IPM Education in Schools in Hawaii

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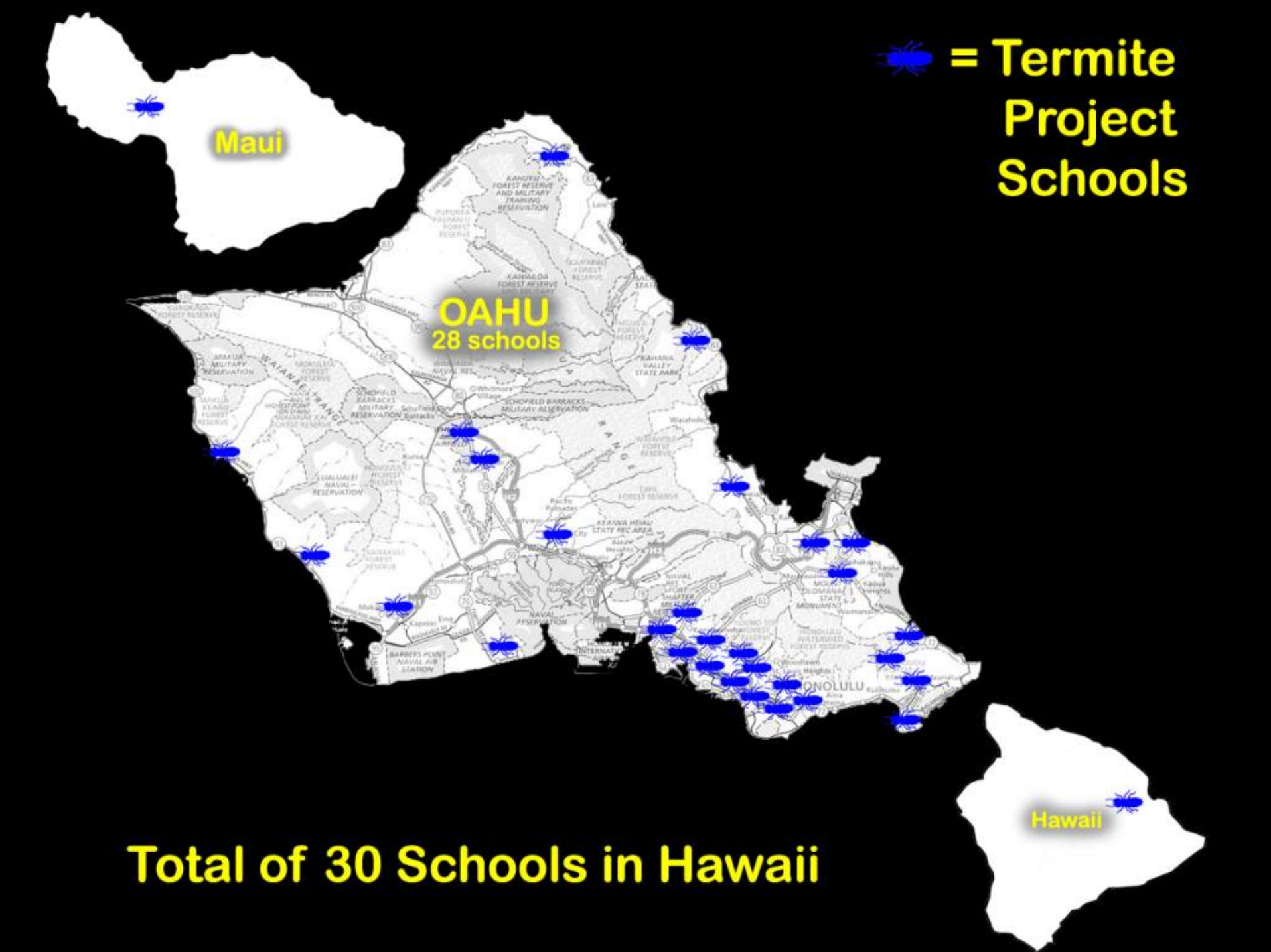
A Cooperative Program with USDA-ARS

UH Termite Project: Educate to Eradicate

- Classroom Education Grades: K-3, 4-6, 7&8
  - Concept Surveys
  - Prevention Worksheet & Home
  - Inspection Form
  - Sharing Knowledge Project
- Teacher Workshops
- Adult Education Seminars

