



School of the Soil

WHAT CAN YOU LEARN FROM A GARDEN?

JUST ABOUT EVERYTHING.

STORY BY DAVID THOMPSON PHOTOS BY OLIVIER KONING

Pua Mendoca knows who's been nibbling holes in the leaves of her taro, eggplant and basil. Mendoca is the *kumu kahua māla*, or school garden instructor, at a charter school in Hilo called Ka 'Umeke Kā'eo. The culprits nibbling on the leaves? They're the Chinese rose beetles that recently discovered the school's raised vegetable beds. But Kumu Pua, as the children call her, has a plan to end the beetles' schoolyard feast. It involves worms and kindergartners.

The kindergartners stand beside a row of rainbow chard and lettuce on a sunny afternoon as Kumu Pua explains. I listen, but it's not immediately clear to me what's happening because Ka 'Umeke is a Hawaiian language immersion school, and all of the instruction is given in a language I don't speak. I already know Mendoca's larger goal, though. "I want every child to leave this school knowing how to grow their own food," she'd told me earlier.

As Mendoca explains the beetle situation to the kindergartners, who are just beginning to learn Hawaiian, she acts out her words. From the pantomime I figure out that the children are going to spray the plants with what looks like iced tea (it's worm compost leachate) and



that this will protect the plants by making them taste bad to the rose beetles. The children grab spray bottles and go to work, enthusiastically blasting every plant in the garden—and a few beyond it—with a protective coating of lukewarm worm juice. It's just another day of learning by doing in the garden at Ka 'Umeke Kā'eo and in dozens of other school gardens throughout the Islands.

Garden programs have blossomed on charter, public and private school campuses all over Hawai'i in recent years. They're particularly popular on the Big Island, where nearly 75 percent of the schools have one. They range from a few rows of vegetables to what might be better described as small farms, complete with irrigation systems, tractors and livestock. What's growing can be as traditional as the dry-land taro behind the administration building at Ka 'Umeke Kā'eo or as innovative as the blueberries and green tea in the lava desert surrounding the West Hawaii Explorations Academy. At that charter school, students grow cold-climate crops at sun-baked Keāhole Point by using chilly deep-ocean water from the Natural Energy Laboratory Hawaii Authority to keep the roots cool.

Garden programs are most popular in elementary and middle schools, and garden time often falls during health or physical education classes. But not always. An English teacher might link time in the garden to a poetry or journaling assignment. A history teacher might have students plant, harvest and winnow the ancient grains of Mesopotamia. Math and science teachers have students gather data, conduct plant-based experiments, put theories



Ti for four: Vetea Anderson-Gancinia of Pa'auilo Elementary feeds the school's goats. Pa'auilo Elementary is just one of the fifty-six schools on the Big Island that now have gardens, thanks to the efforts of Nancy Redfeather (above). Next page: Cousins Daniel and Montana Miranda, with food for Pa'auilo's rabbits.

in a garden at Pa'auilo Elementary School when she was a student there fifty-some years ago. Or maybe she picked peas ... it was a long time ago. What she hasn't forgotten is the feeling of getting out of the classroom to work in the dirt and see things grow. But when I ask whether she enjoyed the experience, she quickly shakes her head no. "We were country kids," she says. "We had gardens at home. It was nothing new to us."

The old garden at Pa'auilo Elementary vanished years ago, and the land it sat on was gradually covered with weeds and rusting junk. But a new garden has bloomed in the same spot, and Mrs. Miranda, who is now a teacher at Pa'auilo Elementary, takes her twenty-seven fifth-graders there once a week to work in it.

Times have certainly changed. Mrs. Miranda's kids seem to love being in the garden. When the boys who are spreading fertilizer finish that task early, they take it upon themselves to clean the chicken coop. The girl assigned to collect eggs wanted the job so badly she'd lobbied for it earlier in the week. The team of girls harvesting green onions continues working as it starts to rain; they don't stop until it really starts to pour, and Mrs. Miranda urges everyone to shelter. I'm impressed by how attentive, efficient and engaged these young gardeners are. But then again they've been doing this since second grade. This is *their* garden.

The resurrection of Pa'auilo Elementary's garden began ten years ago when Donna Mitts, the mother of a second-grader, joined another parent and persuaded Pa'auilo's principal to let them haul out the rusting junk and put in a few vegetables. School gardens are usually labors of love, born of the sweat, dedication and blisters of a handful of green-thumbed volunteers, and Pa'auilo's is no exception. In the decade since, a single vegetable bed has grown into a compound featuring a showcase garden with multiple crops, two greenhouses, geese, ducks, bunnies, a henhouse and a pasture with seven goats and two cows. In the future the garden will have a working water catchment tank (once the principal, who does plumbing, puts in the pipes) and an elaborate vermiculture station dubbed "Wormville," where worms will turn cafeteria waste into compost.

