I was fortunate to grow up with an abundance of diverse nature experiences: helping my grandfather in his garden, shelling butter beans on the porch with my great-grandmother, snacking on my grandmother’s homemade pickles, spending hours of time at the beach, jumping into rivers, hiking, and skiing in the mountains. When I became a Montessori teacher at age 24, I saw the growing disconnect between children, their food, and their natural world. Helping children sustain the strength and influence of an unshakeable sense of wonder throughout life became my goal. In this era, despite academic pressures, I believe a teacher must also assume the role of an influential naturalist by creating relevant nature experiences that inspire and delight children. Fortunately, the Montessori philosophy and prepared environment encourages and supports this. Current research suggests that nature experience and the cultivation of environmental literacy among students contributes to creative thinking, improved academic performance, and positive relationships with the natural world (Children and Nature Network, retrieved June 2013). I have already begun to see these results in my own students and anticipate the growing enthusiasm for school gardening and outdoor learning that advances ecological literacy on a broader scale.
Disconnection Realization

One of the most important roles of a Montessori teacher (and, coincidentally, of a gardener) is that of observer. Twelve years of classroom observation in the Florida beachside community where I teach brought to my attention a pattern in my students, their families, and my colleagues regarding their detached relationships with nature. My students had no idea what a tomato plant looked like, and most of their lunches consisted of prepackaged foods. To remedy this, the students and I created a classroom garden with the help of a small Farm Bureau grant. I immediately incorporated the garden into my school’s lower elementary curricula, along with the Montessori economic geography curriculum and a holistic nutrition program that I created. I wanted children to get excited about not only healthy eating but also about connecting to their food on deeper botanical and environmental levels. I decided to use our garden as the hook for getting the children interested in what was going on outside our door. I facilitated this based on my own childhood experiences gardening with my grandparents and was motivated by the fact that none of my students that year had any relatives who gardened. It made me sad to think that these children had never eaten a tomato right off the vine or harvested homegrown vegetables to prepare a delicious meal to share.

While the little garden was wildly popular with my students, the rest of the school did not pay much attention until a group of parents took note and had the idea to expand it into a larger “Edible Schoolyard”–inspired garden that would include a bed for each class to tend (see edibleschoolyard.org for more on this concept). During the first year of this Edible Schoolyard garden, teachers and parents would repeatedly come to me, sometimes panicky, with garden questions ranging from, “What’s eating my tomatoes?” to “What am I supposed to do with this new garden bed the school wants me to incorporate into my packed schedule?” to “My daughter wants a vegetable garden for her birthday, and I have no
idea where to start—can you help?” I observed that the root of the adults’ worry seemed to stem from the thought that their perceived “brown thumbs” were going to dampen the children’s experience in the garden. I took this worry as a sign that these adults valued the importance of their children’s connections with nature, so I offered some tips on how to proceed with confidence. This is when the idea of creating a guide that would give these adults confidence to garden with children began to sprout in the back of my mind.

Even with daily garden experiences, I still had concerns about my students’ connections to their natural world. At school, the students were enamored with our garden, loved seeking out lizards and roly-polies on the playground, and were delighted with our nature walks to the marsh to sketch wildlife in their journals. But when I asked about their weekend and after-school activities, the children repeatedly described heavily scheduled, organized, and/or indoor events. When prompted about whether they spent time free-playing outdoors, I heard, “There wasn’t time,” “It was too hot,” “There are too many bugs,” or “My parents don’t like sand.” The children expressed disappointment at their lack of outside play, and I was perplexed by these answers because these families lived in Florida, at the beach—the land of sand and sunshine!

Facilitating a Natural Reconnection

Gardening and other outdoor learning activities have engendered great camaraderie and enthusiasm among my students, while also kindling a connection to the wild world of nature, right outside our classroom door. Exploring the natural world with children, even in more controlled natural areas such as gardens and school yards, equalizes the established roles of teacher and learner. We all become learners in the garden. No matter how controlled an environment is, the wilds of nature abound. A garden can change drastically in a short period of time; I have had entire plants decimated in a matter of hours by hornworms. These types of occurrences provide an abundance of opportunities for observation and later research.

