

TEACHING FROM THE GARDEN: A RESOURCE GUIDE

Teaching from the Garden: A Resource Guide

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Table of Contents

Acknowledgement	4
<i>Dedication</i>	5
Project Evaluation.....	6
Success and Challenges.....	6
Accomplishing Goals	6
Project Impact	6
Experiential Learning and Adjusting Expectations.....	7
Project Sustainability.....	8
Leading Change.....	8
Skills and Knowledge Gained and Refined	8
Future Learning	8
The Project	9
Project Proposal	9
Summary	9
Project Goals	11
Barriers and Constraints	11
Tentative Project Timeline	11
Literature Review.....	13
Departmental Approval Letter	17
Dissemination Plan	18

Campaign Purpose.....	18
Target Audience	18
Key Message	18
Communication Channels	18
Creative Strategy	19
Costs	19
Conclusion	20
References.....	21
Appendix.....	24

Acknowledgement

The studies that culminated in this project took place online through the University of Cape Breton. I would like to begin by acknowledging that the university is in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People. This territory is covered by the "Treaties of Peace and Friendship" which Mi'kmaq Wəlastəkwiyyik (Maliseet), and Passamaquoddy Peoples first signed with the British Crown in 1726. The treaties did not deal with surrender of lands and resources but in fact recognized Mi'kmaq and Wəlastəkwiyyik (Maliseet) title and established the rules for what was to be an ongoing relationship between nations.

I completed the work for this degree and culminating project from my home in Winnipeg, Manitoba. I would like to acknowledge that I live in Treaty 1 territory and that this land is the traditional territory of Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene Peoples, and the homeland of the Métis Nation. I acknowledge that my water is sourced from Shoal Lake 40 First Nation.

I respect that the Treaties that were made on these territories, I acknowledge the harms and mistakes of the past, and I dedicate myself to move forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.

Dedication

My project is dedicated to:

- *The many students who have worked alongside me in the garden. I have learned so much from you.*
- *My teaching colleagues who supported me, asked questions, and offered advice.*
- *My professors, Patrick Howard and Catherine O'Brien who taught me about Living Schools and set me on the path to creating one.*
- *My sons, Doug, Tom and Ian, who listened to my plans and offered advice and technical support. I love you and I am very grateful to have the honour of being mom to all three of you.*
- *Lastly, my husband Wilf who listens, encourages, nudges, and supports me as I follow my dreams. You have always believed in me and I love you very much.*

Project Evaluation

Success and Challenges

For my final project, I have created a resource website for teachers. There are instructions on how to set up a classroom garden, resources for garden care and maintenance, and cross-curricular lesson ideas for teachers. I have shared the site with teachers in my school division and in other parts of my province and the feedback so far has been positive. Several were excited to use some of the resources to make a case for a garden in their own classrooms. My background in web design was both a strength and a challenge on the technical side of building the website. I already was comfortable with creating a website that is both functional and attractive. I have experience in layout and space planning and image to text ratio. It was challenging wrestling with some of the limitations due to the site on which I've elected to have webhosting. The bigger challenge was lack of access to my actual garden, so I've been using old pictures to illustrate the site. Ideally, I'd like a wider variety of images than I was able to have.

Accomplishing Goals

I have accomplished the first phase of my plans, which was my goal during this course. I have set up an online resource for teachers. My future plans include consolidating my writing into a book format and sending out queries to publishers of educational material. I'm on track with my planning.

Project Impact

During the planning of my project, I met with teachers from the River East Transcona School Division to talk about their interest in having a classroom garden and what sort of resources they would find helpful. Teachers liked the idea of a web-based resource that they could access both from school and from home without having to remember to carry a book

back and forth. Most of the teachers were interested in ways to use the garden other than for science teaching.

Once the website was running, teachers that viewed it liked the format, finding it easy to read, navigate, and search for things. They liked that the pictures used were from real classrooms and not staged. Suggestions for additional sections were for resources and supplies so that teachers didn't have to search for garden equipment on their own and a section on available grants. These are areas under consideration. Grant requirements and availability change and the site is intended to be non-commercial so linking to places that sell gardening equipment might be outside the intended scope of the site.

