



'ĀINA in schools

Growing healthy keiki, schools, and communities

A program of the
kōkua hawai'i foundation



'ĀINA In Schools

Actively Integrating Nutrition & Agriculture in Schools

Connecting children to their land, waters and food in order to grow a healthier future for Hawai'i

- 1) Addressing childhood health
- 2) Encouraging environmental stewardship
- 3) Contributing to a healthy local food system



'ĀINA In Schools

- ▶ Launched in 2006
- ▶ A partnership between Kōkua Hawai'i Foundation and each Participating School
- ▶ 13 O'ahu Elementary Schools: Ahuimanu, 'Aikahi, Ala Wai, Kahala, Kainalu, Ke Kula O Kamakau, Lanikai, Liholiho, Mililani Uka, Sunset Beach, Wai'alaie, Waialua, Waikiki
- ▶ Resources and support extends statewide
- ▶ Participation with O'ahu and Statewide Networks



Why Farm to School Programs?

Contribute positively to students' knowledge, attitudes, and behaviors toward local, healthy food

Promote healthier dietary choices and increased consumption of fruits and vegetables

Influence teacher knowledge, attitudes and lifestyles

Lead to positive changes in parents' shopping patterns and family diets

Address DOE Wellness Policy



Six Integrated Program Components



Garden-Based Learning

Classroom Lessons

- ▶ Grades K, 1, 4 and 5; Adaptable 8 Standard-Based Lessons per year
- ▶ Different themed garden units each semester
- ▶ Garden care is the responsibility of teachers and students
- ▶ Taught by trained Volunteer Docents with Teachers
- ▶ Gardening skills workshops and conference opportunities



Garden Clubs

After School Garden Clubs

- ▶ Garden Club Advisor stipend position
- ▶ Meet weekly during or after school
- ▶ Tasks include watering, weeding, planting, art projects, and fun!
- ▶ Composting encouraged!
- ▶ Assist with Garden Party planning 3x/year



hungry After School?
Come to Our
Farmers Market
on Tuesdays @ the end of school time 2:30-4:00



Nutrition Education

Classroom Lessons

- ▶ Grades 2 and 5/6; Adaptable
- ▶ 8 Standard-Based Lessons per year
- ▶ Emphasizes eating whole, "close to the source" foods
- ▶ Explores environmental impacts of food choices
- ▶ Positive messages about food
- ▶ Food sampling
- ▶ Taught by trained Volunteer Docents with Teachers



'ĀINA In Schools Curriculum

8 LESSONS PER YEAR FOR EACH GRADE

GRADE	FALL SEMESTER	SPRING SEMESTER
K	Butterfly Garden	Tops & Bottoms Garden
1	Little Seeds, Big Plants	Good Buddy Garden
2	Nutrition Education	
3	Waste-Reduction: Compost Lessons	
4	Garden-Based Learning: Hawaiian Garden	
5	Scientific Garden	Three Sisters Garden
6	Nutrition Education	

Healthy Food On Campus

Healthy Snacks

- ▶ Features fresh produce from local farmers
- ▶ Served to entire school
- ▶ Includes the Hawaiian Harvest educational component
- ▶ Supported by Parent Volunteers



AINA in Schools **Fresh Choice Hawaiian Harvest**

GRAPE TOMATO

Common Name(s): Grape tomato
Scientific Name: *Solanum lycopersicum*
Origin: Tomatoes were first cultivated in South America. Grape tomatoes were developed in Asia.
Plant Parts We Eat: Fruit

Locally Grown...

- Approximately 80% of the tomatoes eaten in Hawaii are locally grown.
- Grape tomatoes are a hybrid variety created by breeding a Roma and a beefsteak tomato. They were introduced to the US in the 1990s, and appeared in Hawaii soon after.
- Grape tomatoes grow well throughout the islands and are less challenging to grow than larger tomato varieties. They are more resistant to fruit flies.

• One local producer of grape tomatoes is Ho Farms, located in Kahuku on Oahu's North Shore. They are a family-owned business and are famous for their grape tomatoes. They also grow cucumbers and long beans.

