

## It Began with a Garden . . .

By CYNTHIA WINANS-BURNS,  
HEAD OF SCHOOL

As I write this, Montessori School of Maui, Inc. (MOMI), is engaged in a revolutionary undertaking—one that could have profound effects on the way all of us view school. That thought would surely bring a smile to our pedagogical founder. More than a century ago, Dr. Maria Montessori stunned the scientific community with her groundbreaking observations on childhood development, and the role the environment plays in a youngster's ability to learn.

Perched on a mountainside in rural Maui, with its classrooms clustered amid great old banyans and monkeypod trees, our own little school seems a remote and unlikely catalyst for change. Yet in the last few years, our plans for sustainable campus and curriculum expansion



A STUDENT-MADE BIRD FEEDER, CREATED FROM RECYCLED MATERIALS

sion have attracted attention throughout the Hawaiian Islands and beyond.

Like a number of creation stories, ours begins with a garden.

In 1996, MOMI received a \$25,000 grant from a local foundation, the Oasis Group, to build

**OUR PLANS FOR SUSTAINABLE CAMPUS AND CURRICULUM EXPANSION HAVE ATTRACTED ATTENTION THROUGHOUT THE HAWAIIAN ISLANDS AND BEYOND.**

an organic garden for our campus. The gift paid for materials and construction of a rock-walled water system similar to the *lo'i* in which Hawaiians have tended taro for centuries. It also funded a master gardener to work with the children, creating not merely a garden, but a living classroom.

The alacrity with which our students embraced the garden, the curiosity it raised and the opportunities it provided for exploration and discovery soon had us asking, "Why stop at a garden?" Our faculty and staff, board members and parents began to discuss ways to transform our nine-acre site into a "green" campus: designed and constructed with minimal dam-

age to existing ecosystems; its buildings oriented to maximize natural light and ventilation and reduce energy consumption; its outdoor learning environment supporting MOMI's Earth Education Program and a community garden.

In 2003, MOMI invited members of the Maui community—from county government and regulatory agencies, Maui Community College, businesses and professions—to brainstorm a sustainable campus expansion. While we took copious notes, they helped us imagine what could be possible.

University of Hawai'i Professor Stephen Meder facilitated the session, and coauthored the 96-page *Montessori School of Maui Guidelines of Sustainability and Curriculum*. Heather Hardcastle, MOMI's on-staff naturalist, and Tom Talbot, our former master gardener, contributed to the



MONTESSORI MIDDLE-SCHOOL STUDENTS TEND THE GARDEN



A YOUNG MONTESSORI STUDENT ENJOYS THE GARDEN'S BOUNTY.

*Guidelines*, as did our faculty.

While based on the Montessori philosophical approach to education, the *Guidelines* is designed to be a transferable template, with room for different applications for different places, different needs.

Ours is not the first "creation story" to begin in a garden, but it may be the first to encourage all who come here to explore the tree of knowledge—enthusiastically, rigorously, and with optimism for what we can do today, and what our children will do tomorrow. 🌱

## An Interview with Professor Stephen Meder



In June of 2003, Montessori School of Maui invited members of the community to help brainstorm ways to ensure that its campus expansion would be environmentally responsible.

Their expertise and enthusiasm formed the basis for the Montessori School of Maui Guidelines of Sustainability and Curriculum.

Dr. Stephen Meder led the session, and coauthored the *Guidelines with Montessori Head of School Cynthia Burns*. Dr. Meder holds a joint position at the University of Hawai'i as a professor in the school of architecture, and as director of the Center for Smart Building and Community Design. We asked him about his involvement with MOMI, and why he thinks this small, nonprofit school on a rural Hawaiian Island will change the way we think about education and the environment.

