

Berkeley Unified School District Gardening and Cooking Program

Semester Report

September-November 2014

The Berkeley Public School Gardening and Cooking Program engages all students in preschool through seventh grade with hands-on instruction in science, language arts, environment, and nutrition education in 16 school gardens. As part of the 2020 Vision for Berkeley Children and Youth, the Program is woven into student life to help close the achievement gap by ensuring the academic, physical, emotional, and social development with the following goals:

Improve academic understanding: We work closely with teachers to bring classroom learning to life in the garden by utilizing a place-based, interdisciplinary, and experiential approach to teaching academic standards.

Improve health: We teach students that taking care of the land and their body and understanding the importance of healthy food and the intricacies of a food system allows for the development of multiple intelligences and builds healthy practices.

Increase kindergarten readiness: Lessons are modified for age appropriateness and taught at all three preschools with a focus on sensory and observation skills, connecting early child education with the natural environment, their peers, and themselves.

Student engagement: Students gain valuable communication and collaboration skills, while building confidence as problem-solvers when they participate in group garden activities.

Background: For 12 years, the Program was funded with an annual \$1.9 million Federal grant from the California Nutrition Network (CNN), now called the Nutrition Education and Obesity Prevention Branch at the California Department of Public Health. This grant fully funded all Program costs at qualifying schools, according to the number of students receiving Free and Reduced Price Meal (FRPM) benefits at each school. During these years, CNN funded cooking and a gardening instructors, clerical and administrative staff, along with significant amounts of materials and food for cooking lessons. The Program lost this funding in 2012-2013 when CNN reallocated limited funding for nutrition education programs directly to State and City Public Health Departments. Given this total funding loss and change in Program mission to include curriculum and instruction, the Program made staffing cuts and shifted focus from an exclusive nutrition education program to include student learning academic standards.

The Program regularly reaches out to School Governance Councils, such as Parent Teacher Association groups, teachers, and principals to engage parents and families in garden activities and support each school and individual student learning. Garden instructors communicate with classroom teachers regarding lessons taught each week/month and collaborate with them to align Curriculum lesson content to individual classroom lessons. Garden instructors establish crucial relationships with students and teachers through this collaboration and by supporting one-on-one interventions with students in the garden. These relationships allow for Program flexibility



and lesson accessibility at the different school sites across the District.

Funding: The District's School Board supplemented Program staff salaries and benefits for 2013-2014 and 2014-2015 in lieu of CNN funding as an interim plan to fund a base-level Gardening and Cooking Program, per the District's School Board approved Program plan established last year in support of this transition. The Program currently supports 7.84 in total staff FTE, including 10 garden instructors at 17 schools, a program coordinator, and a program supervisor to total \$605,712 in staff salaries and benefits for the entire year. Total Program costs, including staff hourly pay for garden instructor time for training and teacher collaboration, materials, and indirect costs total \$690,431. This includes a one-time \$100,000 grant from the City of Berkeley Public Health Department and a \$20,000 grant from the Altamont Education Advisory Board, in partnership with Green Schools Initiative to help lead sustainability and Green Team efforts across the District at all schools.

This semester, the Program received additional funding, including \$4,715 from grants for materials and supplies for individual school gardens and \$17,672 from fundraising events, which is over \$10,000 more than we were able to raise at the end of the fall semester last year. Fundraising efforts help support integral program projects and efforts, such as the Curriculum project and hourly pay for staff to participate in trainings and staff meetings, without which these efforts would not be possible. Additional fundraising events, including a February 11th wine tasting event with the Gourmet Ghetto in North Berkeley and the Second Annual Program Gala on May 1st will be reported on in the next semester report. Tickets and more information for both events will be available on the Program website.

The Program currently does not have funding for 2015-2016 and will be asking the School Board to fund the staff salaries and benefits, with supplementation from grants. You can find more information on School Board presentations in the upcoming School Board agenda documents in February 2015.



Garden-Based Learning Curriculum: Last year, as part of the interim funding agreement that was approved along with the revised Program plan, the District's School Board requested additional instructional support for connecting the Program to classroom lessons. These requests were spurred by the change in Program direction from Nutrition Services to Educational Services and in support of the argument for the District to fund staff salaries and benefits. In response, the Program administration organized a team of teachers, garden instructors, standards specialists, and school garden curriculum consultants last year to create the first of its kind, school district-wide comprehensive Garden-Based Learning Curriculum. The Curriculum connects directly to Next Generation Science and Common Core State Standards, CA Nutrition Education Standards, Environmental Education Standards, and Tool Box, the District adopted Social and Emotional Learning Curriculum for K-6 students.

