



Photo Susan Young

The CitySprouts mission is to develop, implement and maintain beautiful, resource-rich school gardens in collaboration with public school communities. Integrated into the curriculum, CitySprouts gardens inspire teachers, students, and families with a deep, hands-on connection to the food cycle, sustainable agriculture, and the natural environment.

CitySprouts school garden program partners with schools to create gardens and provide support to teachers to use these gardens as an extension of their classroom in all subjects. Since 2001 CitySprouts has worked closely with Cambridge Public Schools to develop a school garden program for the district's elementary and middle schools that is truly integrated with teachers' existing curricula. CitySprouts is one of a handful of school garden programs in the country that has moved beyond teacher-directed school gardens to a systematic school garden program that children experience year after year as part of their public school education.

District-wide or regional school garden programs have the potential to break through at least two of the core challenges facing teacher-directed gardens. First, programs like CitySprouts address children's access to the school garden experience by encouraging and supporting use by teachers at every grade level, throughout the district. Learning in the school garden becomes part of every child's public school experience. Secondly, they have the capacity to engage in initiatives at the district or regional level, moving school gardens from the periphery of the public school experience to the core.

School gardens offer a promise as project-based learning, a health and nutrition vehicle and as hands-on environmental laboratories. But how well do they deliver? CitySprouts' 2009-2010 curriculum report highlights the progress it is making to-

ward an integrated school garden program in Cambridge's public schools; it is also a case study of an emerging, district-wide school garden program in an urban community.

School gardens in Cambridge Public School curricula: *Science in the Garden Pilot*

While CitySprouts has enjoyed a strong partnership with Cambridge Public School District (CPSD) throughout its 10 year history, the completion of its expansion district-wide in 2009-2010 allowed a new level of collaboration between the district science department and CitySprouts staff that culminated in Science in the Garden workshops. These workshops, designed to support teachers' use of the school gardens to teach the district science curriculum, will be piloted at four schools between April and November 2010. The goal of the workshops is to strengthen instruction of the district science curriculum by 1) developing teachers' science content knowledge in selected topics; and 2) familiarizing teachers with the school gardens as a resource for science instruction.

Workshops consisted of three sections: a Garden Experience, Curriculum Review and Content Professional Development. Cambridge Public School science coaches talked with teachers about the district science instruction across grade levels, distributing handouts on topics in the district science curriculum, including handouts that highlighted the curriculum connections with the school gardens. In the Garden Experience section, CitySprouts staff led small groups of teachers in a tour of the garden, stopping to discuss areas in the garden that can be used to teach parts of the district curriculum.

An accompanying program evaluation of the pilot is an initial effort to measure the effects of CitySprouts as part of the science education curriculum in Cambridge Public Schools. Neil Schiavo, research associate, has completed the first phase of this evaluation that examines the effects of the Science in the Garden workshops and the CitySprouts team on teachers' use of the garden and teachers' perceptions of garden-based lessons on student engagement and student learning.

Schiavo notes that the implementation of CitySprouts is aligned with best practices supported by the existing research, including:

- Dedicated team, including a Garden Coordinator at each school
- Active partnership with district science department that led to collaborative efforts to identify and promote garden links to science goals
- Professional development workshops for teachers to develop content knowledge in units that are well-suited to garden instruction
- Strong relationships with principals

“With growing national interest in garden-based instruction, Citysprouts offers an opportunity to examine the impact of a program that has addressed the factors identified in the research as impeding teachers’ use of the gardens. CitySprouts is particularly well-positioned for such an investigation because it offers the opportunity to examine the impact of a program that has been established for some time, is aligned with the district science curriculum, and includes science instruction in the middle as well as the elementary grades.”