Nutrition Info...

- Red tomatoes contain lycopene, a powerful antioxidant that helps prevent diseases like cancer.
- Fiber also keeps our digestive system clean and healthy.
- Tomatoes have lots of Vitamin C, which also protects us from getting sick.
- Our bodies don't make Vitamin C, so we need to eat Vitamin C-rich foods every day!

Did you know?

1. There are over 4,200 varieties of tomatoes.
2. The word "tomato" comes from the Aztec word "tomatl" which means "the swelling fruit."
3. Grape tomatoes come in a variety of colors: red, yellow, and purple.
4. In a 1893 Supreme Court case, it was decided that the tomato was a fruit.



Healthy Food On Campus

Fresh Choice Salad Bar

- ▶ Once a week salad bar
- ▶ Provides students with more fresh, local menu items Supported by Parent Volunteers and school funded (PTA, Green Club Fundraising)
- ▶ KHF will fund a pilot salad bar



Agricultural Literacy

Field Trips & Classroom Visits

- ▶ Connects students to the people who grow and prepare their food
- ▶ Explore career pathways
- ▶ All Grades (especially recommended for Grades 3 and 4): Up to \$1,000 Field Trip Grant per school for visits to farms, lo'i, and loko i'a
- ▶ All Grades: Farmer & Chef Visits



Waste Reduction

Taking Responsibility

- ▶ In the Cafeteria, Classroom, Garden 3R's Recycling
- ▶ Project Trash Check Composting
- ▶ Vermicomposting
- ▶ Bokashi
- ▶ Plastic Free Hawai'i Schools

The image shows two children holding up hand-drawn charts titled "AMOUNT OF LUNCH TRASH". The chart on the left is dated March 3-7, and the chart on the right is dated February 25-29. Both charts have columns for Date, 1st lunch, 2nd lunch, and Total. The left chart includes weekly totals for 1st lunch (368 lbs), 2nd lunch (453 lbs), and Total (821 lbs).

Date	1 st lunch	2 nd lunch	Total
Monday 3/3	80 lbs	127 lbs	207 lbs
Tuesday 3/4	73 lbs	89 lbs	162 lbs
Wednesday 3/5	62 lbs	78 lbs	140 lbs
Thursday 3/6	70 lbs	63 lbs	133 lbs
Friday 3/7	83 lbs	96 lbs	179 lbs
The Weekly Totals:	368 lbs	453 lbs	821 lbs

Date	1 st lunch	2 nd lunch	Total
Monday 2/25	94 lbs	70 lbs	164 lbs
Tuesday 2/26	85 lbs	73 lbs	158 lbs
Wednesday 2/27	72 lbs	92 lbs	164 lbs
Thursday 2/28	95 lbs	126 lbs	221 lbs
Friday 2/29	24 lbs	67 lbs	91 lbs
The Weekly			



Waste Reduction

Composting

- ▶ Strongly encouraged as part of the gardening program
- ▶ Produce living soil amendments on site for garden health, instead of purchasing and importing
- ▶ Run by Garden Club, Science classes, or Grade level
- ▶ Eight hands-on lessons available for Grades 3-6 on aerobic composting, vermicomposting, and bokashi



Family & Community Outreach

Informing & Involving the School Community

- ▶ KHF provides annual 'ĀINA In Schools Newsletter, school provides monthly blurbs in school's news
- ▶ Support school's Open House/Back to School
- ▶ Parent Volunteer recruitment
- ▶ Take-home Letters
- ▶ Workshops
- ▶ Partner for Family Nights
- ▶ Other Special Events



The 'ĀINA Team

Leading and Integrating

- ▶ Led by an 'ĀINA Team Coordinator
- ▶ Made up of administrators, teachers (lower and upper grade representation), parents, PCNC, groundskeeper, cafeteria manager
- ▶ Meet regularly, facilitate communication, and implement the program at the school
- ▶ Recruit Parent Volunteers
- ▶ Plan Family Nights and Garden Parties
- ▶ Post highlights in the school bulletin or on the school website



Volunteers are Vital!