Repeated evidence of the students’ lack of “green time” at home and the barrage of gardening questions I received each day emboldened me to go beyond my classroom garden and reach out to others who wanted to garden with children but weren’t sure how to start. I decided to create a fully illustrated guide that would help teachers and parents create experiences for children that integrated nature across both Montessori curricula and daily life in an artistic way. I had always incorporated art in my classes and had the children sketch in the garden as we planted. At the time, I knew nothing of the popularity and historical significance of nature journaling. I just knew the children found it fun and interesting to draw in the garden. Through experience, I discovered the added bonus that nature drawing focused the students’ attention, increased observation, and contributed to relaxation in our garden and on nature outings. And this peace seemed to accompany us back indoors.

To increase daily “green time,” my students and I cooked and ate more from our small garden and focused more of our activities outdoors by planning extra nature-based field trips and nature walks to nearby parks, the beach, and the intracoastal waterway marsh. I also scheduled more nature journaling opportunities in our garden and was thankful for the Montessori curriculum’s emphasis on discovery and research in the areas of natural history, economic geography, botany, and zoology for connecting the outdoor environment with the indoor. If you can’t imagine 7-year-olds being excited to eat raw kale, grow some at school and just watch what happens! The wonder involved in children’s connection to their food has proven wrong many a parent adamant that his/her child won’t eat vegetables. When children grow it, they eat it. Additionally, preparing vegetables to eat and creating delicious homemade dressings and sauces easily ties the garden to the Practical Life curriculum.

Fortunately, at all levels, the Montessori prepared environment encompasses indoor and outdoor areas in which children have the freedom to choose their work. Connection to nature and inspiring wonder are an integral part of the Montessori philosophy and method. Maria Montessori stressed that immersion in nature is imperative for proper physical and psychological development and stated, “How often is the soul of man—especially in childhood—deprived because he is not allowed to come in contact with nature?” (Irinyi, 2008, retrieved September 6, 2011).

Montessori took the importance of nature’s role in human life even further at the adolescent level by emphasizing not only connection and experience with nature, but complete immersion:

*Life in the open air, in the sunshine, and a diet high in nutritional content coming from the produce of neighboring fields improve the physical health, while the calm surroundings, the silence, the wonders of nature satisfy the need of the adolescent mind for reflection and meditation.* (Montessori, 1973, p. 112)

Though they may not realize it, modern children are hungry for this connection to the land and real food. I have heard many students speak excitedly about visiting local farmers’ mar-
kets and seeing the same vegetables we were growing in our school garden. After economic geography and Practical Life lessons on whole foods, sustainability, and food marketing, my students expressed feelings of empowerment by not being “tricked” by advertising at the grocery store. These indoor classroom lessons are given real-world context through outdoor classroom garden experiences and enable the child to make connections between her choices and the impact of these choices on her health and that of her community.

Preserving Wonder
Fortunately, school gardens are becoming ever more common; unfortunately, they also can be viewed as a burden and may be underutilized due to lack of teacher confidence, experience, and knowledge of how to integrate the garden into the classroom. The children, however, are not the only ones detached from nature; teachers may also be detached from the natural world. In her landmark work The Sense of Wonder, Rachel Carson wrote:

*If a child is to keep alive his inborn sense of wonder... he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in... For the child, and for the parent [teacher] seeking to guide him, it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow.*

(Carson, 1956, p. 45)

We can be those adults by creating regular experiences for our students that connect them holistically to the “nearby nature” (Nabhan & Trimble, 1994, p. 25) of school gardens and outdoor classrooms.

Carson and Montessori had similar viewpoints. A century ago, Montessori said, “The secret of good teaching is to regard the child’s intelligence as a fertile field in which seeds may be sown, to grow under the heat of flaming imagination” (Montessori, 1991, p. 16). Through her philosophy and method, she advocated that “establishing lasting peace is the work of education” (Montessori, 1972, p. viii) and emphasized the importance of the child’s evolving connections to the physical and social worlds to achieve this. She believed that, “The observation of nature has not only a side that is philosophical and scientific, it also has a side of social experience that leads on to the observations of civilization and the life of men” (Montessori, 1973, p. 112). Maria Montessori achieved great success through her method’s ability to blend science and spirit seamlessly, while helping the child understand his place in the world. She strongly believed that a peaceful world will come through a new style of education that teaches compassion for and connection to all living things; she observed that “when individuals develop normally, they plainly feel a love for all living creatures” (Montessori, 1972, p. 76). A school garden offers opportunities for the absorption of these ideas easily and experientially.