The Curriculum is a critical component to a whole child education and provides unique tailoring of instructional support for the individual student and the class. The Curriculum is designed for lessons to be co-taught to a full class with a garden instructor and a classroom teacher, per California law that requires students to be with a certified teacher during the school day. There are 17 lessons for each grade that are oriented according to applicability in our many divergent school gardens, seasonality, and grade and standard appropriateness. The format of each lesson outlines instructional objectives, goals, procedures for instruction, and identifies the standards that core content of each lesson reaches. Lessons are 45 minutes and provide for two garden-based activities that successfully achieve the outlined goals for student learning and development. All lessons are taught during the classroom day every other week to each classroom, and allows for an additional 15 minutes of instructional prep-time and at least 2 hours of garden maintenance per school garden each week.



Curriculum training was provided to all staff and some classroom teachers, specifically science release teachers, during a staff training day at the beginning of the school year, at two professional development days, and ongoing during monthly staff meetings. Training focused on implementation of each lesson, transitions, classroom management, and creatively thinking through ways of administering the different activities. Curriculum training will continue to be provided to all staff throughout the year.

Curriculum Assessment: The Curriculum includes a correlative research project with rigorous assessments that were co-developed by Program administration and the Atkins Center for Weight and Health at the University of California Berkeley. The research focused on elementary schools, because of consistency across lessons for these grades and prior research on this type of education, which is found on the Program's website under Resources. The overall research question queried whether the Program is implementing the Curriculum according to the design and assessed how it was supporting classroom teachers and garden instructors. Resulting assessment tools were created to document changes made and those that need to be made per lesson content, structure, teacher supports, and relevance to outlined curriculum themes. Two assessments were developed to include an observation form for school site visits and an online teacher survey provided to teachers that have co-taught in the school garden once a semester.

Training on how to review each lesson using the observation form in the school garden was provided by research consultants at the Atkins Center for Weight and Health in collaboration with Program administration. Each form includes definitions of terms to identify how to rate and review each query, which made it a user-friendly tool that all reviewers could use and result with similar responses. An intern from the Atkins Center for Weight and Health supported this research project with a total of sixteen observations, twice at each elementary school. An additional 16 school site observations were conducted by Program administration, who also conducted observations and evaluations for the middle schools and preschools, though results from these schools were not included in this research summary of results to retain focus.

The assessments continue throughout the entire school year and data summaries are broken into sections by school semesters to provide comparative data, as well as allow for ongoing amendments and inform staff training and professional development. The first half of the assessment project began in September

2014 and extended until the end of November 2014. A summary of data collected from this first semester's assessment is provided below. The second semester report will provide additional data and a comparative analysis on Program improvements and Curriculum assessments.

Summary of Research Data: A total of six 45-minute lessons were provided every other week to each grade in preschool through seventh grade with an average of two lessons per month—though we are only summarizing data from the elementary schools for this report. The lesson themes covered: Respect in the Garden, Plant Biology, Soil, and Cycles in Nature (with subthemes of Food Systems and Agriculture, Climate and Geology, Water, Seasonality). Fewer lessons are provided in the fall semester than the spring semester, because of scheduling for District holidays and professional development days. The Program recommends that garden instructional lessons are provided to full classes throughout the year, rather than scheduling half during one semester and the other half during the next semester, to allow students to experience the garden throughout the seasons and to follow the Curriculum accordingly.

Observation Survey Results: Garden instructors contend with many distractions in school gardens that could take away from student learning. From squirrels to recess, in rain and in sunshine, garden instructors exercise adaptability, astute presence, and classroom engagement needed to refocus students. They were observed connecting with those that are challenged with focus and those that struggle with heightened emotions. Many demonstrated the ability to reconnect the class to the place and content so that lesson objectives were met. In addition to this dexterity, garden instructors have met the challenge of piloting each lesson and have continued to grow in skill and knowledge to best serve the needs of all Berkeley students. In turn, garden instructors communicated that the Curriculum is a good tool, contains versions of lessons that many have taught before, that it is a priority for teaching students in the gardens, and that it is a Program goal to make necessary changes to the Curriculum so that it is the best teaching tool for school garden activities.

