



Schools with Spirit

Nurturing the Inner Lives of Children and Teachers

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“These essays show what wonderful transformations can happen when teachers are able to nurture spiritual and emotional understanding as part of the lessons they teach.”

—Marian Wright Edelman, president, Children’s Defense Fund

LAURA PARKER ROERDEN

Lessons of the Wild

There is a spiritual foundation that all of us were born with. It is inherent to every kind of people, a spiritual connection to this earth, to this land.

—Audrey Shenandoah,
a clan mother of the Onondaga Nation

We are scuba diving with twelve teenagers off Grand Cayman Island on what is called simply the Wall—a sheer vertical drop that begins in seventy feet of water and plummets into a dark abyss until it merges with the continental shelf at the depth of twelve thousand feet. We have stopped our descent at ninety feet, where the light penetrating from the surface supports an abundance of marine life. Bright red corkscrew sponges, thick like rope, spiral up toward the light. On the brink of a coral ledge, a delicate purple vase sponge sits tilted as if frozen in a pose of falling. Hundreds of chromis, tiny blue jewel-tone fish, move in unison. The school's angular movements reflect the light in a shimmering display like a stained glass window. Other than the exaggerated sound of my own rhythmic breathing through a regulator, it is absolutely silent.

It is our students' first dive on the Wall. Their response is not unlike that of other groups we've brought here. Several dive pairs are hovering motionless over the abyss, face down to the shadowy darkness, seemingly stunned. Two girls have linked arms and are slowly traveling along the line of the top of the Wall as if they were spacewalking. Another two have thrust their flashlights and heads into a crevice. Students are paired for safety. We are diving as a group. But surveying

the scene, the prevalent sense is that each of us is absorbed in his or her own deeply personal experience.

I direct a summer marine biology program in the Caribbean called Ocean Matters. This five-week course brings together between twelve and twenty high school-age students from around the world to explore the ecology of a Caribbean coral reef. My co-teacher Chris Gawle and I provide both classroom and field instruction on general marine science and coral reef ecology; a dive staff of two certifies students in scuba. We dive on the coral reef daily. The students design and execute a group research project that contributes to the general monitoring of the health of the reef and is later presented to the local department of the environment. They learn the Latin and common names of more than one hundred reef flora and fauna and explore complex theories of ecology and biology. For twelve to fifteen hours a day, we eat, sleep, and breathe science and the sea.

People have told me I'm crazy to bring adolescents to depths of a hundred feet with nothing but a tank of air on their backs and a couple of weeks of diving lessons under their belts. And sometimes I think they might be right. Each year I approach the coming of the program with a degree of apprehension. The stakes are high. What if someone gets hurt? Will we be able to establish the sense of individual and group responsibility that is vital to everyone's safety? And I worry that my expectations for the program are too lofty. Will this year be as successful as others? Will the experience change my students' lives as it has mine? In a way, bringing young people to a special place like the coral reef can be like introducing your parents to your future spouse. Will they come to love the reef as much as I do?

But never fail, something surprising and wonderful happens. In the dark fall and winter months, I am buoyed by postcards, e-mails, and visits from students who participated in previous years, telling me how the experience has made a difference in their lives. One girl tells me she is going to college after graduation instead of getting married because she now has the confidence she can do it. A boy writes that he's weathering the storm of his father's death better because he now understands that "nature's rhythms must echo in [his] life." Still others talk passionately about their decisions to pursue a career in marine sciences, "devoting my life to the sea" as one girl describes it.

Some equate the experience to that of falling in love. "I'll never be the same," another girl tells me with a knowing glance. And I know what she means. I don't really understand why the experience is so profound for some young people. But I have learned to rely on this: nature's strange alchemy resounds within children's souls.

Nature as Healer

Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts. —Rachel Carson

Jake had been kicked out of three schools before he landed in our Caribbean program one summer. "See if you can fix him," his mother told me. I laughed at first. She was joking, right? But then I saw she wasn't, and I understood that Jake was up against more than just several schools that saw him as a failure. Our program is rigorous academically, and Jake came in barely meeting the minimum requirements. He was withdrawn and angry. He hadn't chosen to come to the program, he told me, his mother had wanted a "summer off" from him.

