, a clear understanding of the QEP and knowledge of what appeals to our target audience. We feel that this project was successful in getting kids to think about how we can solve human problems by imitating natural solutions as evident in our whole school Bio Fair. The day of our culmination activity, the school was alive with projects and design inventions that wowed other students, staff and parents. Students were able to exchange information about systems, functions, behaviours, structures, attributes and patterns found in nature, while linking their research to a design invention aimed at solving a human problem. All of the teaching units were directly related to the QEP’s science, ethics and physical education curriculum. These themed units were designed by grade level and themes, teachers were then asked to be involved in delivering the curriculum. Teachers were given roughly two months to cover the content and to have student’s projects ready for the Bio Fair.

Challenges

Upon reflection we feel that this project was too ambitious given the constraints of the PDIG format. There was a lot of work done outside the 6 given work days and this project would not have been possible if we didn’t exceed the allotted time restraint. The way the project was planned largely relied on other teachers to deliver the final units to students as we ourselves were not involved in teaching these subjects. While most teachers excelled at conveying the information and engaging their students in this culmination of learning, a few teachers were resistant towards their given theme and others misunderstood the amount of time needed to have a successful outcome. In order to further support teachers and students during a PDIG day we both went into classrooms to help administer the units, where we noticed the biggest challenge for students was understanding the design process.

Goals

The major learning goal was for students to understand their connection to the world around them and to use biomimicry as inspiration to help solve human problems. In addition to this, what we hoped for and what actually occurred was an immense amount of learning through the exchange of information across all grade levels. Students became researchers, inventors, designers, problem solvers and teachers. We were able to create all of the intended themed units which were linked to the QEP and hosted a whole school Bio Fair that invited in parents to share in this experience. Student and parent feedback confirmed to us that the themes were engaging and thought provoking while being tied to core curricular concepts. Moreover, we were able to share our ideas with staff and collaborate with other teachers.