**MOMI: HOW DID YOU GET INVOLVED WITH MONTESSORI SCHOOL OF MAUI?**

**MEDER:** I met Cynthia at a conference for the Rebuild America Program in Santa Monica, [and] recommended the community brainstorming. She asked me to facilitate it. Thirty-five people participated, from utilities, county regulatory

agencies, different companies, and Maui Community College. I don't think anyone knew what they were getting into that day.

**MOMI: How so?**

**MEDER:** We wanted to look at every part of the process—from visioning to the choice of faucets and the use of buildings and outside spaces—in terms of their impact on the macro, meso and micro levels, and on curriculum. The macro level includes the island, the state, and even global effects. Meso is the *ahupua'a*.

**MOMI: THE ANCIENT HAWAIIAN LAND DIVISION MOMI'S PROPERTY IS LOCATED IN.**

**MEDER:** Yes. Micro is the specific site, the individual child. We wanted decisions to have benefits not just for the campus and the kids, but beyond. The decisions and principles [this school is] committed to are elevating the practice of engineering and architecture in the state.



KEITH CHRISTIE, PAST PRESIDENT OF MOMI'S BOARD, STANDS READY AT THE EASEL FOR IDEAS FROM THE COMMUNITY BRAINSTORMING SESSION.

**WE DO A LOT OF TRYING TO MAKE THIS HAPPEN AT UH, AND THERE'S ALWAYS THE SAME RESISTANCE: "IT TAKES TOO LONG; IT COSTS TOO MUCH." NOW WE CAN POINT TO A LITTLE SCHOOL THAT DOESN'T GET MILLIONS IN FEDERAL GRANTS OR STATE FUNDING, AND YET THEY DID IT. IF MONTESSORI SCHOOL OF MAUI CAN DO IT, WHY CAN'T WE?**

**MOMI: YOU SAY THAT, EVEN THOUGH THE EXPANSION HASN'T BEGUN?**

**MEDER:** This project is a model. Already, other schools on O'ahu have asked how Montessori School of Maui arrived at the decision for "green" design, and how it was able to engage the school community to support it.

This is an enlightened client that set goals early in the project. Those who wanted the job had to adhere to those goals.

**MOMI: WHAT WERE SOME OF THE GOALS?**

**MEDER:** One was to take care of storm water. Standard practice Upcountry has been to dump it on the next lot down. Montessori School of Maui said, "No, we'll show a best-practice way to handle storm water on our site." It's solving problems beyond its own footprint.

Having made this commitment, and reaching out to the community, there will be other connections made—for example, with Maui Community College and maybe business and public partners—to lift the quality of life sustainably for everyone.

We do a lot of trying to make this happen at UH, and there's always the same resistance: "It takes too long; it costs too much." Now we can point to a little school that doesn't get millions in federal grants or state funding, and yet they did it. If Montessori School of Maui can do it, why can't we?

This is not pie in the sky. This is about helping children develop a way of thinking about themselves and the world, the quality of mind to allow them to address the conditions they'll have to look at as citizens. This school is teaching all of us that the solutions are possible. 🌱

We welcome news, questions and comments from our readers!

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## The Latest Scoop . . .

NEWS FROM AND ABOUT MONTESSORI SCHOOL OF MAUI

**Recognize us?** Friends of Montessori of Maui may know that Cynthia Winans-Burns, our head of school, received a 2005 "Castle Honors Leadership Development" Award from the Hawai'i-based Samuel N. & Mary Castle Foundation and the Henry & Dorothy Castle Memorial Fund. (Folks who know Cynthia won't be surprised that she used the \$1,000 award to help fund Heather Hardcastle's position as MOMI's sustainability coordinator.) To those kudos, we now add national recognition: The National Association of Independent Schools (NAIS) has named MOMI one of 12 "Leading Edge" schools in the country, an award Cynthia and Heather will accept at the March 3, 2006, NAIS Annual Conference in Boston. The 12 schools are being honored for outstanding programs in one of four categories: curriculum innovation, environmental sustainability, equity and justice, and global understanding. MOMI's **Leading Edge Award** is for a small school in the environmental sustainability category.