Termite Education + Community Awareness
= Statewide Suppression


= Termite Project Schools
Maui
OAHU
28 schools
Hawaii
Total of 30 Schools in Hawaii

'Termite Project'

Kihei students get bug lesson

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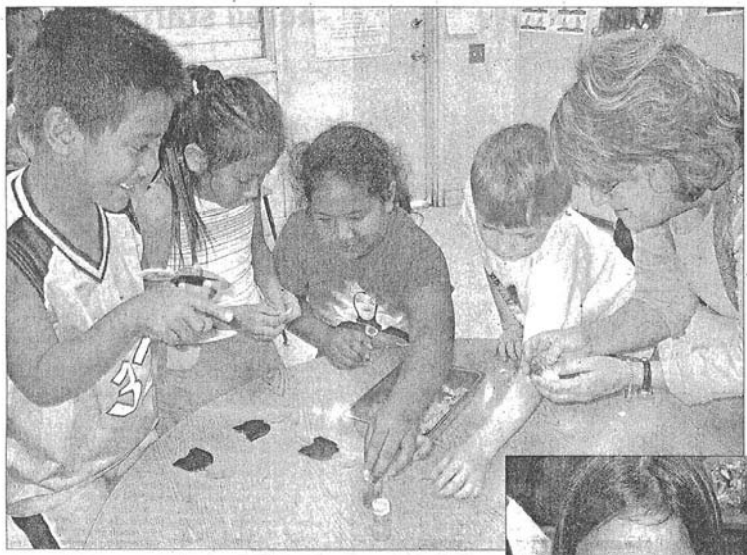
The Maui News
October 31, 2005



Kihei Elementary School 2nd-grade teacher Betty Brask and her students were engrossed Friday in an activity that allowed them to touch and see termites up close. Students are (from left) Joseph Hadley, Monique Matayoshi, Ana Torigi and Colin Asbill.

The Maui News CLAUDINE SAN NICOLAS photos

Students learn about termites

Program sponsored by UH ventures off of Oahu for first time

By **CLAUDINE SAN NICOLAS**
Staff Writer

KIHEI — Second-grader Alohinani Johnson will tell you, if you ask, that her favorite termite is dubbed the "worker."

"Because they like to dig holes. Workers do everything; that's why I like them," Johnson said.

Is she aware of any termites existing at her home?

"I totally have termites," Johnson responded with no hesitation. "They're everywhere."

Johnson and her fellow 2nd-graders were among dozens of students at Kihei Elementary School who have been participating in the "Termite Project," a first-time Neighbor Island venture sponsored by the University of Hawaii Plant and Environmental Protection Science Department.

UH officials have implemented the Termite Project for a couple of years at Oahu schools, but they ventured to a Neighbor Island for the first time only this month.

The purpose of the project is to enhance and supplement standards-based science curriculum in the schools. But it also attempts to raise the level of awareness in children about termites in Hawaii.

At Kihei Elementary School, students in the 2nd-, 3rd- and 4th-grades learned there are eight species of termites in Hawaii. They focused their recent studies on subterranean termites, which go by the scientific name of "Coptotermes formosanus."

In this family of termites, there are "alates," or flying termites, as well as the "soldiers" and "workers," all of which can do extensive damage to a home.

UH research associate Georgina Lillich wrapped up the four-week program Friday by giving students an opportunity to touch and feel termites up close.

She brought 1,000 termites from Oahu, all of which were to be killed via freezing before she headed home.

The students also were provided with a digital microscope as well as miniature magnifying glasses to view termites less than a centimeter in size.

"This is cool," 2nd-grader Joseph Hadley declared. "Wow, this is fun."

"This is pretty darn cool," confirmed Hadley's teacher Betty Brask, a former Maui Teacher of the Year award winner who's been known to seize opportunities to make science an enjoyable subject in her classroom.

The Termite Project is funded by both the federal and state government. It's been offered to both elementary and intermediate school students.

The children learn different aspects of termites including identification of the different types (subterranean and dry wood), termite biology, termite genetics and termite research and management.

In some cases, older students have worked as scientists and active partners looking for termites in their homes and on their school campuses to use for research projects.

UH researchers have found that termite damage caused $637,000 in damage to 144 schools in 2002.

A single colony can have 3 million to 5 million termites, and a queen termite can lay 2,000 eggs per day.

