



**Learn to Navigate the
Hawai'i School Garden Curriculum Map**
and Create a Standards-Based Garden Program for Your Classroom

The 5th Kū 'Āina Pā Summer Intensive for Hawai'i's Teachers
June 6–9, 2016 • Kona Pacific Public Charter School • Kealahou, Hawai'i

Three (3) PDE3 Credits - Portfolio Due December 1, 2016

THE KOHALA CENTER®

*A project of The Kohala Center's
Kū 'Āina Pā School Garden Teacher Training and
Hawai'i Island School Garden Network programs
in collaboration with Māla'ai: The Culinary Garden of
Waimea Middle School*

Acknowledgements

The Hawai‘i School Garden Curriculum Map was created by a team of garden and class teachers who were graduates of The Kohala Center’s Kū ‘Āina Pā School Garden Teacher Training Program. All teachers were from public or charter schools in Hawai‘i. Work was conducted over one year as a whole group and in teams of K–2, 3–5, and 6–8 educators. We would like to express our deep appreciation to all the teachers who gave of their time and knowledge and participated in this project. Our purpose is to further the connections between the classroom and the outdoor classroom of the natural world in the areas of food and health, environment, sustainability, and culture.

Team Leaders: Hawai‘i School Garden Curriculum Map

Nancy Redfeather – The Kohala Center

Dr. Koh Ming Wei – Pacific Resources for Education & Learning (PREL)

Amanda Rieux – Māla‘ai: The Culinary Garden of Waimea Middle School

K–2 TEAM:

Nancy Redfeather – The Kohala Center

Ting Ortiz – Kaūmana Elementary

Jessica Sobocinski – Garden Teacher, Hawai‘i Preparatory Academy, Lower School

Joanna Schiller – Innovations PCS

Melissa Chivers – Hōnaunau Elementary

3–5 Team:

Dr. Koh Ming Wei – Pacific Resources for Education & Learning (PREL)

Debbie Millikan – ‘Iolani School

Krista Donaldson – Innovations PCS

Kamuela Naihe – Hōlualoa Elementary

6–8 Team:

Amanda Rieux – Māla‘ai: The Culinary Garden of Waimea Middle School

Megan Learned – Innovations PCS

Wendy Baker – Hawai‘i Academy of Arts and Science

Holly Sargeant-Green – Māla‘ai: The Culinary Garden of Waimea Middle School

Consultants and Editing:

Dr. Jan Ray – School of Education, University of Hawai‘i at Hilo

Linda Colwell – Consultant and Editor, School Garden Education, Agriculture, and Food Literacy

Program Assistance:

Donna Mitts – The Kohala Center

Andrea Snow – FoodCorps Hawai‘i, The Kohala Center

Mahalo to the WHH Foundation, the Bill Healy Foundation, the USDA Farm to School Program, the Ulupono Initiative, the Hau‘oli Mau Loa Foundation, and The Kohala Center for their encouragement, support, and for believing that this work was important and needed.

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.