. . . **Flower Powered:** Exciting student projects are under way on the MOMI campus! As part of a study of biofuel, our middle-school students potted more than 300 sunflower seeds, and will soon transplant the sprouts on the upper campus. Once the sunflowers are grown, the students plan to harvest the seeds and press them into oil, with the help of Bob and Kelly King of Pacific Biodiesel. The challenge then is to manufacture a biofuel that will power a small vehicle the students are designing and building with help of Maui Media Lab's Sam Epstein and Upcountry Mobile Mechanic Rich Doster. . . . **Dishing the dirt:** MOMI's upper elementary students really dig the science projects they're working on for their upcoming fair—especially the one to design a model 'auwai (Hawaiian canal) complete with a solar-powered water pump. Among the other projects: using wind power to charge a battery that can run a small vehicle, and creating a topographic map of the entire MOMI campus, using handheld GPS units. Stay tuned!



TEDDY HOLDS A SUNFLOWER.

. . . **Use it again, Sam:** Our student-led recycling committee has completed a brand-new recycling center, with help from Bugs Barton and Tony Akina of MOMI's maintenance department. . . . **Juicy news:** Pomelos, oranges and starfruit are ripening all over campus, and being enjoyed by anyone with a little pluck. 🌱

## From the Guidelines . . .

Our first step in planning a campus expansion was to study the existing site to discover what else makes its home here, and to determine how our actions will affect that life. *Montessori School of Maui's Guidelines of Sustainability and Curriculum* begins with this consideration for the diverse ecosystems on our site, and our commitment to making our built environment respectful and responsible toward the many species with whom we share these nine Upcountry acres.

For the architects, engineers, contractors and others who will make our campus expansion a reality, the *Guidelines* establishes practices to protect the site's ecosystems, such as the following:

- Conserve/restore natural areas to preserve open space and biodiversity
- Reduce potential for overbuilding:
  - Utilize existing buildings where possible
  - Minimize size and footprints of new buildings
  - Maximize use of outdoor and semi-enclosed spaces
  - Construct primarily on areas of existing development
- Reduce negative impacts during and after construction:
  - Align buildings, parking and other developed areas with existing terrain contours
  - Limit earthwork and vegetation clearing to 30 feet beyond building perimeter
  - Plant native and/or site-appropriate, low-maintenance species to restore open areas disturbed by construction



*Text on these pages was excerpted in part from the 96-page Montessori School of Maui Guidelines of Sustainability and Curriculum.*

*To receive a print or CD copy of the Guidelines, write us at Montessori School of Maui, 2933 Baldwin Avenue, Makawao, HI 96768. Please indicate which format you prefer, and enclose a check or money order for \$8.00, made payable to "MOMI," for shipping and handling.*

## MICRO LEVEL: EMPATHY (AGES 3–6)

### QUESTION

If you were a spider/bird/toad/lizard/earthworm that lived at school, where would you like to build your home? Why? What things would you use to build your home?



1

"Our garden is our heart."  
—Kirstin, age 5

"Ohmygosh, that butterfly really does have a straw in its mouth!?"  
—Sean, age 4

2



3



1 Dylan, Conor and Taylor look for signs of animals and animal homes in MOMI's garden. Turning over a stone, they discover a long, ribbony *platyhelmenthes* worm. Cool!

2 A tiny monarch butterfly caterpillar undergoes close scrutiny before its release back to nature.

3 Kirstin draws a page for the *Animals of MOMI ABC Book*. Through hours of research and exploring, students found more than 95 animals living on our campus, and for each, listed the animal's favorite habitat, favorite food, and an interesting observed fact.

4 Conner and Emerald investigate a giant gourd to see whether any insects have taken up residence. Yes! A tiny green inchworm.

4



"I found a roly-polly (potato bug) at home and made a new habitat for it. I gave it lovely flowers."  
—Taylor, age 4



### LESSONS

Make a special nature book.

