




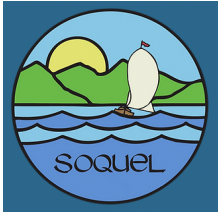
“Every Classroom a Green Classroom”
Green Classroom Profile:
Santa Cruz Gardens 4/5th Grade Trail Guide Project
Teacher Leadership Institute for Sustainability 2023-2024

TEACHER LEADER BIO: *Brian Boyce*

Brian Boyce realized his passion for guiding young people as he led groups of kids to appreciate the natural world through day hikes, overnight camping trips, water adventures, and silly songs around campfires for over a decade at a summer camp in the Adirondack Mountains. For over a decade, he has shared his life-long curiosity for understanding the natural world, we are all caretakers of, to the Santa Cruz Gardens learning community by guiding the oldest students through a constructivist, hands-on, project-based learning model.



BACKGROUND AND CONTEXT

Class(es)	# of student impacted by this project: ~210 Grade level(s): K-5 (leads 4th/5th classroom) Content area(s) of focus for this project: All subjects Student quote: <i>“At the beginning of the school year, I was afraid to get outside on the trail. Now, I feel more connected with the species who live around our school and I love to go hiking!” - Sofia</i>	
School Site	Santa Cruz Gardens Elementary	School Logo 
School Demographics	School: TK-5 # students: ~210 % English learners: 15% % qualifying for free and reduced price meals: 32%	
District	Soquel Union Elementary School District - public	District Logo 
District Demographics	District: TK-8th # students: 1703 % English learners: 10% % qualifying for free and reduced price meals: 31%	
General Vision/Mission of district	District Mission Statement: Staff, students, parents, and the community help ensure that each child develops the skills and character necessary for lifelong achievement and responsible citizenship in a diverse world.	

1) ORIGINAL GOALS AND INTENTIONS

What originally drew you to join the Teacher Leadership Institute for Sustainability?

The Science and Gardening Emphasis (S.A.G.E.) Program at Santa Cruz Gardens is propagating learners who are developing a deep connection with nature by learning outside and developing a higher level of environmental literacy at all grade levels. I am eager to learn more about how to integrate real world environmental problem solving into my classroom through the Project Based Learning model. The TLIS cohort originally drew me in because it provided time and space to make community connections and collaborate with local organizations and other teachers to bring our movement toward environmental literacy to the next level, wherever we are in that journey.

Share your vision for your Green Classroom. How has this program affected this vision?

Through project-based learning and a constructivist approach to each project I develop, my green classroom would center on nature-based thematic units that tie in all possible subject areas where students are solving real world problems that affect their lives and community. Students will have a deep connection to nature through our weekly off campus hikes/nature journaling practice. Students will understand the impact they have with the natural world they are a part of and take an active role by learning creative collaborative skills that empower them to make real and measurable change.

This program made me realize the ripple effect this shift in teaching has on our entire learning community. In part, because of this project, I am seeing teachers taking on projects with their classes, more students outside of my classroom engaging with nature (our garden), and the whole school is more informed about the importance of conserving water because of the education campaign my students shared with our school.

2) KNOWLEDGE AND SKILL BUILDING

A critical part of this program is building knowledge and skills related to Sustainable Schools. Examples include: Environmental Literacy & Sustainability Frameworks; Environmental Identity; Building student engagement through Campus, Curriculum, Community and Culture efforts; Continuum of Environmental Literacy Integration. **Where are you experiencing the most growth in your knowledge and skills related to being a teacher leader for sustainability?**

Because of this program, I feel more confident in building student engagement through multiple efforts. I am realizing the Project Based Learning model is the vehicle I want to practice to create opportunities to engage the students I work with into deepening their relationship with nature, connecting what they read about climate change to the ecosystems

we explore outside, and inspiring them into action to protect the natural systems they are a part of. The Chaminade Trail Project I developed this year is centered on developing meaningful relationships with the flora and fauna that exist in their local community on and off campus. This project has opened my eyes as well as my students' eyes to the importance of knowing the local species that share the same ecosystems they live in.

This approach to teaching environmental literacy has also made me realize the importance of expanding our practice as a school. Our school is now collectively scaling this approach into each teacher's practice. I am now actively leading a movement toward building a program that focuses on environmental literacy through PBL at my school. I have never felt so inspired and proud to be an educator.

