

Tower Garden Explorations Understanding The Process

Planting seeds, harvesting hope and cultivating minds!
---Stephen Ritz, Green Bronx Machine

This Design Thinking project was created after the Alberta Flood of 2013. Many of our students and their families were displaced and lost everything. At the school level, food security was one of our biggest issues and our nutrition budget was quickly depleted. When we asked the kids for solutions to the problem, they came up with "grow our own." Inspired by Stephen Ritz and Green Bronx Machine, our students became excited about finding a solution for the food security issues that they had recently experienced. A greenhouse has been built and veggies will soon be grown to supplement our breakfast, snack, and lunch programs and for home support.



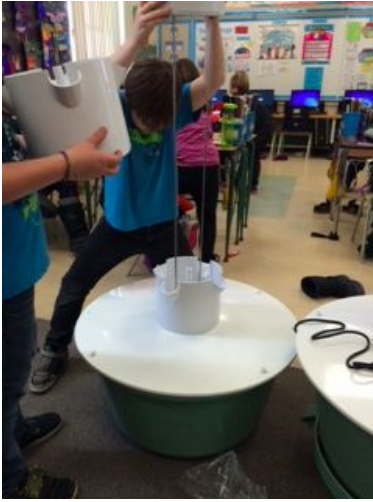
This was a perfect fit for grade 4 as 'Plant Growth and Changes' is one of our Science units. In addition to our greenhouse, we grew herbs in our classroom via a tower garden and living wall to learn about plants and to contribute to our community. This past year, our ideas expanded to include the development of life skills, entrepreneurial skills and cross curricular learning at the elementary level.

We used the Design Thinking process to work our way through this project. Our Driving Question was, "How might we as young entrepreneurs utilize our Tower Garden to benefit the nutrition and overall health of others in our community?"

To start, students chose roles and responsibilities based on strengths and interests.

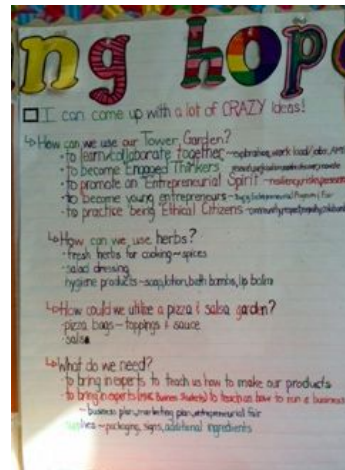
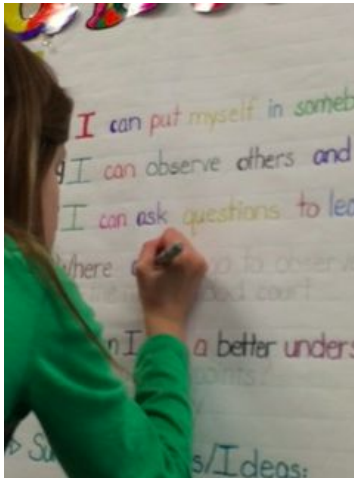
Construction Crew

* assembled the tower garden and helped with our living wall



Beautification Officers

* kept our learning board up to date (the perfect job for doodlers!)



Chemical Consultants

* checked and maintained water and Ph levels weekly



Botanists

* travelled to the greenhouse to purchase seeds, planted seeds, watered plants, moved them to the tower garden and green wall when they were ready, and potted plants for the trade show



Photographers/Videographers

* documented our learning visually throughout the project

Exploration Team (all students)

* researched our living wall solution, herbs, products to make with herbs and brainstormed ideas for Construction Club

Students researched ideas and products that could be made with herbs. When final decisions on products were made, we brought in 'Experts' to guide students and answer their questions.



Students watched our plants grow and measured/tracked their progress.

Basil





Students applied mathematical operations regularly. For example, students skip counted plants and seed trays to practice multiplication skills and kept track of the number of plants one of our groups had to sell at the trade show.



Business and education students from our local college came in to teach our students about being Young Entrepreneurs. Students learned how to make simple business plans, how to do market research, and how to effectively market their product. Students observed target groups of people, wrote and administered surveys, analyzed the data and created their product based on the results.

Tower Garden Explorations
Product Survey
Fresh Herbs

- Do you use fresh herbs in your cooking?
 Yes No
- Do you use fresh herbs because they are healthy or taste good?
 Yes No Both
- What kind of fresh herbs do like to use?
 Dill Mint Sage
 Peppermint Lemon Balm Chives
 Thyme Cilantro Oregano
 Lavender Spearmint Parsley
 Chamomile
- Do you like or use fresh herbs in your cooking that I have not mentioned?