Key Findings:

- Lesson plans were implemented according to curriculum design as described in Curriculum instructions provided to all garden instructors 80% of the time.
- Lesson objectives were met 85% of the time during both garden activities.
- Changes were made to each lesson to best-fit school sites, situations, and individual classroom lessons about 50% of the time.
- Students were engaged in each lesson 75% to 95% of the time.
- Many students demonstrated an understanding of core content with students sharing lesson objectives through peer or group conversations 63% of the time.
- Garden instructors used academic vocabulary in each lesson over 85% of the time.
- Smooth transitions between opening circle and activities occurred about 68% of the time, which was often dependent on classroom teacher engagement and interests.
- Garden instructors demonstrated a strong comfort level with the material almost 100% of the time in the garden lessons, compared to 71% of classroom teachers demonstrating a strong comfort level with the material.
- Garden instructors led lessons and demonstrated clear communication with classroom teachers 91% of the time.
- There's room for improvement for garden instructor classroom management skills, which were successfully occurring 65% of the time, while well managed by classroom teachers 86% of the time during co-teaching lessons.
- Garden instructors need more lesson materials provided at the beginning of the semester in order to be better prepared for each lesson; having lesson materials prepared for the activities about 28% of the time.

Classroom Teacher Survey Results: For the first time, all 10 garden instructors are “co-teaching” with classroom teachers using this Curriculum. Each lesson is intended to be a bridge to classroom instruction and deepen core content understanding, as well as reinforce good health and wellbeing. All lessons are led by garden instructors and often teachers practice a “teach-assist” model, rather than traditional “co-teaching”. In order to better understand how the Curriculum is supporting teaching and learning academic standards and whole child development, we asked classroom teachers that have co-taught in the school garden with garden instructors this semester to take an anonymous survey, and a total of 113 teachers completed the full survey. Many stated that they love the garden and their garden instructor and that it is necessary experiential learning. Many teachers and garden instructors also commented that the new Curriculum is a step towards making this type of education more accessible. We are using this survey to make continual improvements to the Curriculum and inform plans for providing all garden instructors training on how to best “co-teach”.

Key Findings:

- 88% of responses said that they somewhat agree to strongly agree that the Curriculum is well-aligned with academic standards in science; and 84% said it supported teaching science, noting that it enhanced, augmented, or complimented their teaching.
- Though we need to include a research development project that looks more closely on student learning next year, more than half of respondents said that the Curriculum improved student academic performance in science.
- 72% of responses said that they somewhat agree to strongly agree that the Curriculum is well-aligned with academic standards in English Language Arts and that it also supported their teaching.
- 81% of respondents said that the Curriculum lessons were easy to follow.
- Most did not use the follow-up classroom writing and activity prompts provided for in many lessons in the Curriculum, such as having students write a story about a seed traveled from one place to the other. However, many teachers stated that they would like more direction on how to provide classroom follow-up.
- More than half of the respondents said that they needed additional training to successfully co-teach the Curriculum.

Additional Comments:

- Students are excited to get out into the garden and take great pride in caring for the garden.
- Students get to share in experiential learning and explore the earth.
- Students communicate in groups and work well together as they skill-build and talk through tasks and issues with each other.
- It’s great to allow kids to “get their hands dirty” and learn about plants and nutrition, and the science behind all of it.
- The formalized structure of the lessons and direct connection to standards justifies garden instruction taught during classroom minutes.
- Though the curriculum is a good guide, there are many amendments needed to best fit instructional procedures in the garden, co-teaching methods, and make content clearer.
- Students form relationships with the garden instructor and the small conversations that occur make the students feel more connected to the school and its mission and the possibility of making a living in the future.
- I look forward to better integrating the curriculum into my classroom curriculum.

Continual Improvements: Additional amendments to the Curriculum is provided through an online education resource tool, Open Education Resources, that garden instructors and Program administrators use to make changes per lesson and note successes for what worked well and why. Grants have been written to support this work, along with more teacher collaboration and training time, which will provide for a richer Curriculum project.

The Program also works with English language development and literacy specialists to improve the Curriculum, including instructional practices with opportunities for academic language development. These improvements enable garden instructors to use techniques and specific language that is more accessible to all language learners with a focus on English learners in elementary school. A revised Curriculum will be made available to all District staff and the public next year, and training on how to implement this Curriculum and apply improved instructional practices in the garden will be provided to all garden instructors and select teachers during the summer of 2015 and throughout the school year in 2015-2016 with help from these assessments.

The Program has demonstrated adaptability and resilience during this transition. In addition to changing District Departments, some staff, and funding sources, the Program worked with WE CARE—the District’s program for improved serves following principles of Willingness, Empathy, Consistency, Aptitude, Responsiveness, and Effectiveness—to strengthen teambuilding, communication, and orienting goals to better serve all students. This could not have happened without strong support from the Berkeley community and District families, as well as a dedicated Program staff and collaboration with school sites. Generous support from local businesses and organizations through partnering in fundraising efforts, making donations, and helping with communications has been imperative to the Program’s success. A committed School Board has also demonstrated a true dedication to whole child education and a garden-based learning program, which makes the District a leading model as the only public school district with a program of this kind.