The school's 'ĀINA Team recruits Volunteer support from within the School and Broader Community

- ▶ Garden Lesson Docents
- ▶ Nutrition Lesson Docents
- ▶ Fresh Choice Salad Bar
- ▶ Garden Party Workdays
- ▶ Garden Club Helpers
- ▶ Other Outreach Events



'ĀINA In Schools Partners



Sharing 'ĀINA In Schools

Subscribe to our newsletters for updates: www.kokuahawaiifoundation.org

- ▶ Curricula downloadable in the fall
- ▶ Teacher and docent trainings
- ▶ KHF Mini-Grants for lesson supply kits
- ▶ Collaboration with partners for curriculum distribution
- ▶ Offer additional curricula and skills trainings for educators
- ▶ Partnerships with O'ahu and statewide Farm to School Networks



Resources

Available to All Schools at www.kokuahawaiifoundation.org

▶ How-to Sheets:

- ▶ Composting
- ▶ Vermicomposting
- ▶ Building a Compost Sifter
- ▶ Build a Raised Garden Bed
- ▶ Create a Sheet Mulch Garden
- ▶ Host a Garden Party
- ▶ Test Garden Soil
- ▶ Manage Students in a Garden Learning Environment
- ▶ Plant Seeds with Students



How to... Test Your Garden Soil

The University of Hawaii (UH) offers a soil testing service to gardeners, farmers, and schools.

WHY TEST YOUR SOIL?
Testing your school garden soil is important for plant and human health. By understanding the pH and nutrient levels present in your soil, you can save time and money and protect the environment by applying only the right types and amounts of soil amendments. If contaminants are suspected, a test for heavy metals may also be performed. Note: be sure to only use organic (e.g. OMRI certified) and non-toxic ingredients in school gardens.

TOOLS
Clipboard, paper, pencil, bucket, trowel, zipper sandwich bags, thumbtack, permanent marker, cup measure (optional).

METHOD

1. Create a map of the soil samples taken. Be sure to number the sample sites and mark the numbers on the sample bags.
2. NOTE: If soils appear substantially different (in color/texture, etc.) submit them for testing as separate samples.
3. Sample the top 6 inches of soil.
4. Take 5 to 10 subsamples (scrape) and mix them together in the bucket to create a final sample.
5. Scoop the final sample into a labeled zipper sandwich bag (approximately 2 cups).
6. Take samples from other areas as needed, add to separate labeled bags.
7. Use the thumbtack to make several small holes in each bag so the soil can breathe.
8. Complete UH CDMR's "Soil Sample Information Form" (up to 6 samples per form) and mail or deliver to the Agricultural Diagnostic Service Center at UH Manoa.

MAIL OR DELIVER THE FORMS AND SAMPLES TO:
UH CDMR
Agricultural Diagnostic Service Center
1970 East-West Rd.
Heweleki, HI 96822

RECOMMENDED TESTS:

- S2 - pH and Extractable Nutrients: Full the soil pH level is a measure of soil acidity. High and low pH levels can affect the availability of nutrients for healthy plant growth.
- S3 - Total Nitrogen: Nitrogen is essential for plant growth. Nitrogen levels in the soil for most crops are low. This is due to the fact that frequently chosen natural or finished compost, green manure and vermicompost, only provide small amounts of nitrogen.
- S7 - Metals: If there is a possible contamination in garden soil, it is important to test for heavy metals (As, cadmium, Cr, and others). \$45 per sample.

CONTACT WITH QUESTIONS:
UH CDMR, Agricultural Diagnostic Service Center
955-6706, adsc@hawaii.edu

IMPORTANT REFERENCES:
To access these documents go to:
- "Testing Your Soil: Why and How" (UH CDMR, 2004)
- "Soil Sample Information Form" (UH CDMR)
- Analytical Services Fees (UH CDMR)

Garden-Based Learning • How to Test Your Garden Soil
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How to... Create a Sheet Mulch Garden

WHY SHEET MULCH?
Sheet mulch gardens make use of free or low-cost, locally available "waste" materials, such as cardboard and yard waste, to create living soil for growing gardens. Through this process takes time, sheet mulch gardens eliminate the need to dig out grass or import soil to your site. Students may explore the decomposition process as the sheet mulch breaks down, gaining increased appreciation for nature's essential process of nutrient cycling and the delicate balance of soil life.