And the RESEARCH Says...

The results of the research completed for my product "Fresh Herbs" is based on surveys completed with 26 people. The results indicated the following information to determine my end product:

The number of people that cook with fresh herbs is 17.

The number of people that use fresh herbs because they are healthy or taste good is 5.

The top 3 herbs used to cook with are: Dill, Parsley and Chives

Graphed Results:

24																	
22																	
20																	
18																	
16		☉		☉		☉			☉				☉		☉		
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Number of people surveyed	Dill	Cilantro	Thyme	Spearmint	Oregano	Sage	Chamomile	Basil	Parsley	Lemon Balm	Mint	Chives	Peppermint	Lavender			

Other 'herbs' suggested not on my survey: bay leaves and marjoram.

Final products for our Young Entrepreneurial Trade Show included: Pizza Sauce, Fresh Herb Salad Dressing, Dried Herb Meat Marinade, Herbal Soap, Herbal Lip Balm, Herbal Bath Bombs, Herbal Sugar Scrubs, Herb Infused Cooking Oil, Fresh Herbs, and a variety of Herb Plants

Students took great pride in making their products (with the guidance of their experts).

Herbal Lip Balm



Herbal Soap



Herbal Sugar Scrubs



Preparing for our Trade Show



Selling at our Trade Show

Fresh Herbs



Salad Dressing



Herb Infused Cooking Oil



Students also provided information sheets with their products based on research that they had done.

The following herbs go well with these meats:

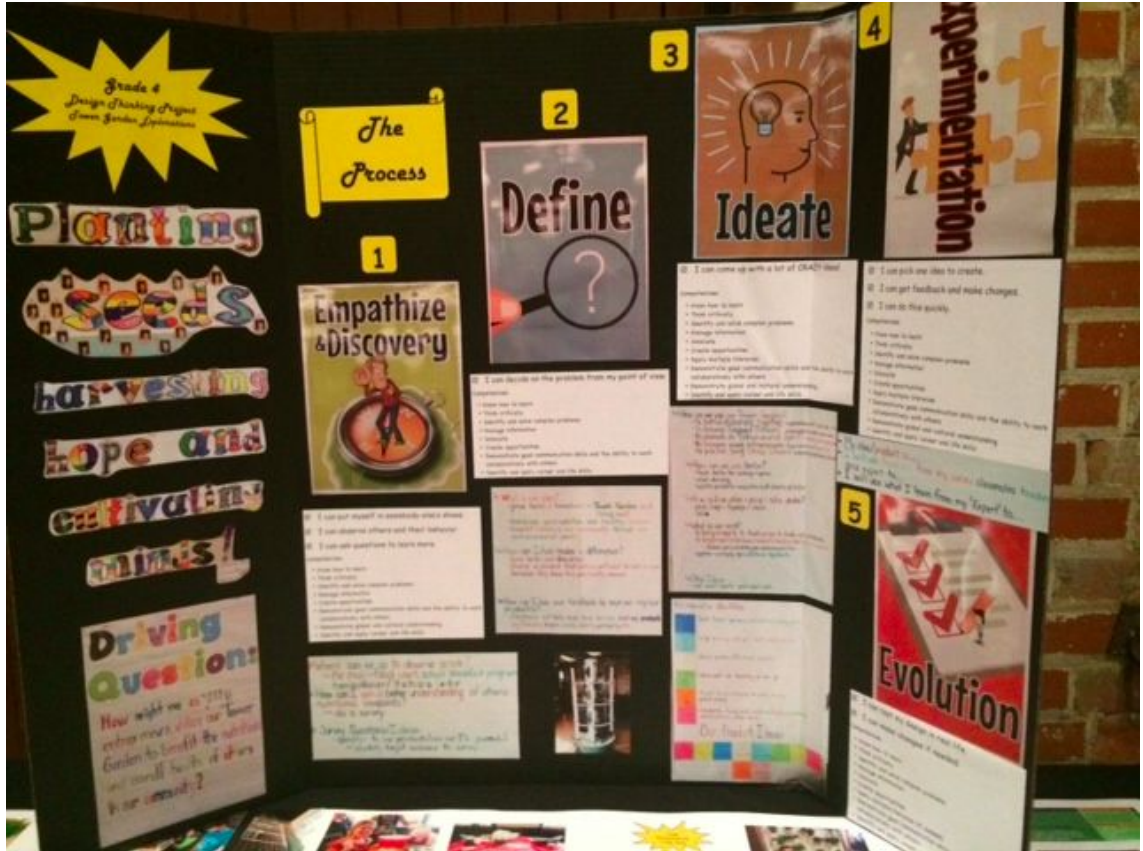
Beef: thyme, sage, rosemary, oregano, garlic
Chicken: garlic, oregano,
Fish, oregano, sage, thyme, rosemary
Pork: oregano, sage, rosemary, thyme, garlic
Roast Beef: basil, oregano, thyme, rosemary, garlic
Turkey: basil, rosemary, oregano, thyme, sage

At the end of the evening, loans were paid back, a portion was donated to the Children's Wish Foundation, and students kept what was left of their earnings.