Jake found himself in a group of eleven other students who, he noted, were very different than his friends at home. He had recently been in rehabilitation for drug and alcohol addiction; he was considering dropping out of school altogether. Only months before he had extricated himself from a gang and still bore a tattoo of its insignia on his ankle like a dark shadow.

Our first two weeks with Jake were rocky. From the start he seemed to be challenging us, saying with his actions, "Come on, prove me a failure again." He had violated several program rules and was in danger of being expelled. Then something happened. Jake's turn-around was somewhat sudden, and it caught everyone off-guard—including maybe even Jake.

One day on a routine dive to collect data, Jake found a reef shark sleeping in the crevice of a coral balmy. He shared the discovery with all the students who were diving nearby, which, I should explain for anyone who hasn't been scuba diving, is no small feat. He swam to each of his peers, rapped on their tanks or waved in their faces to get

their attention, and then personally escorted them over to the shark. It took several trips back and forth before he had shared his discovery with everyone. That day Jake did not leave the water alone, as he usually did. Instead he emerged with several other students, triumphantly hooting and high-fiving. His expression was one of joy—and also of vulnerability. “It was the coolest thing I’ve ever seen,” he said. And the others agreed. Jake was now part of the group. From here on in, his confidence soared. By the end of the program, he had earned the admiration of his peers and teachers, an honors-level grade in a college-level course, and the nickname MacGyver, after the capable TV detective who could find his way out of any problem. As we prepared to head home, Jake talked a lot about the high school he hoped to attend in Vermont, which had an outdoor education focus.

As educators, we can’t resist analyzing such success stories as Jake’s. What went right? we would ask in faculty meetings. We’d be convinced it was something we were doing programmatically: it’s because we put him in charge of making the quadrats—the large contraptions made from PVC piping and wires for data collection—that he was gaining confidence, we’d tell each other. But Jake was like the artful dodger. Each time we thought we had him figured out, he’d prove us wrong. We were forced to acknowledge that perhaps what was working with Jake might have little to do with us. In fact, what was working seemed almost to require that we step out of the way. Would it be too radical to consider that nature itself was healing Jake?

Numerous studies of outdoor adventure programs similar to Ocean Matters suggest that successes like Jake’s are not isolated incidents; this research shows widespread gains for youth in important internal constructs such as self-concept, self-efficacy, and self-actualization.¹ The theory is that these gains are predicated on an element of risk inherent to being in nature that the young person successfully navigates. Overcoming one’s fears by successfully facing the challenges of the natural world can be very empowering. Kasha was a shy and somewhat physically awkward young woman when she entered the Ocean Matters program. Over time, we watched as she faltered and then gradually gained a confidence and grace in the water that seemed to carry over into her social and academic life. At the close of the experience, Kasha had this to say: “The program gave me more

self-confidence and a higher self-image—the ability to say, ‘Yes, I can do this’—by giving me a challenge I didn’t think I could handle and letting me prove to myself that I *could* handle it, and do it well.” Like Jake, she had faced and successfully met significant and deeply personal challenges—earning the acceptance of peers, the rigors of the academic work, the physical demands and dangers inherent in diving, and even, perhaps, the challenge of self-acceptance. Freed of the confines of classrooms, many young people experience for the first time a sense of themselves as powerful, or discover talents long dormant or previously undeveloped.

Of course it’s true of every challenge we pose to children: they are opportunities for growth. But it was in working with Jake that I first began to appreciate just how fundamentally different outdoor challenges can be. As a scuba diver, Jake excelled. He moved gracefully in the water and had a natural ability to maintain his buoyancy. And there was a different quality about Jake *after* dives. His normally wiry and tense body was more relaxed; he was quiet but not brooding. He seemed more introspective and at peace. Even more intriguing, he possessed an uncanny ability to find interesting sea life in cryptic places.

