



Jack London Park Partners presents

NATURE'S DESIGN

7th GRADE ECOLOGY

Program Report

SPRING
2023

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Nature's Design is a Benziger Family Environmental Education Program for Jack London Park Partners.



Executive Summary

This year, Nature's Design was re-launched after a three year hiatus due to the Covid-19 pandemic and shutdown. After making program updates and improvements, JLPP eagerly welcomed three middle schools to the program: Altamira MS in Sonoma Valley, Petaluma Accelerated Charter (PAC) in Petaluma, and Washington MS in Cloverdale.

Throughout March, April, and May, **266 seventh graders** participated in the three-part ecology lesson. This culminated in a sustainable landscape design assignment and optional contest held at Jack London State Historic Park.

The Rewild My School landscape design contest took place at the park on Saturday, May 20th and **26 students** with **18 landscape models** entered the competition. Judges included Mike and Chris Benziger and Judy Scotchmoor, all experts in ecology and regenerative landscape designs. Cash prizes were awarded to the top three student designers and an honorable mention was acknowledged. The 1st-3rd place models are on display in the House of Happy Walls museum through the end of July.

Program evaluations were distributed to students before and after their participation to help measure curriculum effectiveness. Of the 155 post-program evaluations returned, **59%** of the students showed improved understanding of the focus of ecology and biodiversity. Teachers also expressed very positive statements about the program and all three schools plan to sign up for Nature's Design again next year.

Upon reflection and evaluation of the program, it has been determined that improvements made to the curriculum and program have added meaningful value for both the students and teachers. Additionally, we have concluded that with current staffing, the maximum number of schools that can be served per season is three. Our audience and impact will grow as our education staffing is able to increase in the future.



Participating Schools in 2023



Altamira Middle School

Sonoma Valley, Eastern Sonoma County

Science teacher: Kathryn Gialketsis

We served 110 students in March and April.



Petaluma Accelerated Charter (PAC)

McKinley campus, Petaluma, Southern Sonoma County

Science teacher: Matthew De Lucia-Zeltzer

We served 64 students in April.



Washington Middle School

Cloverdale, Northern Sonoma County

Science teacher: Maribeth Kelly

We served 92 students in May.

Program Outline



Guided by Next Generation Science Standards (NGSS) for California schools, Nature's Design 7th grade ecology program is a multiple-visit field trip program focused on ecosystem dynamics and biodiversity.

SESSION 1 – NATURE'S GROUND RULES (90 min): The opening session introduces the program and gets students outside and onto the schoolyard to collect their first data set. Through basic field collection techniques, students gather information on birds, invertebrates, and plant diversity, and create three species lists in their field notebooks.

DAY 2 – BIODIVERSITY BONANZA (4 hrs.): The hands-on investigations continue at Jack London State Historic Park with a 4-hour field trip through the beautiful redwood forests and oak woodlands of Sonoma Mountain. Using the same equipment and techniques employed on Day 1, students gather their second data set.

DAY 3 – THINK TANK (90 min): The final session takes us back to the classroom where we crunch the student's data and create a master species list for the school. Through their own field research, students see the differences in biodiversity levels of a suburban site and a local wilderness area. We then explore the role of biodiversity in ecosystem health and resilience and brainstorm ideas for increasing biodiversity levels at their schools. The final outcome is a graded poster assignment that synthesizes the learning and demonstrates comprehension and understanding. The poster criteria and option to enter JLPP's design contest are described below:

REWILD MY SCHOOL DESIGN CONTEST: The regenerative design competition is the exciting culmination of the program and asks students to apply the science learned to a creative project in which they re-imagine and re-design their school to serve two important needs: 1.) continue to serve the needs of the school and 2.) make more room for Nature by increasing habitat and biodiversity. Teachers have students create the poster of their designs, while also giving them the option of building and entering a 3-D model of their "new campus" in the Park's Re-Wild My School contest. The inter-school competition takes place at the park each May. Entries are judged by experts in regenerative farming and landscape design and prizes are awarded to the top three student designs (students can enter individually or in small teams).

