

Introduction to the Hawai‘i School Garden Curriculum Map

A Resource for Hawai‘i’s Teachers K–8

What is a school garden? A school garden is an innovative teaching tool and instructional strategy that allows educators to incorporate hands-on activities with a diversity of interdisciplinary, standards-based lessons. The garden engages students by providing a dynamic environment in which to observe, discover, experiment, nurture, and learn. It is a living laboratory where lessons are drawn from real-life experiences, allowing students to become active participants in their own learning. Through the garden students gain:

- an appreciation of their unique place
- a deep understanding of surrounding ecology and ecosystems
- knowledge of good food and healthy lifestyles
- an understanding of soil, plant, and natural cycles
- opportunities to solve real problems using core skills in the areas of sustainability, food, water, energy, recycling, biodiversity, pollinators, invasive species and climate change.

Each of these areas is calling for innovation and creative solutions to address the real problems of today and the future.

The Hawai‘i School Garden Curriculum was created by teachers for busy teachers who may not be gardeners themselves, but intuitively understand the benefits of inquiry-based, place-based, project-based learning for their students.

We began by asking the question: What do students need to know about good food, the environment, sustainability, and nature’s systems by eighth grade? Then we created Garden Themes, Topics, and Learning Outcomes and linked them to suggested Garden Activities and Classroom Extensions. Then we aligned those activities with Common Core, NGSS, and Health Standards. We know that instructional time is valuable.

The School Garden Curriculum Map is a pathway to connect core curriculum in the classroom with opportunities for extending learning in the real world, the basis of both Common Core and Next Generation Science. The Big Ideas begin with A Sense of Place, move to the all-important Living Soil and Living Plant, on to Nourishment, and finally Nature’s Design, encompassing the science-based cycles, patterns, and systems of the natural world. We hope that you will enjoy this living document, and that you will provide feedback and suggestions for improving its use for all the K-8 teachers in Hawai‘i who want to expand learning opportunities for their students.

Mahalo to The Kohala Center’s Hawai‘i Island School Garden Network and Kū ‘Āina Pā Teacher Training Program for School Learning Gardens; Māla‘ai: The Culinary Garden of Waimea Middle School; and to The Bill Healy Foundation, the WHH Foundation, and the USDA Farm to School Program for their additional support.

History and Benefits of School Gardens – An Overview

By 1910, there were 75,000 school gardens in the U.S., supported by the Bureau of Education with teachers and curriculum. By 1904, there were gardens in every school in the Territory of Hawai‘i. This lasted until the mid-1970s, with produce coming straight to the school kitchen and incorporated into school lunches. Many adults today can fondly remember their work in a school garden. In Hawai‘i, the revival of learning in the outdoor classroom began around 2000 and continues to expand yearly. In the 2014–2015 Safety and Wellness Survey (SAWS) of the Hawai‘i Department of Health, 84% (205 out of 239 schools) said they have a garden that they use every day for instructional purposes. The top uses were for science, health and nutrition, and CTE Agriculture.

Educators for the past 200 years have promoted the use of gardening to achieve learning objectives and support for the mental, emotional, and social development of youth in the following areas:

- Address multiple learning styles
- Provide cross-cutting opportunities
- Improve environmental attitudes and knowledge
- Promote good nutrition and physical exercise
- Teach patience and responsibility
- Instill a positive work ethic
- Increase self-esteem
- Build classroom relationships and improve teamwork
- Beautify the environment
- Connect with local place and honor cultural differences

Research shows that there are social, emotional, and academic benefits for students working in school garden programs that:

- Improve self-esteem and attitudes toward school^{1, 14}
- Improve social skills and behavior²
- Improve attitudes toward the environment³
- Increase group cohesion⁴
- Improve interpersonal relationships^{5, 6, 13, 14}
- Increase interest and improve attitudes toward eating fresh fruits and vegetables^{7, 8}
- Significantly increase science achievement scores^{9, 10}
- Develop a sense of ownership and responsibility, foster family relationships and increase parent involvement^{11, 13}
- Improve life skills including working with groups and self-understanding^{12, 13, 14, 15}

References

-
- ¹ Sheffield, B.K. 1992. The affective cognitive effects of an interdisciplinary garden-based curriculum on underachieving elementary students. Unpublished doctoral dissertation, University of South Carolina, Columbia.
- ² DeMarco, L., P. D. Relf, and A. McDaniel. 1999. Integrating gardening into the elementary school curriculum. *HortTechnology* 9(2):276-281.
- ³ Skelly, S. M., and J. M. Zajicek. 1998. The effect of an interdisciplinary garden program on the environmental attitudes of elementary school students. *HortTechnology* 8(4):579-583.
- ⁴ Bunn, D. E. 1986. Group cohesiveness is enhanced as children engage in plant-stimulated discovery activities. *Journal of Therapeutic Horticulture* 1:37-43.
- ⁵ Campbell, A. N., T. M. Waliczek, J. C. Bradley, J. M. Zajicek, and C. D. Townsend. 1997. The influence of activity-based environmental instruction on high school students' environmental attitudes. *HortTechnology* 7(3):309.
- ⁶ Waliczek, T. M., and J. M. Zajicek. 1999. School gardening: Improving environmental attitudes of children through hands-on learning. *Journal of Environmental Horticulture* 17:180-184.
- ⁷ Pothukuchi, K. 2004. Hortaliza: A Youth "Nutrition Garden" in Southwest Detroit. *Children, Youth and Environments* 14(2):124-155.
- ⁸ Lineberger, S. E., and J. M. Zajicek. 1999. School gardens: Can a hands-on teaching tool affect students' attitudes and behaviors regarding fruits and vegetables? *HortTechnology* 10(3):593-597.
- ⁹ Klemmer, C. D., T. M. Waliczek, and J. M. Zajicek. 2005. Growing minds: The effect of a school gardening program on the science achievement of elementary students. *HortTechnology* 15(3):448-452.
- ¹⁰ Smith, L. L., and C. E. Motsenbocker. 2005. Impact of hands-on science through school gardening in Louisiana public elementary schools. *HortTechnology* 15(3):439-443.
- ¹¹ Alexander, J., and D. Hendren. 1998. Bexar County Master Gardener Classroom Garden Research Project: Final Report. San Antonio, Texas.
- ¹² Robinson, C.W., and J. M. Zajicek. 2005. Growing minds: The effects of a one-year school garden program on six constructs of life skills of elementary school children. *HortTechnology* 15(3):453-457.

¹³ Lohr, V. I., and C. H. Pearson-Mims. 2005. Children's active and passive interactions with plants influence their attitudes and actions toward trees and gardening as adults. *HortTechnology* 15(3):472-476.

¹⁴ Koh, M.W. (2012). *Discovering learning, discovering self: The effects of an interdisciplinary, standards-based school garden curriculum on elementary students in Hawai'i*. Dissertation, Prescott College, 277; 3512433

¹⁵ Skinner, E.A, U. Chi & The Learning-Gardens Educational Assessment Group (2012): Intrinsic motivation and engagement as "active ingredients" in garden-based education: Examining models and measures derived from self-determination theory. *Journal of Environmental Education*, 43:1, 16-36.