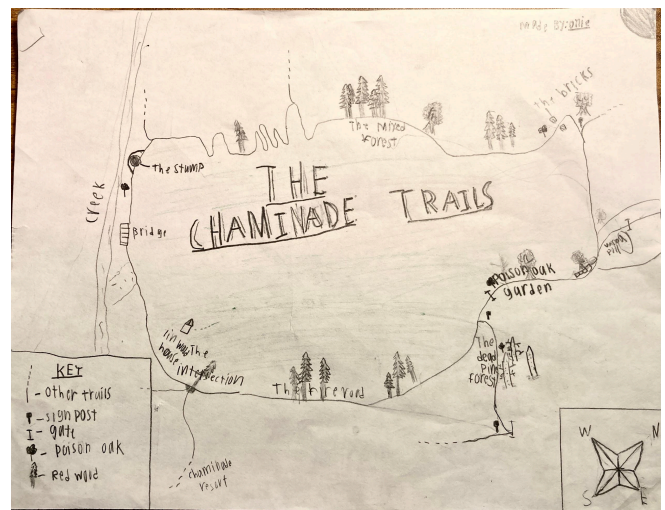
3) ACTION - COMMUNITY IMPACT PROJECT OVERVIEW

Provide a brief summary of the purpose of your project and overall goals.

Summary of Project Purpose and Goals for student learning:

The outcomes for this project included intentionally taking my class outside to learn, creating authentic student relationships with the natural world through nature journaling practices, data collection and research, as well as to inspire our local community to engage more deeply with nature through the eyes of our upper grade students.

Students strengthened their research and writing skills, developed data collection skills through their nature journaling practice. Their collaboration skills focused on working together on designing and creating the digital booklet and wooden brochure boxes for the trail.



The student map that is featured in our trail booklet. This was this student's fourth iteration of this map making challenge.

The product of this project was to create a nature guide booklet full of factual information on local flora and fauna to offer the public while on a trail system located behind our school.

How does this project connect to your Green Classroom vision and the broader mission and vision of the school/district?

As my school deepens our practice of developing environmental literacy through the Science and Gardening Emphasis (S.A.G.E.) program, we are working to develop more

environmentally literate young people who confidently engage in real world problem solving through creative and collaborative projects.

The Chaminade Trail Project connects to our school's mission and vision to deepen student relationships with nature through regular outdoor learning and real world problem solving. As a result, our students now have deeper connections to nature and are sharing their knowledge and experience with their peers and the greater community.

What specific learning intention(s) did you share with your students?

Develop awareness of the ecosystems and species that exist around us

Observation skills - nature journaling

Peer review - offering and receiving meaningful feedback

Building, iteration process - booklet box infrastructure

How did this project serve your pre-existing instructional goals?

Reading research skills - online information gathering

Writing and publishing skills - drafting, revising and publishing

Budgeting/calculation skills - multiplying with decimals

Presentation skills - confidence in sharing information in front of groups large and small

4) ACTION - IMPLEMENTATION STORY

Describe how implementation of your community impact project went. *If your project has not finished yet, describe how the start has gone, and how you anticipate it completing.*

General story of implementation:

Launch event:

After a consistent weekly nature journaling unit on a trail system behind our school, students wondered how they could share their new found knowledge on the local flora and fauna with the public. We then created a guiding question to point us in the right direction.

Data Collection/observation:

Using our nature journaling practices based on teacher trainings by John Muir Laws, students used nature journals and themed focus days based on the Cross Cutting Concepts of the NGSS, students used apps like SEEK and Merlin Bird ID to take photos and gather audio recordings to ID species. Species were added to a class wide list of species organized by specific zones identified by the class

Local expert guest speakers:

Local "ologists" were scheduled to come speak to the class about their expertise, best practices when IDing species, and lead field data collection with the class

The Bird School Project (3 sessions) taught the basics of birding and helped collect data on specific bird species around our campus.

Paul Miller, a local mycologist (2 sessions), shared knowledge on mushrooms. He took students out on trail to gather mushroom species and discuss them back in class. Highly engaging and informative

Research, Drafting and Publication:

Students then returned to the classroom to conduct research to aid in drafting and publishing articles on each species that was ID'd in the field. Revisions happened over several weeks. Published articles were posted in the whole class species list.

Once all articles were published, students drafted and published their articles in a shared google slide deck to contribute to the booklet that was created by the entire class. This booklet went through a peer review process by fellow students and a local museum curator who specialized in creating public signage and information.

Booklet Box Iterations and building:

As part of the greater project, students needed a physical home on the trail for all of their published booklets. In our innovation lab, students created multiple iterations of what would become wooden boxes mounted on 4x4 posts located at several key locations on the trail. Students used tagboard and tape to create each iteration of their group's booklet box. We shared feedback in peer review and made strategic revisions on four separate occasions.

Parent volunteers helped students with the physical build of each group's booklet box.

On another day, parent volunteers helped install the posts and boxes on the trail.

Presenting/Sharing final product:

The final product is a hard copy of the digital booklet students created as a class. There are "chapters" for each zone on the trail. Within each chapter, research groups published highlighted species articles, maps, descriptions of each zone, as well as interactive activities the public can enjoy on any day.

A small opening day celebration out on the trail was held. Students invited the management of the Chaminade Resort, neighbors from The Gardens neighborhood, and classes from our school to experience the first day the booklets were on display in their booklet boxes. Students shared their experiences of the entire process as well as highlighted some of their favorite species and activities while on trail.