2023 in Review

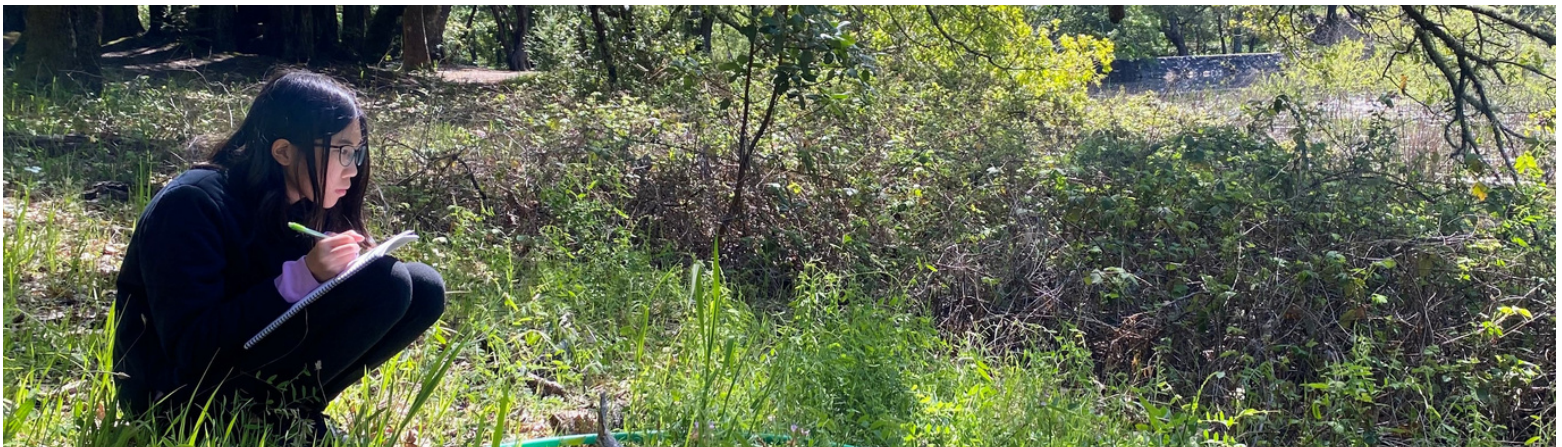
The official reboot and relaunch of Nature's Design

Nature's Design was first piloted in the spring of 2018 and again in spring 2019. In 2020, the Covid-19 pandemic shut down all school and community programming at the park and Nature's Design was not able to operate again until this year. Education Manager, Kristina Ellis, was able to take this time to review the program and make important updates, including refinement of the curriculum, improving written and printed materials, and honing design contest operations.

The most significant change took place with the student landscape design assignment and contest option, which was reframed to connect more directly to current "rewilding" conservation efforts and climate change action happening across the world. Rewilding is a global movement focused on restoring sustainable biodiversity and ecosystem health by protecting and increasing wild habitats everywhere, both large and small scale. Following the program's activities, students researched different ways they could "rewild" the built environment of their own school campus. By synthesizing scientific inquiry with creative and solution-oriented thinking, Nature's Design students had the opportunity to become positive agents of change and regeneration in their own communities.

This year we also formalized our commitment to equity and inclusion by focusing program participation on schools that qualify for Title-1 funding (at least 40% of student body is enrolled in the free and reduced lunch program). The current list of qualifying schools encompasses 75% of all public schools in Sonoma County.

Finally, we included a guest educator stipend to the budget, which allowed us to bring in a visiting educator to help Kristina Ellis lead the field trips at the park. This very important supplement allowed us to divide the very large field trip groups (55-65 students at a time) into smaller and more manageable groups for each educator to lead, contributing to safer and more effective learning experiences for the students.



Schools and Teachers

Teacher/School Recruitment

With a cadre of all new teachers on-board, 2023 was truly an opportunity to re-boot the 7th grade ecology program. Recruitment for the spring season took place in a two-step process; first, we identified all of the Title 1 funded schools in Sonoma County, then we sent program invitations via email to a number of the school principals on the list. We also wanted to offer a level of priority to our local community schools in Sonoma Valley, who also met the criteria for Title 1 funding. In the end, three public schools from all across the county were chosen for the program: Altamira, Petaluma Accelerated Charter, and Washington middle schools. As we serve all 7th grade students at each school, this resulted in 266 - 7th graders, 3 science teachers, and 40 chaperones served by the program. The majority of students and adults in this year's group stated they had never been to Jack London State Historic Park before, allowing us to connect a new community of people to the park.

