

Vertical Agriculture

Pop Bottle Window Garden System



Who We Are

Heather Evans - Grade 8

Catherine Valiaho - Intermediate Math and Science

Andrea MacInnes - Grade 7/8

Darren Foy - Grade 8 and Elementary Science & Tech Studies

Michele Henschel - Program Co-ordinator for Science, Technological Education
and Family Studies (7-12)

Educational Goals

Our goal is to create vertical gardens in order to promote:

- Sustainable use of water
- Health benefits of eating fresh produce
- Innovation, creativity, collaboration and critical thinking
- Student responsibility and control over food choices
- Social Action (use in remote communities and high density, low income housing).



Professional Goals

As educators, we have come together as a team to:

- hone our skills as innovators and collaborators
- challenge and expand our current skill set
- develop a unit that reflects our values in environmental stewardship
- expose students to issues surrounding water availability and to encourage them to consider how vertical gardening may become more important in a future with rapid population increase and less arable land available



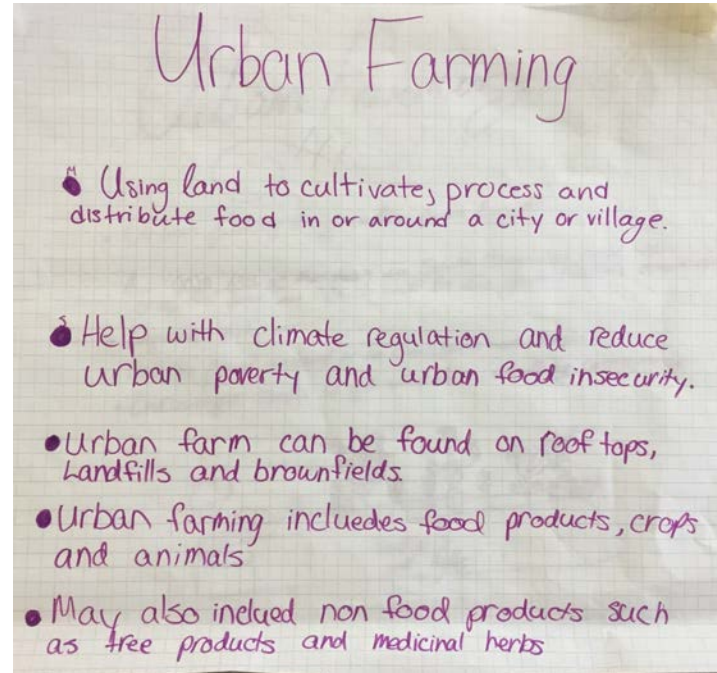
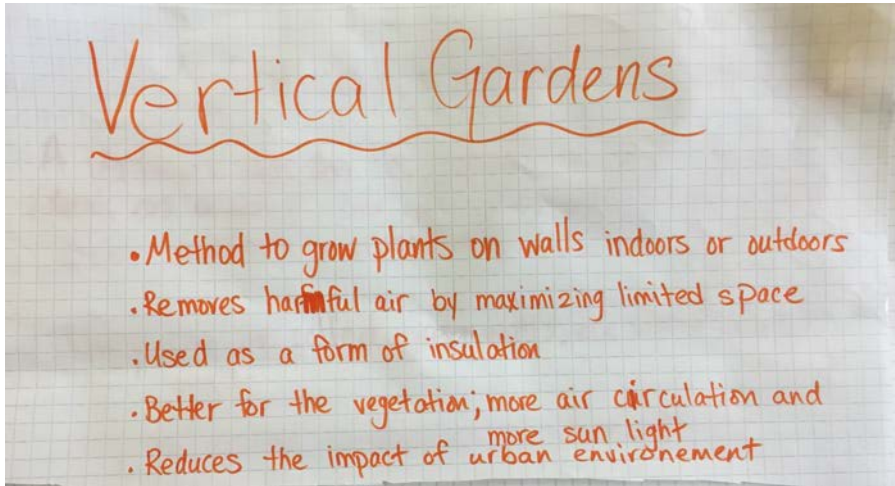
The Learning Process: Initiating Inquiry



Professional development at Science North. What innovative ideas do we have for this project?

Sparking Interest

Students researched vertical and urban gardens.



Construction of Vertical Gardens



Building Vertical Gardens in-class







Prepare the Rockwool for Planting

1. Add small amounts of lemon juice to a small tote of water.
2. Stir well, and check the pH.
3. Add lemon juice or water as needed until you get a pH reading of 5.5



4. Separate the rockwool cubes and place them in the pH conditioned water.
5. Remove the cubes from the water (do not squeeze the liquid out).
6. Arrange the cubes in the tray.