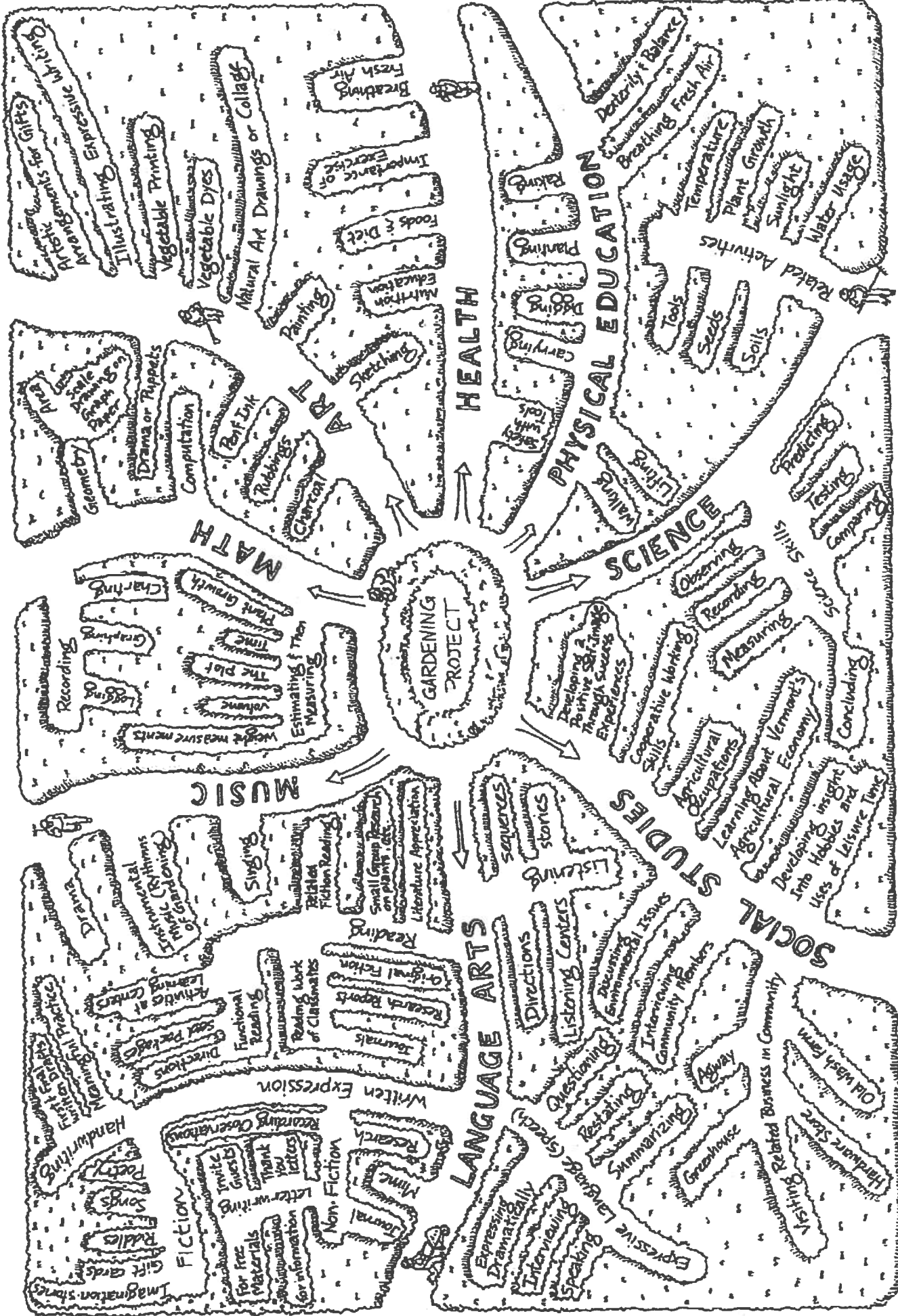
¹¹ Alexander, J., and D. Hendren. 1998. Bexar County Master Gardener Classroom Garden Research Project: Final Report. San Antonio, Texas.

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.



©2007 National Gardening Association

Garden study plan reprinted with permission from the National Gardening Association (NGA). For more information on youth gardening contact NGA, 1100 Dorset Street, South Burlington, Vermont 05403; www.garden.org.

“Hea Hea Ka Leo” – Na Kumu Keala Ching Chant of Entrance

Haumana:

Hea hea ka leo - Hear my voice calling
Leo o na kupa – The voice of the people
Kupa o ka ‘āina – The People of this ‘Āina
‘Āina o Keawe– The ‘Aina of Hawai’i Island
Welina mai – Greetings to you!

Kumu Answers:

Hea hea ka leo – Hear my voice calling
Leo kono e komo – I invite you to come in
Komo me ke aloha – Come in with Aloha
Aloha aku wale nō e – Love that is long lasting
Aloha, Aloha, Aloha mai e – Aloha to you

Ho Mai Ka 'Ike
An Oli by Kumu Keala Ching

Hō mai ka 'ike, 'ike papalua ē
Hō mai ka 'i'ini, 'i'ini papalua ē
Hō mai ka mana, mana papalua ē
Hō mai, hō mai, hō mai ka papalua ē
E Ola!

Grant me the knowledge to see both sides
Grant me the desire and the will to see both sides
Grant me the spiritual connections to see both sides
Grant me the ability to see the two
Let it live!