"Our students created memories that will last them a lifetime, all while learning, and not realizing the lessons they were given. I also learned a lot and had a great time!" - Maribeth Kelly, Washington middle school

"The Nature's Design program provides a wonderful opportunity for students to use science to explore biodiversity and their local environments. Students enjoyed collecting data through a variety of means and noticing the many species found in Sonoma Valley. I highly recommend this program to any 7th grade class in the Sonoma area." - Kathryn Gialketsis, Altamira middle school

Program Perks

Many schools struggle to take advantage of out-of-school learning opportunities, due to the high costs of transportation and other associated fees around field trips. These financial obstacles can keep students from meaningful learning experiences that could have very positive impacts on them. With the generous support from our program funders, JLPP was able to address many of these challenges and cover the following program costs for participating schools:

- Free participation in the program
- All buses for field trips to the park
- Stipends to help cover the cost of substitute teachers hired to man classrooms while the science teacher attended park field trips
- A starter kit of crafting materials to help students begin their rewilding projects
- All program materials and field trip equipment used during the program

Program Materials

All program materials were prepared and provided by Jack London Park Partners and included:

- Teacher's program guide
- Student field notebooks
- Field science and collection equipment (used during sessions 1 and 2)
- Model building starter kit for contest

Student Experience

Throughout the program students worked collaboratively in small teams to collect and compare data on the flora and fauna found in the park's wild environment and in their own school yards. They actively engaged in the scientific process, using basic field equipment, inquiry, investigations, and recording data in their field notebooks. The third and final session took place back at the school where we conducted an analysis of the student's collective data to infer general biodiversity levels within each study site. Wrapping up with a group discussion on the importance of biodiversity and its role in ecosystem health, we then explored ideas on how we can contribute to climate change solutions in our own neighborhoods. Through the three program sessions, students received a total of **7 hours of direct interaction** with the park's educator and time spent in the natural world.

Two participating teachers chose to implement the poster project as a mandatory graded assignment (Altamira and Washington). For this, students drew a detailed "blueprint" of their re-imagined school campuses. Our third teacher (PAC) made model building the mandatory graded assignment. All students were encouraged to enter the school contest and were offered extra credit as incentive. The vast majority of the students in the program showed positive engagement with this topic and many offered practical design ideas which included actions like switching their schools to solar power, planting more trees and habitat on the school yard, and reducing use of fossil fuels.

"An idea I have to increase biodiversity in our school is to plant tons more native plants in empty spaces." - Phoenix Williams

"I am interested to make the school a greener place and to waste less energy and light." - 7th grader, unnamed

"The living walls or green facades and the introduction of bees were my favorite ideas." - 7th grader, no name

An important program goal is to impart a basic understanding of what biodiversity is and ecology's focus on the interactions between the living and non-living elements of an ecosystem. All participating students were given pre-and post-program evaluations to help determine their previous knowledge, and to measure knowledge gained. Based on the 83 **pre**-program evaluations returned, 100% of those students showed weak, to no, understanding of the topics previous to the program. Of the 155 **post**-program evaluations returned, 59% of those students came away with a basic understanding of what biodiversity and ecology are. We are pleased that so many showed improvement and seek to increase that percentage next year.

"It is important to protect biodiversity because you will see bugs destroying a tree (species) of one kind and it is gone, but if we have biodiversity the trees bounce back faster." -Hunter Ginter

"It is important to protect biodiversity because it strengthens the ecosystem. With more species, if one dies out the whole ecosystem doesn't collapse because there are still many others left" - 7th grader, no name

"It is important to protect biodiversity because it's like a chain because if one thing falls apart, the rest does too, but if you have diversity, the ecosystem is more likely to survive." 7th grader (no name)

Student Experience Continued...

Rewild My School Park Competition

This year's Rewild My School contest took place on Saturday, May 20th during the park's Call of the Wild Weekend public event. We hosted 18 models and approximately 26 students, representing all three of the schools that participated in the ecology program. Contest judges interviewed the students about their climate-friendly designs and the top three models were awarded cash prizes. The students made a really impressive showing of creative and thoughtful projects that included elements like vertical gardens, solar roofs, protected habitat areas, rooftop gardens, and more! The top three landscape models will be on display for the public in the House of Happy Walls throughout the month of July.

Our winning students for 2023 are:

- 1st place – Poppiano Nelson-Smith (Petaluma Accelerated Charter)
- 2nd place – Dax de Berry (Petaluma Accelerated Charter)
- 3rd place – Aanchal Kumari (Petaluma Accelerated Charter)
- Honorable Mention – Samuel Orlandi (Petaluma Accelerated Charter).



Program Supporters

Our deep gratitude to all who made it possible for us to provide this impactful program to our county's 7th graders in 2023!