All of Pa'auilo's students from kindergarten to fifth grade spend one class period a week in the garden under Mitts' tutelage, and the sixth-graders get out

of weights and measures into practice, follow life in an ecosystem—and in the process learn that the scientific method of inquiry isn't limited to scientists.

"Children learn by doing," says Nancy Redfeather, the director of the Hawai'i Island School Garden Network, which has been helping promote school gardens since 2007. "The garden provides this living laboratory where students can deepen their classroom knowledge."

The gardens aren't there solely to reinforce book learning, though. In themselves they're proving grounds for



eco-literacy, environmental stewardship and healthy eating—concepts that haven't always found purchase in schools. "There's an incredible desire to reconnect children to the land, to nature, to the environment, to food, to culture and to good health," says Redfeather. "And a garden is a pathway to all of those things."

The Hawai'i Island School Garden Network, a program of a philanthropic organization called The Kohala Center, offers grants, conducts teacher trainings and provides other types of support for the garden programs, which rely heavily on dedicated volunteers and can be as fragile as gardens themselves. The nurturing seems to be paying off. Out of seventy-six schools on the Big Island, fifty-six now have garden programs. When the School Garden Network started, there were only twenty garden programs.

While the popularity of school gardens might be a new development, school gardens themselves are not. Sandra Miranda remembers picking green beans



Garden club: Sixth-graders from Waimea Middle School and teacher Amanda Rieux prepare to feast on a salad at the end of class. Through the school's Māla'ai program, students grow a wealth of food; the ribbon below was awarded for a massive fourteen-pound squash.

there for part of the year, too. Mitts says she's stuck with it for two reasons. She wants Hawai'i to produce more of its own food and to do that it needs farmers. "It's critical to our island's food security," she says. "Farming's not a sexy occupation, it's not usually associated with riches, but if you have it in your head that you want to grow food, you're going to try to make it work."

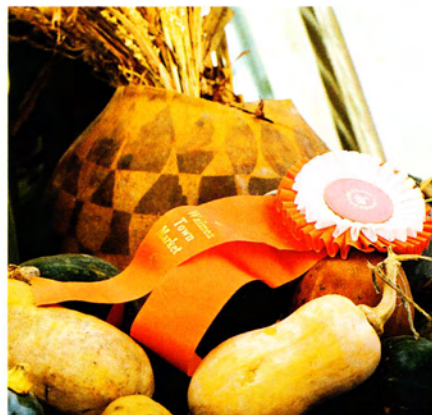
Also, Mitts just loves to garden.

What's happening in Hawai'i is part of a full-fledged nationwide school garden movement that is driven in part by concern over childhood health and nutrition and in part by renewed interest in environmental education. But the origins of the school garden movement date back many generations. A background paper on garden-based learning published by UNESCO, the United Nations Educational, Scientific and Cultural Organization, traces the original school garden movement to several countries in nineteenth-century Europe. Austria was so big on school gardens that in 1869 it passed a law requiring every rural school to have one. The movement came to the United States in the 1890s—during a depression, interestingly—and school gardens went in

and out of favor throughout the twentieth century, with peaks in popularity during both world wars, when students grew food for the war effort, and in the 1970s, with the rise of the environmental movement.

A key figure in the current movement is celebrity chef Alice Waters, who created the Edible Schoolyard in a vacant lot at Martin Luther King, Jr. Middle School in Berkeley, California, in 1995. Her idea was to fight childhood obesity and encourage healthy eating by integrating the garden into the school's curriculum. The notion caught on, and the Edible Schoolyard became a model for hundreds of other gardens.

Former urban gardener Amanda Rieux once taught at the Edible Schoolyard.



Today she is in Hawai'i, working as the garden leader at Māla'ai The Culinary Gardens of Waimea Middle School. That garden, which is actually a not-for-profit corporation that works closely with the school, is the brainchild of a local physician who was seeing too many patients with diet-related illnesses. "Our mission is really to deepen our students' connection to food and to the environment and to each other," Rieux says.

On the day I visit, Rieux is just back from Vietnam, and she is telling a class of fifth-graders about the country gardens and floating river markets she saw there. Then the kids get down to business. Some move mulch in wheelbarrows, some cultivate and amend a pineapple bed that needs love, some plant *lilikoi* at the base of an arbor and some slice grapefruit and squeeze *lilikoi* juice for all to share when the work is done.

These fifth-graders, just like the Pa'auilo fifth-graders and the Ka 'Umeke Kā'eo kindergartners, throw themselves into the work. And that's what Rieux likes to see. "This kind of experience can have a long-term effect on their choices and how they care for the land and hopefully what they eat," she says. "I want it to be a pleasurable experience." HH

Hana Hou!

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