At different points of this process, we used the Critical Friends Protocol to provide and receive meaningful feedback that helped students make necessary changes to produce quality products and to encourage students to reflect upon each part of the learning process.

Students documented their learning in a Tower Garden Explorations Learning Journal. They recorded the design thinking process (from our learning board), kept track of their observations, wrote questions, organized their information from meetings with their experts, analyzed their data, reflected, etc.

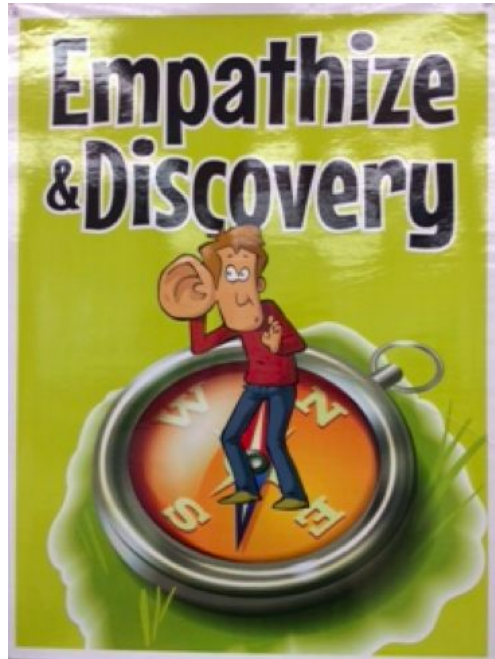
Throughout this project, students learned to collaborate with each other, become engaged thinkers, promote an entrepreneurial spirit, become young entrepreneurs, and practiced being ethical citizens.



Tower Garden Explorations Learning Journal



A Design Thinking Project
Elm Street School 2015
Grade 4



- I can put myself in somebody else's shoes.
- I can observe others and their behaviour.
- I can identify a target group for informational purposes.
- I can ask questions to learn more.
- I can create and administer a strategy to learn more.
- I can analyze my data and use the results as possible solutions to a problem.

Inspiring Education Competencies:

- Know how to learn
- Think critically
- Identify and solve complex problems
- Manage information
- Create opportunities
- Demonstrate good communication skills and the ability to work collaboratively with others
- Demonstrate global and cultural understanding
- Identify and apply career and life skills

Inquiries and Ideas:

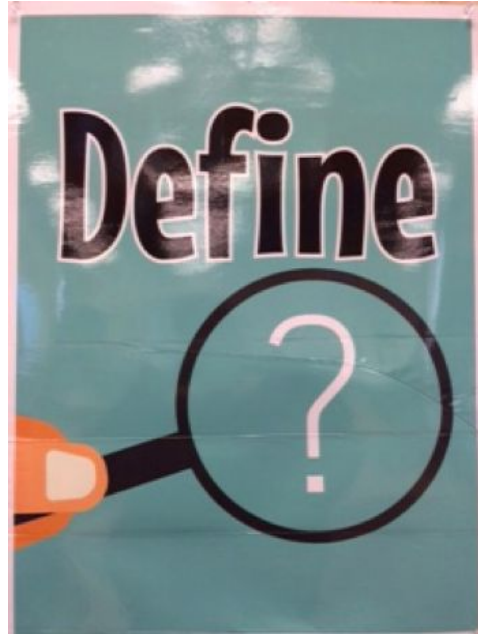
Reflections:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

- I can effectively communicate with others to contribute and receive ideas and feedback.
- I can decide on the problem from my point of view.
- I can contribute ideas for a driving question.