Visit a place on campus that is not mowed, mulched, or developed in any way and record how it changes over the school year.

## Lessons from the Earth



MOMI's *Guidelines of Sustainability and Curriculum* is designed to provide pertinent information for any school community interested in creating a sustainable campus. Because we are a Montessori school, our *Guidelines* also incorporates curriculum

concepts based on the principles of Maria Montessori—among them, that the goal of education is "the development of a complete human being who is oriented to the environment, and adapted to his or her time,

place and culture."

Here are examples of opportunities for academic discovery, appropriate for each stage of a child's development, that a study of a site's ecosystem can generate.

## MESO LEVEL: EXPLORATION (AGES 7–11)

### QUESTION ages 7–9

I'm curious to know how many animals we can think of that live on our campus. Where do all of these animals like to spend their time and build their homes?



1

### LESSONS ages 7-9

Take a scientific expedition around campus to identify the plants and animals here.

Build a bird nest/bird feeder/birdbath. See if birds visit.

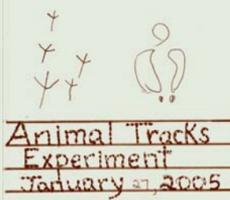


"Did the tree trimmers watch out for the toad [that we know lives in the mango tree] when they cut it down?"  
—Adam, age 9

2



### Habitat: 3



"If plants use solar energy to make food why don't we use solar energy more?"  
—Hana, age 7

### QUESTION ages 9–11

I wonder why the color of the ocean next to the beach is brown after it's been raining for several hours?



1



2

"I now look at mud puddles and grassy slopes in a whole new way."  
—Kylie, age 11

1 Upper-elementary students Austin and Jin begin a study of watersheds by visiting several waterfalls on Maui's north coast. The goal: to learn about soil erosion, sedimentation, the parts of a river, and how the early Hawaiians maintained the watershed's health.

2 The students fill a stream table with different soils, at different slopes, to see their effects on erosion and sedimentation. Above, Miles, Austin, Alex, Eli, Kody, Jin, Marissa and Samantha observe "rain" falling on sod.

### LESSONS ages 9–11

Explore our campus and look for signs of erosion and sedimentation; determine why soil loss is worse in certain areas.

Discuss ancient Hawaiian watershed management—the *ahupua'a*.



3



4

3 Makena, Maya, Daniel and Sydney get dramatically different results with cleared soil.

4 The students record their observations, having measured how long it takes the water to run off different types of soil at varying slopes, and the amount of soil eroded from each.



## MACRO LEVEL: SOCIAL ACTION (AGES 12–15)

### QUESTIONS

I wonder if the plants and trees we already have on campus could be used for landscaping the new campus. Do we have to bring in plants and trees from elsewhere? Why?

I wonder if we can find an example of a culture that places an emphasis on living with, rather than apart from, animals and plants.



1

"I'd like to show my parents that we can make a vehicle run on sunflower oil."  
—Jessica, age 13



2



4



3

"I told my parents we need to recycle. How could I be the chair of our Recycling Committee at school and not recycle at home? It's just the right thing to do."  
—Sydney, age 12



Attend a county planning meeting to learn about the public approval process for a school or school-like commercial building. Would you approve the project?

Find out which plants live best in your microclimate without needing to be irrigated.

1 Charlotte and Jason take measurements of a mango tree as part of their campus-wide plant identification study.

2 Time to relax after a busy day at a lush Huelo property on Maui's north coast. With the owner's permission, the students selected a number of small trees, both native and introduced, to dig up, pot and transport to campus.

3 With the help of field guides, Chris identifies the trees the students potted in Huelo, and puts them in their proper taxonomic place in a "tree of life" chart.

4 Sydney and Chloe sell their plants to the MOMI community. The Koa Class students send all the proceeds to Oprah's Angel Network, earmarked for families and literacy projects in Africa.