Experiential Learning and Adjusting Expectations

Throughout this course, I learned to adjust expectations. My original plan for my project was a lot bigger and involved providing professional development (PD) for teachers in conjunction with creating a resource manual. Due to COVID-19, I had to limit my PD plan to an online video meeting. I did not want to overburden teachers who were already exhausted with moving their teaching online to have more than one video meeting and so I decided to build the website without further meetings. I hope to offer PD in the future. Moving my resource plan from PD sessions to a website worked very well. I now have a more permanent set up and can refer teachers to it for support when they are looking at a plan to have a classroom garden. I think that had I just set up PD sessions, though they would have been beneficial, I wouldn't have a lasting resource for teachers.

I have recognized my own knowledge and skills while putting the website together. I have often had people talk to me about my garden admiring what I do with students, but until I sat down to write the content for my website, I didn't realize precisely how much knowledge I have!

Project Sustainability

My project is sustainable as long as I have internet access. I own my domain name and website files and can post them on any server that will host me. Currently, I'm hosted with an organization that has been hosting websites since 2003, so I'm confident the site will be there for the foreseeable future. Because it is a website, it's a living document that can be amended and added to as new information comes available. It will live beyond the scope of this course and I plan to be continuing to update it in the future.

Leading Change

I have learned that I need to put my fears behind me and step up and lead. I had the opportunity to interview for two leadership positions in my school division this year and I had no idea that upper management knew so much about me and respected the work I've been doing in my school. I also learned that I have been leading change within my school without even realizing it. In 2017 I completed the Living Schools Classroom Planner and I had occasion to complete it again. It was amazing to compare the two planners done 3 years apart and see how much change has happened that I was instrumental in implementing.

Skills and Knowledge Gained and Refined

I've realized how much knowledge I have, and my skill development has been learning to synthesize and share my knowledge. I've learned to trust my ability to be a change maker and not to be afraid of what other people think when I know that I'm doing the right thing. I have found my voice and learned how to use it when working with other educators.

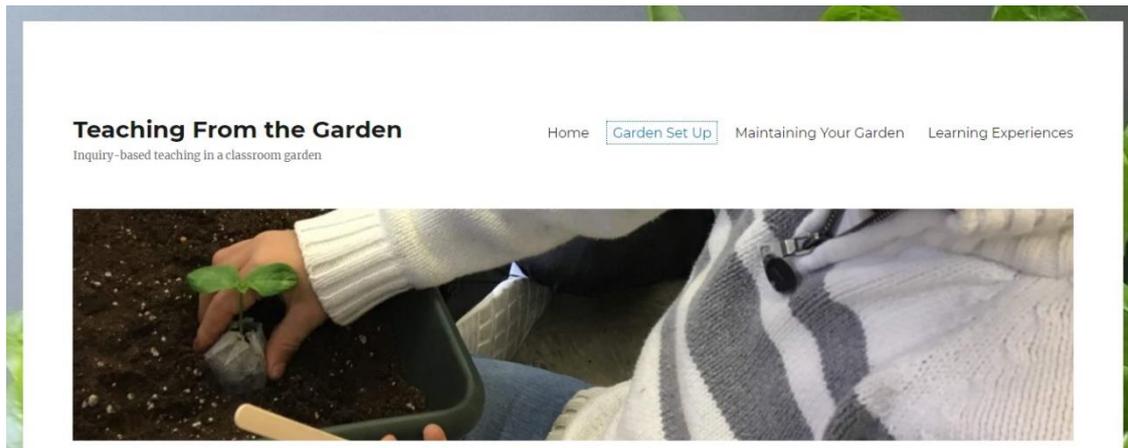
Future Learning

Given my interview feedback within my organization, the work I've been doing has been beneficial to my move into being an organizational leader. I need to continue putting my ideas out into the world and leading change within my own school building which will lead to

change within my organization. I'm excited at the possibilities moving forward with my gardening project and continuing to develop my Living Classroom.

The Project

The final product of my project is a resource website for teachers wishing to start a classroom garden and teach from it. The website can be accessed here (click the image to access):



Project Proposal

Summary

The focus of my project is to establish a resource for classroom teachers who want to establish a garden in their classroom. Teachers are looking for ways to engage diverse groups of students and using a classroom garden can allow for inquiry-based, cross-curricular instruction that offers students the opportunity to take risks with their learning. The literature reviewed supports the benefits of school gardens in the areas of core curriculum, student mental health, and improved nutrition. Growing plants in a classroom is not a new idea, teachers have long used this method for science instruction to engage all learners (Rye et al, 2012). However, this resource is intended to help teachers to establish a year-long program in their classroom that uses the garden in support of curricular outcomes.