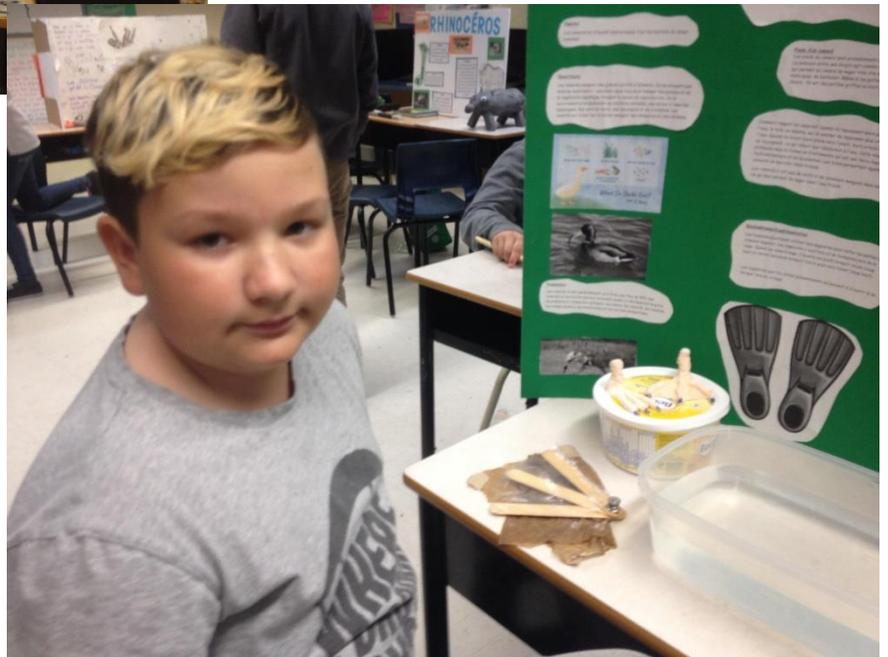
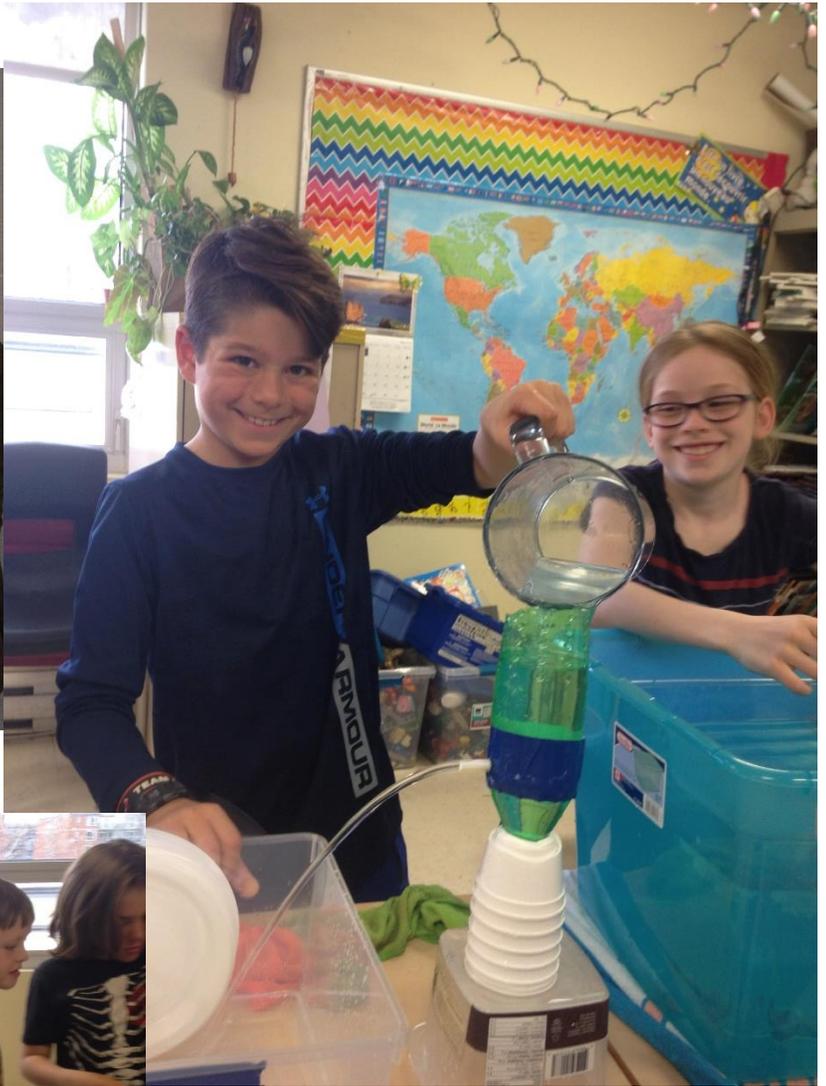
Project Outcomes

The teachers involved in this project gained ready made units to teach and also had direct and immediate support which we provided. The units included resources, student project guidelines and assessment rubrics. The activities lent themselves to be easily modified by teachers based on the needs of their students and were designed to allow students the freedom to develop their ideas and connections at their own rate. The final projects allowed students to connect to the outside world and fully use their imagination to study and design innovative inventions.

Reinvestment

As previously mentioned the created units and resources were made with specific grade levels in mind and were directly linked to the QEP, most aptly with the science curriculum but were also integrated with ethics and physical education. These units could therefore be used by any K-6 teacher in Quebec, and/or modified to work with other provincial curriculums. The final Bio Fair project would not have been possible without the investment of our whole staff. By working together on a common goal our school was able to host this amazing event that enriched student learning and understanding in a hands-on and project based environment. A project of this nature laid the foundations for students to further take part in the annual global design challenge run by the Biomimicry Institute. It allowed both students and teachers a chance to reconnect with nature and most importantly to learn from it.





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Eardley School