"They can eat your home," 2nd-grader Mele Ngalu said when asked about termite capability. "They go into cracks in your house and they leave mud tunnels."

Brask said she found out about the Termite Project through a friend on Oahu. She said she was grateful for the program that provided free educational materials for her class and an entomologist who flew from Oahu for six hours of hands-on instruction for her students.

"I don't have these resources. I can't do this on my own," Brask said.

Lillich provided written materials for the students including tips on how to prevent termites breeding around their homes. The same information is available online at http://www2.hawaii.edu/~entomol/.

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Kihei Elementary School 2nd-grader Mele Ngalu holds up a container of "alates," or flying termites, and a piece of wood that shows damage such as termites might make. "They can eat up your home," Ngalu said. She and her classmates wrapped up Friday a monthlong "Termite Project" sponsored by the University of Hawaii Plant and Environmental Protection Science Department.

Termite Project Schools 2003-2006

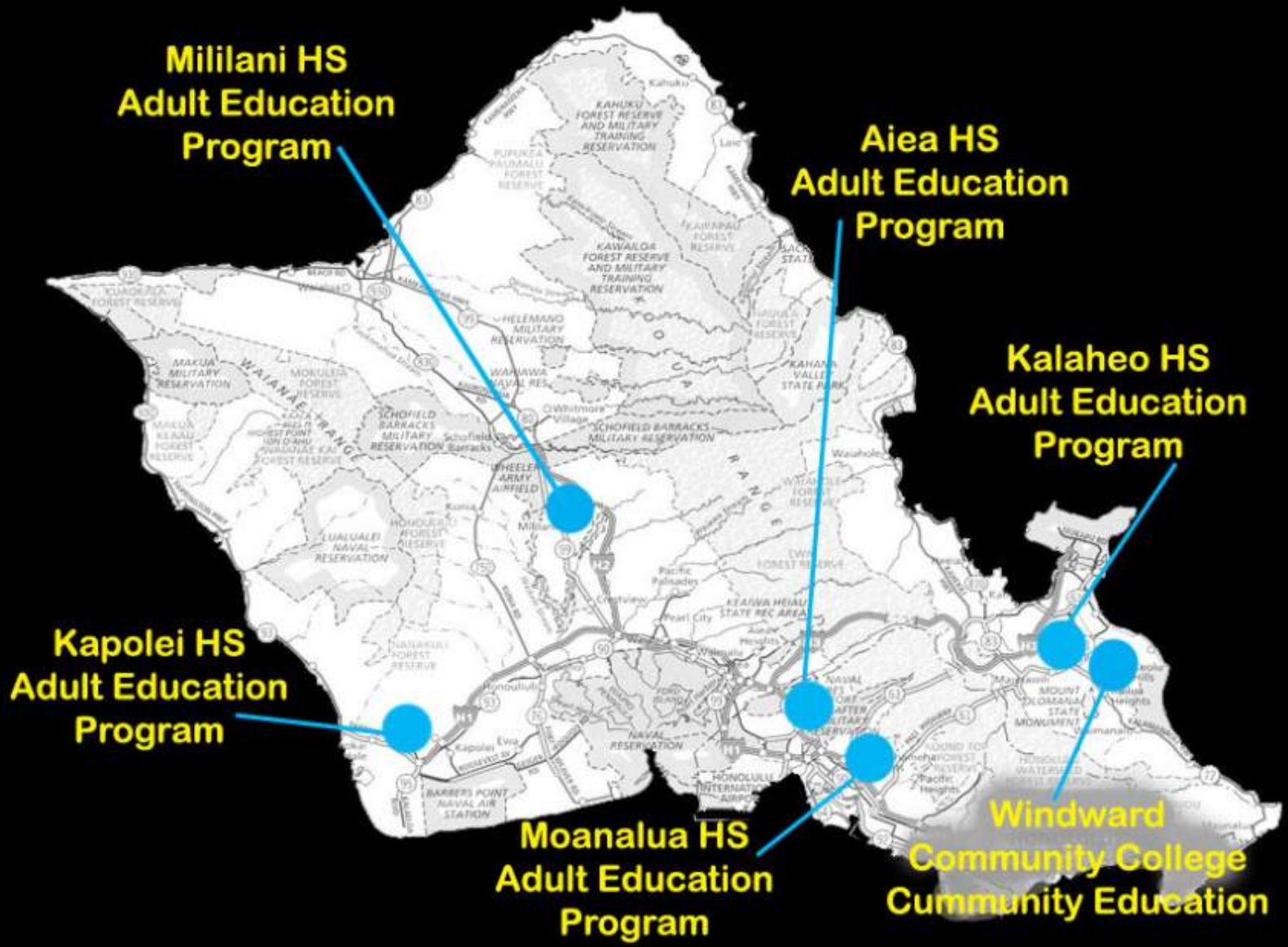
Semester	Number of Schools	Number of students	Number of Teachers	2nd Time Teachers	3rd Time Teachers
Fall 2003	2	210	6	0	0
Spring 2004	9	655	27	0	0
Fall 2004	11	551	19	0	0
Spring 2005	9	672	11	9	0
Fall 2005	8	486	8	8	3
Spring 2006*	11	605	14	5	5
Total	50	3179	85	22	8