The reason behind a resource specifically for an indoor garden is two-fold. First, many urban schools do not have the space on their school grounds for an outdoor garden

(“Successful Inner-city Garden Program”, 2015). Secondly, the growing season in Canada is mostly during the time when school is not in session. Though it is possible to establish an outdoor garden, the level of involvement from community and staff to tend the garden and protect it from damage and theft makes this unmanageable in many schools. Instead, establishing a garden inside the classroom, with the proper support and equipment, means that a teacher can plant with students outside the normal growing season (for example from November to March) which would afford maximum use of the garden for teaching.

Establishing an indoor garden is a daunting task for many teachers. There are considerations of cost, equipment, time, and just how it will fit into their teaching. With a resource to help guide them, more urban teachers may consider the possibility of a classroom garden. The intent of this resource is not merely to help teachers establish a garden, but to show teachers the way in which a classroom garden can be used in conjunction with their mandated curriculum to provide engaging learning experiences for their students.

The increase in schools having gardens has impacted elementary students’ connection to their community and the wider world (Kozak & McCreight, 2013) but also shows students what the impact of humans is on the earth and deepens their relationship and understanding of nature. Once children are involved in the planning and growing of a garden, they take ownership of its care and maintenance and even those with little interest in vegetables will eat the things they have grown (Thomas, 2017). Not only will the garden foster these connections, but students will learn about food security, nutrition, sustainability, and environmental stewardship (Thomas, 2017). A set-up in the classroom gives students the opportunity to experience garden-based learning, and it also gives them a calming space right inside their classroom. With garden-based learning, children will explore and tend to the garden while learning mathematics, science, history, and culture (Edwards, Gandini, & Forman, 2012).

Project Goals

- Develop a resource for teachers for establishing a classroom garden and a garden-based learning program
- Establish both printed and online versions
- Teachers will be able to use the resource to engage students in learning across mathematics, reading and writing, science and social studies
- Include Indigenous world views and other ways of knowing
- Geared toward urban schools where space is at a premium

Barriers and Constraints

My original plan was to put a call out to teachers for a face-to-face meeting so I could learn where teachers are starting from and where they will need more support. This group would also have been the one to try out some of the activities in the resource as they are developed. This will have to change given the school shutdown and may be more difficult to schedule as teachers' schedules are much busier with the move to attempting to teach online (L. Ducharme, personal communication March 25, 2020). I am currently looking for ways to set this up in a virtual meeting that doesn't add stress to busy schedules.

The only other constraint is my own time. I am hoping to have a draft of the resource by the end of May with a final copy finished by the end of June.

Tentative Project Timeline

March 2020

- ❖ Literature Review

April 2020

- ❖ Administrator approval
- ❖ Virtual meetings with teachers

❖ Research

- Draft learning experiences and assessment tools
- Establish costs and requirements of materials

May 2020

❖ First draft ready for feedback by end of May

- Consult with colleagues, administrator, etc

❖ Edits and revisions

June 2020

❖ Final draft for approval

July 2020

❖ Presentation to colleagues, administrator, and other stakeholders

❖ Launch online version of resource guide

Literature Review

The focus of my project is to establish a curricular resource for classroom teachers who want to establish a garden in their school. The literature reviewed supports the benefits of school gardens in core curriculum, student mental health, and improved nutrition. The goal of this literature review is to establish the benefits of school gardens outlined in the existing research including the need for teacher training and curricula development.

My group of fifteen 7-year-olds clustered around the tub containing a gourd and some small ornamental pumpkins. Questions filled the air “Is anything happening yet?” “I think I see something!” “I can’t see!” We measured the little sprouts and recorded our data in our journals, complete with drawings. After that, two students took watering cans and filled them and came back to water our garden (Thomas, 2017. para 1). Engaging students in learning experiences is what we look for as educators.

Hands-on, experiential learning is an excellent way to engage students. Through the use of a classroom garden, teachers can develop learning experiences that are cross-curricular and inquiry-based. With a well-established classroom environment of student-centred, inquiry-based learning, children will take risks with their learning. Using a classroom garden, they can explore their questions, develop a deeper understanding of nature and our place in it, and they have a calming space in their classroom.