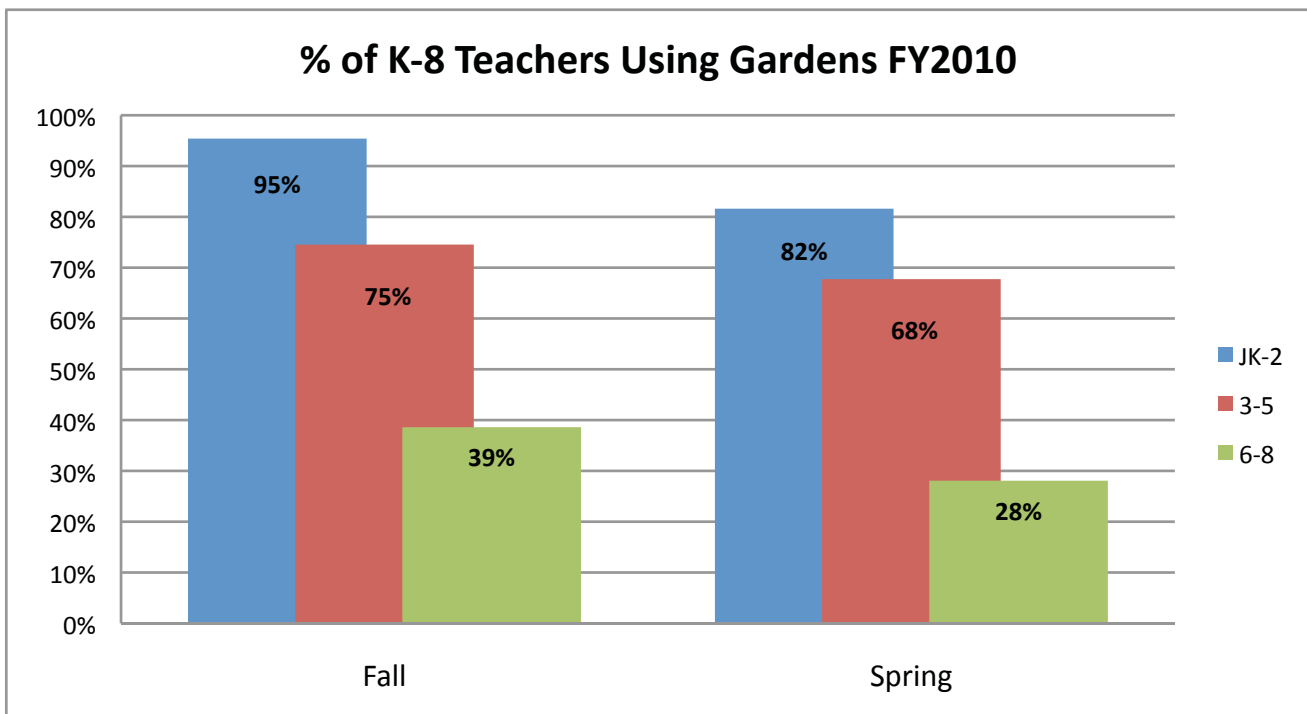
- Neil Schiavo, Research Associate

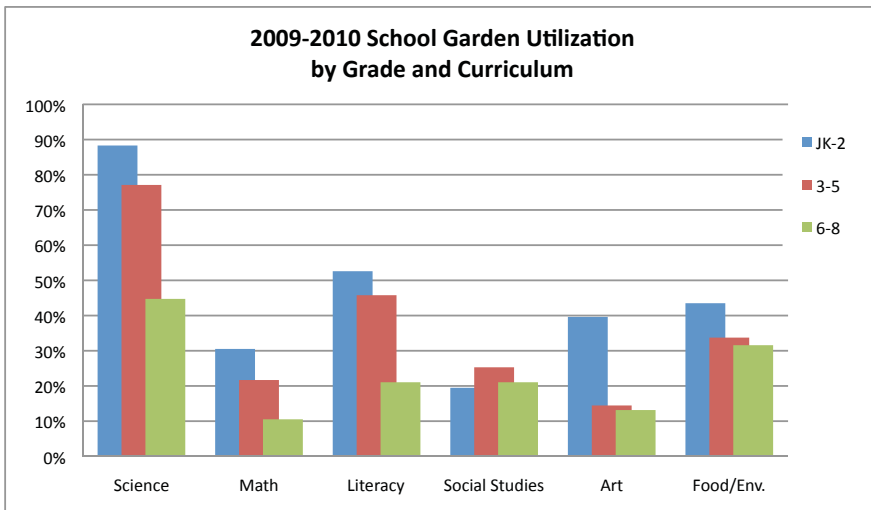
Findings on the impact of the workshops and CitySprouts programs on science instruction and student learning and engagement will be tested further in the second round of data collection this fall.

Students’ access to the school garden experience: teacher use of the gardens

For the past five years, the benchmark for CitySprouts program success has been the percentage of classroom teachers in each school who report using the garden at least once during the season. This indicates that the CitySprouts gardens are being incorporated into teachers’ lesson plans and that students are actually experiencing the school garden as a learning environment. In the 2009-2010 school year, most junior kindergarten through 5th grade teachers- and a significant number of 6th-8th grade teachers- used their school garden at least once in the fall and again in the spring to teach. This benchmark represents 559 teacher responses from all twelve elementary and middle schools in the district: 280 in the fall (99% return) and 279 in spring (87% return).