** Schools scheduled for 2006*

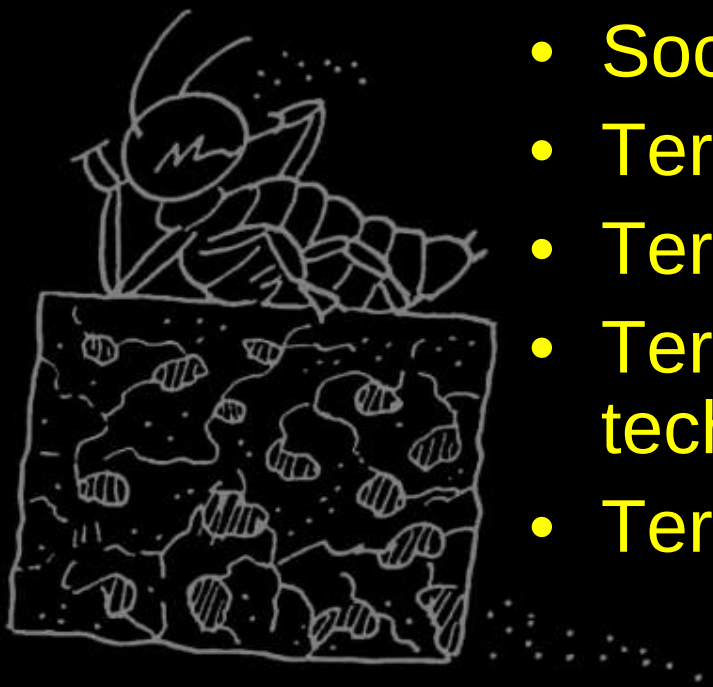
Professional Development Workshop for Teachers

- Termite 101 Lecture (4 hrs)
- A Day of a Termite Researcher (6 hrs)
- Teaching Science/Science as Inquiry (6 hrs)
- Classroom Implementation (45hrs)
- Consultation/Wrap Up Meeting (4 hrs)
- Teacher Portfolios for PDERI Credit Review
  - Professional Development & Educational Research Institute

Adult Education Seminar



Termite Topics



- Insect Diversity & Classification
- Scientific Observations
- Termite Biology & Life cycle
- Social vs. Non-social Insects
- Termite Castes
- Termite Identification
- Termite Dissection & Microscope techniques
- Termite Prevention & Control

Teaching material developed to meet Hawaii State science education standards

Termite Lessons Grades K-3

- Insect Jar Observation
  - Scientific observation of mystery insect
- Insect Body Parts (sing along)
  - Head, thorax, abdomen… & legs & eyes & antenna
- Termite Crafts
  - Termite sand art, build a sponge insect, termite ohana mobile
- Tammy's Termite Tale
  - Tammy tells the termite family's story
- Termite Exploration
  - Insect jar breakdown & exploration

Termite Lessons Grades 4-6

- Insect Jar Observation
  - Scientific observation of mystery insect
- Insect Imposters
  - Insects are arthropods, are all arthropods insects?
- Termite Crafts
  - Termite sand art, build an insect, termite ohana mobile
- Termite Communication
  - Nest odor & secret chemical message
- Termite Exploration
  - Insect jar breakdown & exploration
- Termite Prevention & Control
  - Prevention Worksheet

Termite Lessons Grades 7 & 8

- Insect Jar Scientific Observations
  - Observe mystery insect, ask questions, conduct internet searches & develop hypothesis.
- Termite Biology
  - PowerPoint presentation on termite biology & identification.
- Gut Protozoa Extraction
  - Dissect termites and develop microscope skills.
- Population Estimate
  - White & red beans simulate MRR, calculate population.
- Trail Following & Scent Communication
  - Watch trail following DVD, form hypothesis & discuss chemical communication
- Termite Prevention & Control
  - Discussion of prevention & control methods. Prevention worksheet.