Inspiring Education Competencies:

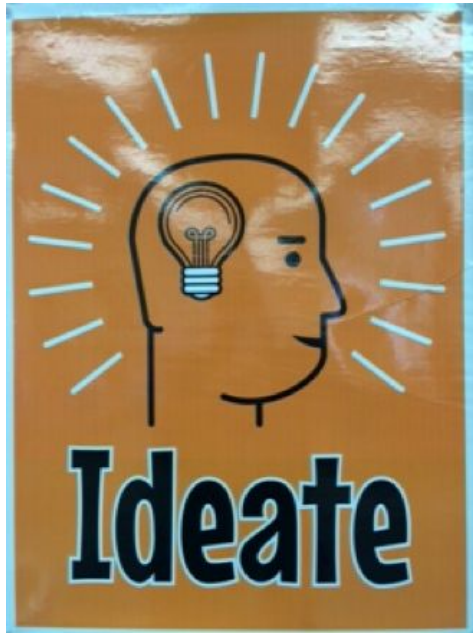
- Know how to learn
- Think critically
- Identify and solve complex problems
- Manage information
- Innovate
- Create opportunities
- Demonstrate good communication skills and the ability to work collaboratively with others
- Identify and apply career and life skills



Inquiries and Ideas:

Reflections:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?



- I can come up with a lot of *CRAZY* ideas!
- I can contribute ideas to the collaborative jobs/roles that will be required throughout this project.

Inspiring Education Competencies:

- Know how to learn
- Think critically
- Identify and solve complex problems
- Manage information
- Innovate
- Create opportunities
- Apply multiple literacies
- Demonstrate good communication skills and the ability to work collaboratively with others
- Demonstrate global and cultural understanding
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Inquiries and Ideas:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

Reflections:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

- I can pick one idea to create.
- I can effectively communicate with others to contribute and receive ideas and feedback.
- I can use feedback and make changes.
- I can do this quickly.

Inspiring Education Competencies:

- Know how to learn
- Think critically
- Identify and solve complex problems
- Manage information
- Innovate
- Create opportunities
- Apply multiple literacies
- Demonstrate good communication skills and the ability to work collaboratively with others
- Demonstrate global and cultural understanding
- Identify and apply career and life skills



Inquiries and Ideas:

Reflections:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?



- I can test my design in real life.
- I can make changes if needed.
- I can reflect on my design and the process.

Inspiring Education Competencies:

- Know how to learn
- Think critically
- Identify and solve complex problems
- Manage information
- Innovate
- Create opportunities
- Demonstrate global and cultural understanding
- Identify and apply career and life skills

Inquiries and Ideas:

Reflections:

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

Documentation/Observations...

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

Expert Enrichments

The product that I am interested in learning more about and making is

_____.

This is what I have already learned based on my research:

New Information:

Materials --- What do I need and where do I get it? (school, home, need to purchase as part of my loan) Who is responsible?

Steps --- What do I need to do?

Other questions:

Young Entrepreneurial Trade Show Results

My product was _____

Loan Information:

I needed the following items to make/complete my product:

Item	Cost	Quantity	Total

I was able to be creative in the following ways to keep my costs down:

The total cost of my product was:

I had _____ products to sell.

I sold my product for \$_____ each.

I sold _____ items at \$_____ each. Therefore, I made \$_____.

I made \$_____ Total profit

- \$_____ Cost of loan

= \$_____

- \$_____ 10% to charity

= \$_____ Final profit

Celebrations, Reflections, Ponderings...

I Liked...

I Learned...

I Wish...

I Wonder...

I Think...

Driving Question: How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?

Capacity Map
Tower Garden Explorations
Grade 4

Name: _____

Design Thinking Process	I'm a novice. I'm just starting to learn and I don't understand it yet.	I'm an apprentice. I understand if I get help or look at an example.	I'm a practitioner. I understand this on my own.	I'm an expert. I understand this on my own and can explain it to others.
Empathize and Discovery				
I can put myself in someone else's shoes.				
I can observe others and their behaviour.				
I can ask questions to learn more.				
I can identify a target group for informational purposes.				
I can create and administer a strategy (E.g. survey) to learn more.				
I can analyze my data and use the results as possible solutions to a problem.				
Define				
I can effectively communicate with others to contribute and receive ideas and feedback.				
I can decide on the problem from my point of view.				
I can contribute ideas for a driving question.				
Ideate				
I can come up with lots of crazy ideas.				
I can contribute ideas to the collaborative jobs/roles that will be required throughout this project.				

Design Thinking Process How might we as young entrepreneurs, utilize our "Tower Garden" to benefit the nutrition and overall health of others in our community?	I'm a novice. I'm just starting to learn and I don't understand it yet.	I'm an apprentice. I understand if I get help or look at an example.	I'm a practitioner. I understand this on my own.	I'm an expert. I understand this on my own and can explain it to others.
Experimentation				
I can pick one idea to create.				
I can effectively communicate with others to contribute and receive ideas and feedback.				
I can use feedback to make changes.				
I can do this quickly.				
Evolution				
I can test my design in real life.				
I can make changes if necessary.				
I can reflect on my design and the process.				