The Process: Planting



Seeds were deposited into the rockwool wells soaked in water.
Germination took place within five days.

Testing and Adjusting pH



Germination and Planting



Setting Up the System

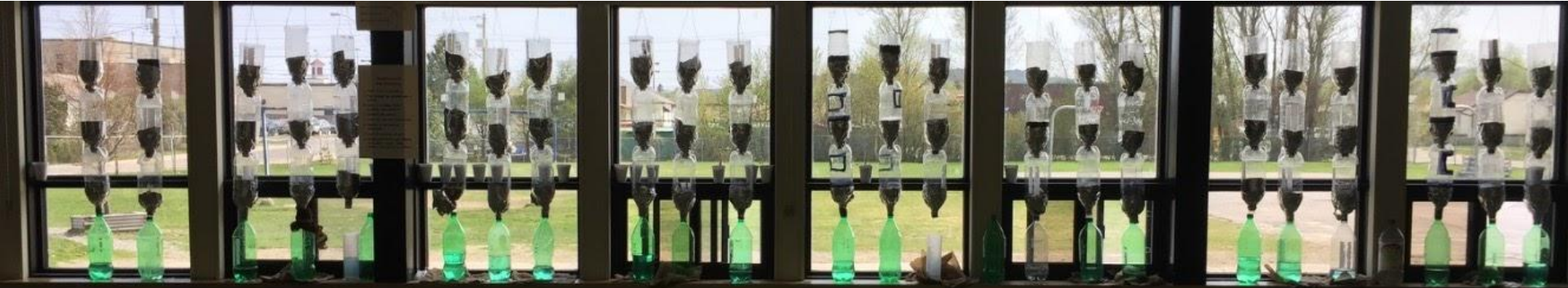


Washing and soaking the pellets
(from one to 24 hours)



Placing the pellets in the
system

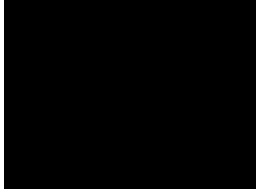
Completed Projects



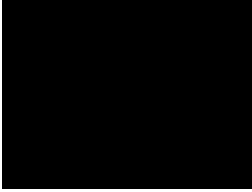
Cycling Water Through The System



Student Reflections



Zack



Rebecca



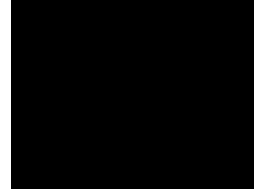
Gabe



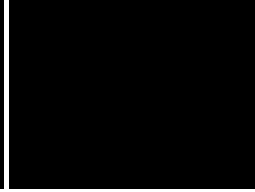
Wolfe



Vanessa



Max



Sarah

Students were asked to write a reflection on their vertical pop bottle garden systems. This reflection could include a little event they found interesting or a very large perspective such as sustainability.

Student Comments

“I feel quite accomplished when I see my plants grow, as it give an entirely new meaning to the term ‘hands on learning’!” Nethra

“The gardens are exciting and creative. It is exciting to come to school everyday and look at how much the little seeds grew.” Ava

“I am looking forward to watching my babies grow and enjoying the fruit of my labour at the end of the growing season.” Maia

“I love how we are making gardens and growing food in a way that is very good for the environment.” Findley

“I think it’s interesting how you can maximize space using the vertical gardens. They would help people who don’t have much land to grow food.” Jake

Questions driving student conference

Google Hangout Instructions

1. **Introduce yourself** (Name, Grade, School), and show off your vertical garden.
MacLeod, Larchwood, Nesbitt, Algonquin
2. **Discuss what part of the assignment you enjoyed the most.**
Larchwood, Nesbitt, Algonquin, MacLeod
3. **Discuss what issues you encountered during the project and describe how you solved your problems.**
Nesbitt, Algonquin, MacLeod, Larchwood
4. **Describe any real-life applications for what you have learned in this project.**
Algonquin, MacLeod, Larchwood, Nesbitt
5. With the Science Ambassadors from the other schools, **come up with a plan** that will allow your classmates to collaborate and share with the students from the other schools.

Our Reflections



Heather Evans

Catherine Valiaho



Andrea MacInnes



Darren Foy

[Click here if video
does not play.](#)

Acknowledgements

Thank you to:

Michele Henschel

Heather Gaffney

Judy Noble

Green and Clean

Ministry of Education