The sight of a garden in a schoolyard is becoming more commonplace and has often been used in science instruction as a way for all students of diverse needs to access the curriculum (Rye, et al., 2012). It is not a surprise that children will have a positive experience in a school garden, however looking at the garden as a site of learning for all the disciplines is beneficial for children. There is a disconnect between children’s knowledge of food and food sources. Garden-based education taught through a cross-curricular lens can improve children’s eco-literacy and attitudes toward learning (Kozak & McCreight, 2013).

As more schools develop learning gardens, this impacts children’s connection to the world around them (Kozak & McCreight, 2013) and teaches them our impact on the world,

which deepens their relationship with nature. In involving children in the planning and maintenance of a garden, they claim their ownership and with each small garden success, they gain pride in the job they have done. Learning where their food comes from and doing the work to grow it will make even the pickiest eater try those vegetables at harvest time (Thomas, 2017). In the garden, we make connections and teach children about nutrition, food security, sustainability, and environmental stewardship (Thomas, 2017).

However, many urban schools exist in a concrete jungle where it is almost impossible to grow anything (“Successful Inner-city Garden Program”, 2015) or they are located in climates that have a short growing season and one that exists mostly outside of the school year. In order to meet the needs of students in these situations, we can look at the establishment of a classroom garden, growing indoors contrary to the regular growing season. This allows for year-round garden-based learning as well as the benefit of the calming effect of nature right in the classroom.

Children are curious about the world around them and as educators we should nurture that curiosity and help it to grow. With garden-based learning, children will explore and tend to the garden while learning mathematics, science, history, and culture (Edwards, Gandini, & Forman, 2012). Rather than being teacher-directed, the children would drive the inquiry, developing the learning following their path of interest. The garden set up is designed in partnership with the children allowing them to explore this world and seek out answers to their questions. There is also indication that garden-based learning can help students improve their well-being. Mental health problems in children are on the rise in Canada. According to Waddell, McEwan, Shepherd, Offord, & Hua, (2005) in Canada, 14% of children between the ages of 4 and 17 have mental health disorders that affect their experiences at school and at home. These disorders range from depression and anxiety to inattentiveness, hyperactivity, and aggression. In a 2009 study carried out by Taylor and Kuo, they concluded that twenty

minutes spent in a park setting had a positive effect on students diagnosed with ADHD to the extent that they experienced elevated attention to their tasks. According to Kaplan (1995), time spent in nature meets the requirements for a restorative setting, helping to combat stress and anxiety. In working toward well-being for all, it would make sense to have the learning take place by connecting with the natural environment.

Additionally, research done by Libman (2007) supported earlier studies that student gardening increases children's preferences for and attitude toward vegetables and that this persists beyond the time students are in a garden-based program. Libman (2007) found that students who participated in a gardening program moved from only eating well-cooked, heavily seasoned vegetables to eating them directly out of the garden, coming to prefer the taste of fresh, raw vegetables. Students who started the program with an established taste for vegetables tried new and different varieties, students who professed a dislike for vegetables found that their tastes had changed and ascribed it to the growing of vegetables and learning in the garden (Libman, 2007). Improved nutrition and attitudes toward food are side benefits of a garden-based program. However, improving children's nutrition and attitudes toward food needs to be supported by teacher training and provided curriculum (Graham, 2004).

With this in mind, the plan for my project is the establishment of a curricular guide for teachers to establish a garden-based learning program in their schools. This will be geared toward urban schools, where outdoor space is at a premium and an indoor garden would be a better fit. It will help teachers to plan a garden for their classrooms, with the possibility of adding vermi-composting and a school-wide composting program. Students will engage in learning across mathematics, reading and writing, science and social studies, intertwined with Indigenous world views and other ways of knowing, all by planning and growing a classroom garden. Through this, teachers and students will grow a connection with their community and

the wider world, while increasing their eco-literacy and taking their first steps on a path toward a living school.