Challenges and obstacles and how you overcame them:

Time management: The drafting, revising and publishing of the over 150 essays was too much.

Student limitations: The published articles were the most challenging part of this project because this cohort overall struggled with the cornerstones of basic expository writing. While this project offered authentic practice in drafting nonfiction essays, it was challenging to reach each student and each of their many essays.

Maintaining engagement: With all PBL projects students will struggle to maintain their engagement.

The essays were the most challenging for maintaining "the stoke". However, the kiddos were stoked each time we worked on the brochure box iterations in the maker's space and each time we went out on trail. Each of these spaces meant preferred activities for the majority of the class.

Successes and what contributed to success:

My students actually created a product that they can be proud of. Their product will literally demonstrate their new relationship with the natural world AND it will introduce visitors to Santa Cruz county as well as local neighbors to this area on a deeper level. Having the support of my principal as well as financial support by our site's PTA shows we are headed in the right direction with impactful student learning.

Next Steps for this project:

Short term:

- finalize digital booklet document and publish
- build and install booklet boxes
- prepare for opening day

Longer term:

- Maintenance of booklet boxes and booklet supply
- How do we build off of this project for future projects?



Student installs one of several wildlife cameras purchased with donated funds. This tool added to our data collection of local mammals.



In our new "Innovation Lab", students in zone groups construct the third iteration of their booklet box as they work toward the actual wooden box build.



Students loved having less structured time while on trail too. These walks deepened our relationship with this place as well as with each other time and time again.



The result of our fungus foray after a morning on trail with our local mycologist. Students identified over 50 mushroom species during this phase of the project.

5) ACTION - METRICS AND OUTCOMES

- **Overall Assessment:** How would you characterize the success of your project?
- **Ecological Benefit:** If possible, how were you able to measure the ecological benefit (reduced GHG emissions, reduced waste, increased biodiversity, etc.) and what were the outcomes?
- **Community & Culture Benefit:** If possible, how were you able to measure impacts on classroom culture and community (for example, students' sense of connection to nature, stewardship) and what were the outcomes?
- **Student and Staff Learning:** *Reflect on evidence of student learning from this project, and how this project shifted your classroom to further integrate environmental literacy.*

For the three sections below, include how you tried to measure impacts and what evidence of outcomes you found.

Ecological Benefit: This project set out to create awareness of the diversity of flora and fauna that exists on the Chaminade Trail System behind our school. Because our students are more aware and published their findings, the public will be more aware of the importance to take care of this space. Thus, our local ecosystem will have more human eyes and hearts out on trail that will respect and protect this open space for generations to come.

Community & Culture Benefit: Students set out to identify, research and publish an interpretive booklet that shared their knowledge and perspective on the trail system that is accessible to guests of the Chaminade Resort, the Gardens neighborhood and the students of our school. Their booklet is now freely available on the trail for anyone in the public to enjoy and learn from. This awareness campaign shares the knowledge from an elementary school perspective and will undoubtedly have a long term benefit for the community because it will create more awareness of the work our students are doing as well as bring our community together around an open space so many people enjoy.

Educational Benefit: Student research and written skills have greatly improved because of this project. Their ability to sustain calm focus during mindful moments on the trail have increased in measured time.

Impact on Students' Sense of Connection to the Environment (results of Children's Environmental Attitude Survey and any other evidence of impact):

Based on my quantitative data in my class environmental attitude survey results as well as the overwhelming qualitative data I have received during the countless adventures outside with my class, I can confidently say my students are well on their way toward having a deeply authentic relationship with the natural world. I have never witnessed so many students able to identify plants and animals as well as mushroom species on one trail. I have had parents come up to me and say their child has ID'd all the plants in their backyard and wants to go on more hikes as a family. The impact of this project and the Teacher Leadership Institute for Sustainability have planted the seed for an entire

class of students to be more environmentally literate and care for the natural world that surrounds them.

6) REFLECTION AND COMMITMENTS

What is your enduring understanding about teaching for a sustainable future? And what are your commitments for next year and beyond for this important work?

Reflection: The support of the TLIS has inspired me to continually push the limits for teaching outside the four walls of the classroom because it is there that students will develop authentic relationships with the natural world. I personally have found a path as an ever growing educator that will carry me through the rest of my career. I have learned how to develop Project Based Learning projects, more confidently develop community partnerships that have a direct impact on my students' learning experience, and have in turn inspired several colleagues at my site to pursue their own practice with developing environmental literacy through Project Based Learning.

Commitments: I look forward to next year's cohort through the TLIS. Amity continues to be a mentor who has made an incredible space for teachers to push the limits of their creative project development. I feel there is a great need to continue this work as a county and very much look forward to being a part of this movement!