Major Program Funders in 2023

COMMUNITY FOUNDATION SONOMA COUNTY

BENZIGER FAMILY

CHARMIAN'S CIRCLE





What we learned and what's ahead

Reviewing impact and needs for growth

Making STEAM meaningful

The goal of the design assignment was to give students a creative opportunity to apply the science they learned and demonstrate their understanding of ecosystem dynamics. This year we re-framed the assignment to tie in with the global conservation movement known as rewilding. This offered a positive solution-oriented lens on the often overwhelming and gloomy topic of climate change. Knowing they were part of a much larger community that is taking action added a level of relevance and importance to the project and program. All three participating teachers expressed a desire to find real opportunities for the students to implement some of their design ideas in the gardens and open spaces at their schools. JLPP will stay in touch with the teachers and track those projects as they are able to implement them.

Following the completion of the program's season, it was determined that the maximum number of schools that can be served by one educator (Kristina Ellis) is three per year. This generally translates into 260-270 students. To cover all of the 7th graders at each school, Kristina visited each campus for six days, and led 2 park field trips. With three schools, this comes to 18 school visits and six park field trips during March, April, and May. We look forward to adding more schools and increasing our reach once we are able to increase education staffing at the park.

This year 31% of pre-program evaluations and 58% of post-program evaluations were completed and turned in. We feel that part of this lower return can be reflected in the heavy work-load most classroom teachers carry and managing the evaluation process can be cumbersome on their end. To address this, Kristina will convert the student and teacher evaluations to an on-line format for next year, in an effort to reduce the coordination tasks involved.

Resource Page

Standards and Statistics

Next Generation Science Standards (NGSS) met by the program:

Disciplinary Core Ideas met:

LS2.A: Interdependent Relationships in Ecosystems

LS2.B: Cycle of Matter and Energy Transfer in Ecosystems

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

LS4.D: Biodiversity and Humans

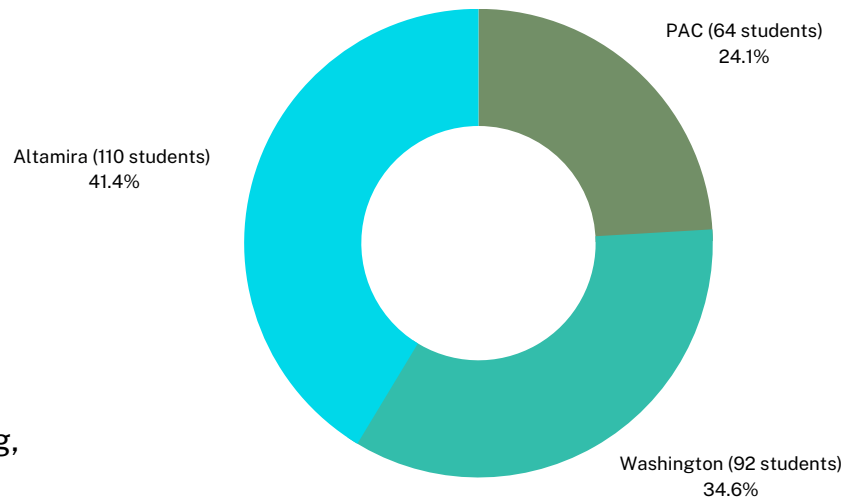
ETS1.B: Developing Possible Solutions

Correlating Performance Expectations for NGSS met:

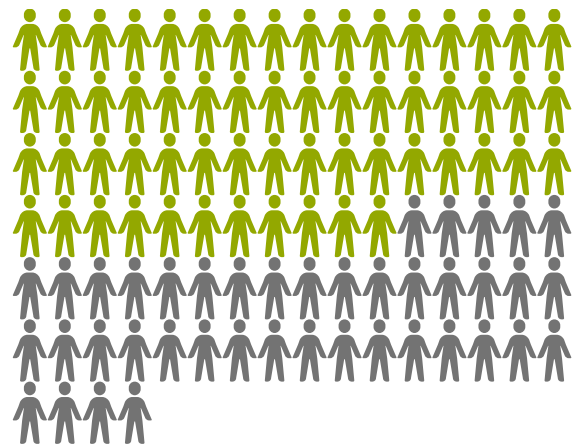
MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services



Total number of students served (266) by Nature's Design in 2023.



Following the program, 59% of the students expressed a basic understanding of ecology and the role biodiversity plays in ecosystem health.

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