Home Inspection Worksheet

- Students take home and complete the Home Inspection Worksheet with parents

How Termite Friendly Is My House?

There are lots of simple steps homeowners can take to help prevent ground termite entry into their home. Below is a checklist that homeowners can take in order to make a visual inspection easier and to eliminate conditions favorable to termite survival. Ask a parent to help you do a visual inspection of your home. Check off those measures that apply to your home (if you live in an apartment building do the whole building). The higher number of check marks the more prepared your family is for termite prevention. After you have finished the inspection, ask your parents to fill out the questionnaire.

____ There is no wood directly touching the soil.

____ There is no water being collecting within a few feet of the house (i.e. a puddle).

____ Vegetation (plants) stands a few feet from the house walls (this allows soil to dry out and observe construction of termite mud tunnels).

____ There are no leaky roof areas or other consistently moist areas on the outside or inside of your home (the kitchen and bathroom are prime areas for water leaks).

____ There are no cracks in cement walkways or driveways (repaired cracks count as no cracks).

____ There are no sprinklers or consistently running water within a few feet of the house.

____ We conduct periodic visual inspection of house exterior and underneath house (if accessible) looking for mud tunnels (a sure sign of an active ground termite colony).

How does you house rate for termite prevention (circle your answer)?

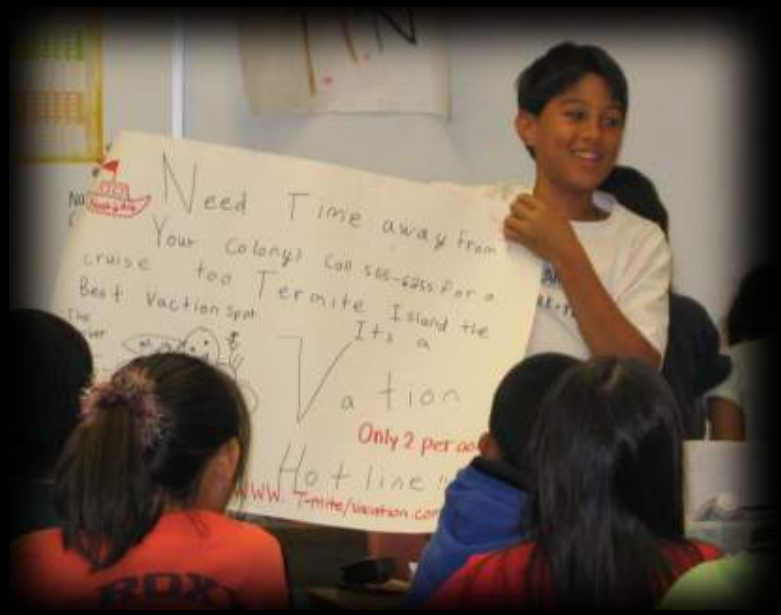
Really prepared
6-7 checkmarks

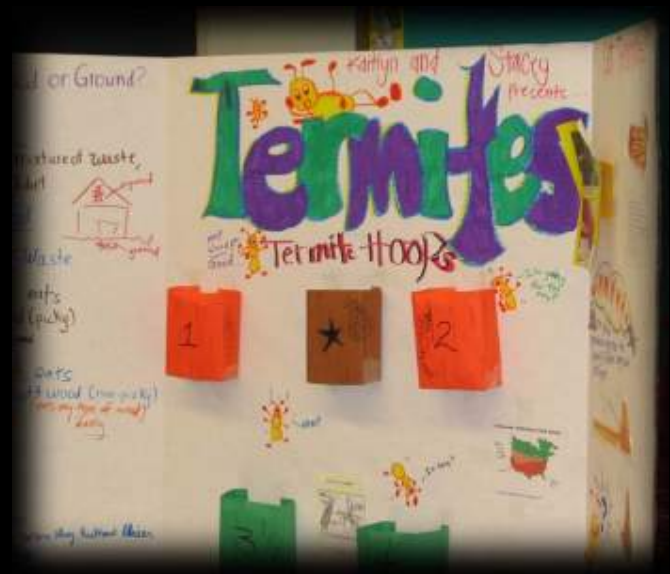
A little prepared
2-5 checkmarks

Not prepared at all
0-1 checkmarks

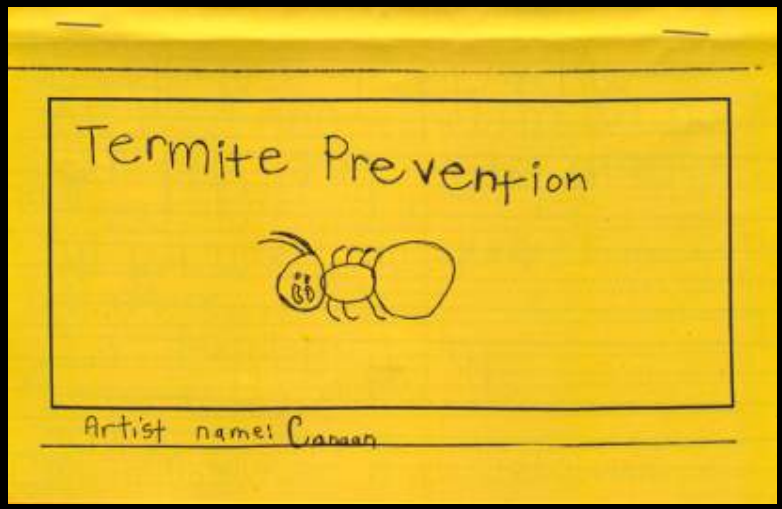
Sharing the Knowledge

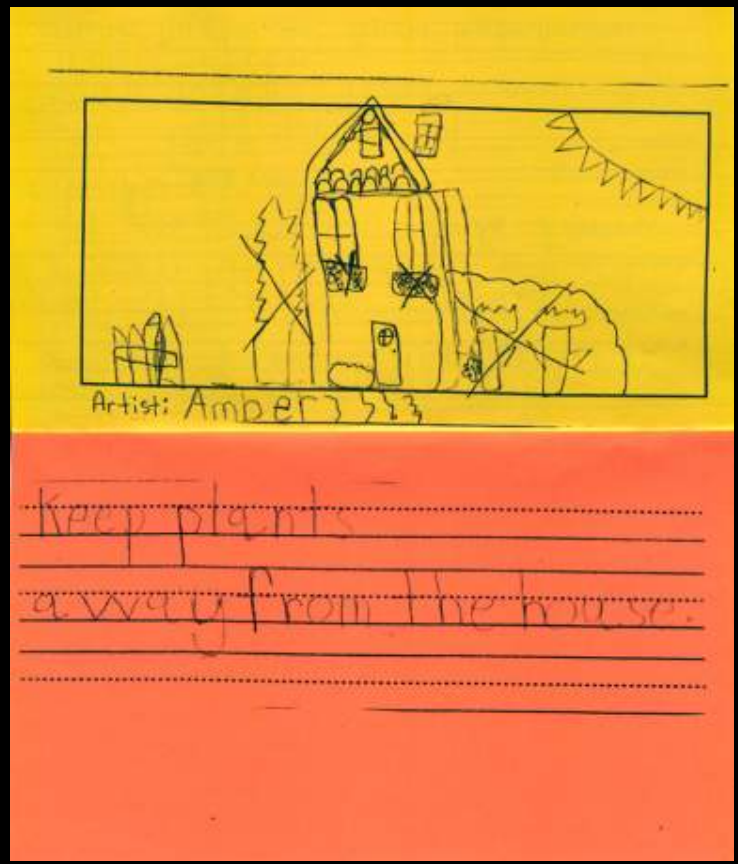
Termite Presentations/Skits





Sharing Knowledge:
Palama Settlement Termite Prevention Flyer





High risk students share their knowledge with elders.

“After having completed several partnerships with various organizations on Oahu, the Termite Project was the best partnership I have participated in. I would recommend this program to any teacher.”

Brett Kewish

Kahuku High School, Oahu

“The children all commented about how much fun it was to work with their parents on the project and actually spend one on one time with them. That was very special for them. They also felt very grown up being able to teach their parents about termites. This is such a worthy project!!”

Betty Brask

Kihei, Maui

2nd Grade Teacher