The Nature Study Movement: Science and Spirit
Montessori’s concept of blending and balancing science and spirit perfectly parallels the philosophy that American Nature Study advocates. Nature Study educators assert that contact with nature serves the pedagogical purpose of introducing children to science by grounding them in the concrete aspects of the surrounding natural world, thereby creating a connection that would help integrate sentiment (which they defined as an emotional connection with the natural world) into science study (Armitage,
This progressive education movement gained mainstream popularity at the turn of the 20th century—parallel in time to the beginning of the Montessori movement. I believe that Nature Study pedagogy is an invaluable and philosophically aligned resource for Montessori teachers today. It encompassed the following themes:

• The sentiment of nature versus the science of nature
• The popularizing of the belief that children, specifically, and humans, in general, have an inherent connection with nature
• The promotion of conservation awareness
• The rise of school gardening programs in rural and urban public schools
• The concept of nature’s intertwined relationship with aesthetics and art
• Elementary education reform as the primary outlet for changing society’s viewpoint on conservation
• Technology and industry in contrast with sympathy for nature
• The necessity of primary experience as the key to nature connection

Montessori teachers today will find that the Nature Study movement resolves many pertinent curricula integration challenges, making incorporating a garden into their daily lessons and integrating technology initiatives with nature easy. Like Montessori, Nature Study advocates believe that primary nature experience is critical and that it provides children with the resources to help them critically assess popular culture and materialism (Armitage, 2009, p. 21)—thereby supporting and facilitating the Montessorian’s job of preparing the child for her world.

Nature Study and the Cosmic Curriculum

Being both scientific and holistic, the Nature Study movement combined well with progressive education reform in turn-of-the-century America, and it was integral in securing a place for science in school curricula (Kohlstedt, 2010). The difference between modern science education and Nature Study philosophy (substitute Montessori philosophy) is that the latter employs a creative, child-centered approach and focuses on incorporating nature across the entire curricula, through the use of observation and the arts, rather than as a separate discipline. Similar to Montessori’s Cosmic Curriculum, the desired outcome of Nature Study is “to teach it for loving,” rather than controlling, nature (Comstock, 1986, p. x).

The foremost advocates and educators of Nature Study promoted the movement as the ultimate qualitative, cross-curricular method for inspiring youth’s connection to the natural world, resulting in adults who would then care for their natural world. This motivation is incredibly similar to Montessori’s ideas on educating for peace. While her experience with the World Wars may have been Montessori’s motivator, man’s war on nature was the motivator of the Nature Study educators. This raises a question in my own mind—can we effectively educate for
peace among humans without educating for peace in our natural world?

The Nature Study movement provided the natural historic perspective, educational research, and both quantitative and qualitative evidence I needed to support my classroom observations and my gut instinct that we must do everything in our power as teachers to keep our students connected to the natural world while preserving their sense of wonder. Along with modern research, such as that conducted by Kahn and Kellert (2002), Nature Study validated the amount of time my students were spending outdoors in the garden. While Montessori provided me the method for the lessons, Nature Study provided the roots in which to ground it.

From Teacher to Student
After 10 years in the classroom, I went to graduate school to create Wings, Worms, and Wonder: A Guide For Creatively Integrating Gardening and Outdoor Learning into Children’s Lives. My goal was to encourage adults to become aware of children’s diminishing contact with nature and to take the steps necessary to help children build lasting relationships with the natural world today in order to influence environmentally responsible lifestyles tomorrow. I see the guide as being an ally and an inspiration for those teachers and parents hesitant to take children out into nature and for those ready to begin incorporating nature into the lives of the children in their care.

References


**Suggested Resources**
The Edible Schoolyard: www.edibleschoolyard.org.

Chew On This: Everything You Don’t Want to Know About Fast Food, by Eric Schlosser and Charles Wilson.


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