Departmental Approval Letter

Cape Breton University

Faculty of Professional Studies

Confirmation of Support from Collaborating Organization

Cape Breton University
Department of Education
P.O. Box 5300
1250 Grand Lake Road
Sydney Nova Scotia, Canada
B1P6L2

Project Title	Establishing a Classroom Garden: A Teaching Guide
Project Lead (student name)	Erin Thomas
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Supervisor	
Name	Tracie Scott
Position	Principal
Organization	Sherwood School, River East Transcona School Division
Contact email/phone	204-667-0413

- I confirm that the school administration is aware and fully supports the proposed applied research project.

Name: Scott Position: Principal

Signature: [Signature] Date: 20/01/02
(Head Department/Division) (year/month/day)

Dissemination Plan

Campaign Purpose

The intended impact of this project is to showcase the information I'm providing for teachers to establish a learning garden inside their classroom. I'd like to highlight the benefits in a fun and interesting way. The primary targets of the project are elementary school teachers and administrators. My goal is to show them how easily they can bring a garden inside their school and how effective it is in teaching and learning. Day care workers would be interested as well, as would parents of young children. A secondary target could be people who simply wish to have an indoor garden.

Target Audience

The audience will understand how easily lessons can be taught from the garden and where you can take them. I want them to know that it isn't just basic science and how plants grow, but that there are cross-curricular activities to be done. Students can flourish from the lessons that they learn while tending to a garden. As we know, many students work best in a hands-on environment. I want them to recognize that my resource will be easy to use and help them follow through with their plans to provide student-centred, inquiry-based learning.

Key Message

The key message of my project is that establishing a garden can be very simple and doesn't need a lot of expensive equipment. While you can invest in a really big garden project, you can start small and still reap the benefits.

Communication Channels

- School newsletter – basic information for families
- School website – same as newsletter
- Personal website – setting up a garden blog to share the lessons of my project
- Instagram, Twitter, Facebook, other social media – again this is similar to newsletters, quick sound bites about what I'm doing

- Local newspaper – Longer articles showcasing the work.

Something I am thinking about doing as the project goes forward is creating a podcast. I listen to a lot of podcasts, some entertainment and some informational, and I think that a gardening podcast aimed at teachers might have some traction. This is an area that would grow beyond my initial project, bringing in experts to talk about pollination, pests, companion planting and a variety of topics. There will always be something to share.

If I'm using students in website images, I will need parental permission and possibly school and divisional permissions. This is an area I've been considering a lot because I'd like to include pictures from my garden in my final project. For the purposes of the project, I will be cropping students out of pictures. Moving forward I can ask for model release forms from parents and update the website with new pictures.

Another option for promotion is print media through the school newsletter and the local newspaper. I just have to write the articles. The local newspaper is always looking for stories of local interest. I can see using them to promote the launch of a book or website related to gardening. They've been to my school a few times already with activities I've done around the garden so it would be easy to reach out to my contacts.

Creative Strategy

Though I really liked the title "Lessons from the Garden" I discovered that the website lessonsfromthegarden.com belongs to a business and, though I would be registering a .ca extension, I don't want any confusion. As a result, after talking to elementary teachers about my ideas, I've settled on Teaching from the Garden as something teachers are likely to seek out. In terms of the look and feel of the website, I want to convey a lush feeling of connection and warmth. To achieve this, my main colours will likely be green and cream.

Costs

The cost to purchase a domain name is approximately \$25.00/year. I think that the wisdom if I'm buying a domain name is to have the site known as a .ca name, to brand it as a Canadian site, but also to own the .org and .com as redirects to .ca. Webhosting costs depend on the hosting site. There are many available for around \$5.00/month. Regarding the podcast idea, initially it could be done at near zero cost. The bare minimum required is a mic to record the audio and a place to upload it. Soundcloud hosts podcasts for free. Social media is a great free way to get the word out and I've already connected Instagram, Twitter, and Facebook accounts to the website under the name @verdantpedagogy.

Conclusion

The heart of teaching from the garden is fully embracing inquiry-based teaching. There are many reasons to engage students in inquiry, but the most compelling is to foster a life-long love of learning. Engaging students' curiosity and giving them the freedom to lead the learning will benefit them in the long run and make the classroom a joyous place to learn (MacKenzie, 2018). A good place to begin is with a classroom garden.

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Appendix

Project website: <http://teachingfromthegarden.ca>

Video Presentation: https://youtu.be/h-8nEHy_BWU

Teaching From the Garden

Inquiry-based teaching in a classroom garden

Home ▾ About Contact