STEPS FOR CREATING A SHEET MULCH GARDEN OF ANY SIZE

1. **Site Prep:** If there is brush or tall grasses present, cut it down and leave it in place.
2. **Manure/Food Waste Layer (Optional):** Wet the area and cover with composted manure and/or food waste (see consumer fruit and vegetable waste) so that the majority of the grass is not visible, about 1 to 2 inches of material. (These materials are high in nitrogen and will help to kill the grass and attract earthworms to the garden.)
3. **Cardboard Newspaper Layer:** Cover thoroughly with wet newspaper (at least 1/2 to 1 inch thick) and/or cardboard. The pieces should overlap, leaving no exposed areas. Water the newspaper and cardboard until they are saturated. This can be assisted by sloping the top of the cardboard, allowing water to infiltrate, or coating the cardboard in water-filled garbage cans or wheelbarrows as you work.
4. **Soil/Compost Layer:** If finished compost and/or soil is available, place it on top of the cardboard/newspaper layer; this will allow for immediate planting. If these are not available, create a compost pile by adding compostable materials (chopped yard waste, greens and browns) over the entire cardboard/newspaper layer. Wet thoroughly to begin the composting process.
5. **Mulch Layer:** Add mulch over the compost layer, from 3 to 6 inches thick. The mulch should be weed-free. Partially-composted mulch is preferable to raw wood chips (these will take longer to decompose).

Water: Thoroughly water all layers until saturated. This is key to rapid decomposition, as the soil microbes need moisture to do their work. Water regularly if weather is dry.

Vermicast/Compost Tea: Add the "tea" to the sheet mulch to inoculate it with living microbes that are an important part of a healthy garden and to help speed the decomposition process toward healthy, living soil.

Cover Crops (Optional): Grow a cover crop from seed (such as sun hemp) to help improve the soil and discourage weed growth. Chop and incorporate the plants into the soil when the mulch before they become woody.

Pathways: Once the sheet mulch has turned into soil, be sure to create defined garden beds and pathways. It is important to avoid soil compaction by only walking in the garden pathways. Optional border materials may include logs, bricks, painted rocks, string, etc.

Planting Guidelines For Sheet Mulch Gardens:

- For vines (sweet potato in particular), slips can be planted into the mulch.
- For seeds and small transplants, pull away the mulch and plant into finished compost or soil (which may be added as a layer or in specific areas for immediate planting).
- For larger transplants pull all the material away, cut a hole in the cardboard and plant into the soil below. Then replace the layered materials around the new planting, being certain to not have the mulch be too thick around the stem as this can cause rot.

Garden Care: Be sure to continually care for your soil by adding good-quality compost and other natural amendments. A monthly application of vermicast (dissolved in water and applied to garden soil) will contribute greatly to the health of your garden.

Garden-Based Learning • How to Create a Sheet Mulch Garden
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Resources

Available to All Schools at www.kokuahawaiifoundation.org

- ▶ Additional Resource Guides:
 - ▶ Farm to School Resources for Hawai'i Educators
 - ▶ Green Fundraising Ideas for Schools
 - ▶ Green Grants for Schools
 - ▶ Healthy & Waste-Free Lunches
 - ▶ Healthy Snacks & Waste-Free Classroom Celebrations
 - ▶ Green Holiday Educator Guide



Kōkua Hawai'i Foundation

Our Programs



'ĀINA In Schools

Kōkua Hawaii Foundation Field Trip Grants
(\$1000/school/year)



Kōkua Hawaii Foundation Mini Grants
(\$200/teacher/year)

3R's School Recycling Program

Plastic Free Hawai'i Schools



kōkua hawaii'ī foundation



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