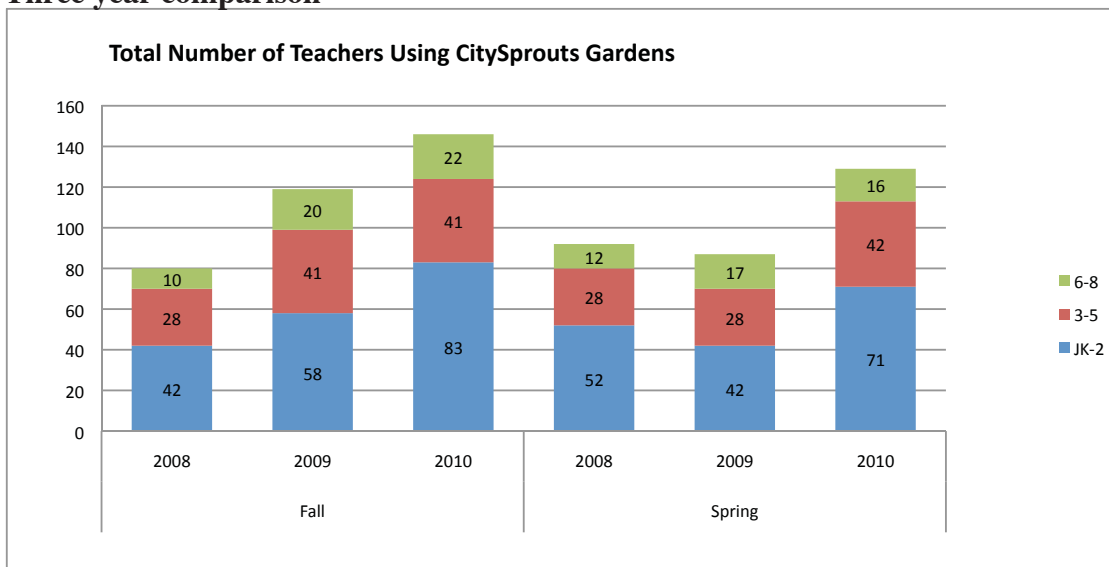
Junior kinderten-2nd grade teachers (JK-2) were the biggest school garden users. All teachers used the school garden more in the fall than in the spring, presumably because classes return in September to a garden near its peak of production. By far the most common subject teachers choose to use their CitySprouts garden for is science (79%) followed by literacy (46%).





Since 2008, all teachers using the gardens in the fall have increased from 80 to 146 (82.5%) and in the spring from 92 to 129 (40.2%). Spring 2010 shows a big increase in usage by teachers at Amigos School (10%) and Peabody School (23%). Notably, these are the two schools participating in the first phase of the CitySprouts-Cambridge Public School science department Science in the Garden workshops. For the six schools using the gardens since Fall 2008 (Amigos, Haggerty, M.L. King, King Open, Morse and Peabody), there has been an overall increase in garden usage (6%) and in all curriculum areas (science, math, literacy, social studies and art).

Three year comparison



Three year comparison in subject area

% JK-8 Teachers Using Gardens	2008	2010	% Change
Science	75%	81%	5%
Math	18%	25%	7%
Literacy*	29%	44%	16%
Social Studies	13%	24%	11%
Art	18%	26%	8%

*There was a significant increase of garden usage for literacy (p = 0.01)

CitySprouts invests a significant portion of its resources in collecting information on teachers' use of the school gardens; we depend on teachers' willingness to share this information on a regular basis, and school principals' help in collecting the surveys each fall and spring. Results are used to improve CitySprouts program in Cambridge to better serve children and teachers. Cumulative data on teachers' use of school gardens for instruction also contributes to knowledge on how teachers' perceive school gardens as an educational resource, and to general knowledge on the role of school gardens in public schools.

Food & health education in the CitySprouts gardens

CitySprouts' approach to food and health education is to focus on children's access to the school garden experience, making it a priority to ensure that most children in the school spend time in the school garden during the school year. Beyond supporting teachers' use, CitySprouts has also developed partnerships with school food service to support its farm-to-school efforts, and with community organizations and city agencies to provide children out-of-school access to the gardens. CitySprouts' Summer Internship provides young teens with an intensive month growing and harvesting food in an urban garden, expanding their first-hand experience preparing and eating healthy food and fostering a strong connection to their natural urban environment.

Conclusion

CitySprouts' first year as a district-wide school garden program shows promising results for Cambridge schools. Cambridge teachers' steadily growing use of their CitySprouts' gardens, and the district's willingness to invest in the gardens as an educational resource, are encouraging signs for public school garden programming everywhere. CitySprouts' next steps include continuing to refine best-practices in its Cambridge program, and to use its success in Cambridge as a model for urban school garden use that support communities' health and education goals. We recognize that more study and more sharing of information among programs is needed, as well as more attention from educators on the potential for district-wide or regional school garden programming.



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