When I asked Jake about what made him stop while we were diving together to examine a particular coral head where he had spotted a huge spiny lobster hiding in a hole, he said, “I don’t know. I just had a feeling and I trusted it.” I remember at the time being struck by the simple wisdom in that comment. On rare occasions this has happened to me in the water, too, as when I’ve felt a presence behind me and turned around to see a green turtle—my favorite coral reef resident—pass in the distance. Those moments might be dismissed by some as just dumb luck. But when it happens, it always feels to me a bit more like the way Jake described it—as some state of grace I have entered where I perceive things more keenly, where I am now looking at the world from the inside of the experience rather than from the outside.

Students often describe such connections to wildlife as eliciting deep emotions. After seeing an eagle ray, a beautiful member of the stingray family that soars through the water the way its namesake the eagle rides the tide of the wind, Kasha fished for words to explain her feelings about the experience. “The creature was just so elegant,” she

said. "It's hard to describe the emotions that come with the picture. But it's the emotions that make it powerful and different from anything I have ever experienced."

This return to being in our bodies, uniting mind, spirit, emotions, and our physical selves, is described by David Orr in his landmark book *Ecological Literacy* as an "embodied knowing."² It is a deeper knowledge than intellectual understanding. It is more akin to instinct or intuition. In nature, we are impelled from within to respond—we are drawn out of the shell of civilization that most of us wear, into a more authentic state. The turtle moves and my senses are stirred. I am like the wild animals we observe daily in their natural habitat: I too am vigilant, awake, alert. When such challenges call us to reach into the deepest parts of our souls, we often find we are connected to something larger than we are—something wild at its source.

Echoes of the Soul

To an extent still undervalued in philosophy and religion, our existence depends on [our] propensity [towards other life], our spirit is woven from it, hope rises on its currents. —E. O. Wilson

We are teaching science, we try to remind ourselves. But even with this determined focus, lines blur. Larger questions and insights about the meaning and purpose of life always seem to emerge. Who am I? What is my place in this world? are at the heart of students' journal entries and late-night conversations on the beach. Where do I end and the world begin? Isn't it arbitrary that we draw the line of ourselves at the edge of our faces? Couldn't the giant "I" that we each are also encompass that tree, the ocean, the stars?

Students often describe their experience on the reef as one might talk about a very special personal relationship. Nature has a living presence in their lives. When I first met Eli he seemed offbeat and irreverent and I foolishly assumed that these qualities could not coexist with any amount of insight and sensitivity. I was wrong, of course. I learned from Eli that if we listen very closely we can hear nature speaking in our lives. "I think nature has a much stronger voice in my life today," he explained to me in a letter. "Depending on the day of the week or the situation, it is the voice of restraint, the voice of practical-

ity, the voice of kindness. Sometimes it keeps me from doing something I might want to do . . . other times it makes me feel good about what I am doing."

Dave's father had died a few months before he came to the program, and it's likely that at the time he was suffering from an undiagnosed clinical depression. He described his experience with Ocean Matters as transformational and profound: "The program seemed to take me up into the womb again, which was the setting of our small society. After the program I was birthed into our world with a new life force inside of me: it was a passion for the beauty of everything in our world, with a consciousness of its fragility."

Dave's use of a birthing metaphor here is interesting on many levels. Perhaps it is not a coincidence that after being daily suspended weightless in sea water (approximating the same saline composition as amniotic fluid) Dave should think of birth. Or that his own rebirth should come at a time when he was grappling with death. Even our language acknowledges earth as the source of life: the word "nature" comes from a form of the Latin *nasci*, meaning "to be born."

Was nature in some way a mirror for Dave—a place where he could look deeply into the world, see his own soul reflected, and from this create meaning for his life? Dave seemed to think so. He would often sit alone on the shore after dinner. While at times we worried that he wasn't doing his homework, we let him be. It was clearly more important to him than we had known. Later he wrote:

One evening, as the last remnants of the Caribbean sunset faded against the horizon, I found myself in a lounge out by the iron shore, looking inland. I sat there in a meditative trance staring at our hotel. As my thoughts deepened and the sky darkened, one distraction—the fluorescently lit Pepsi machine—irritated my sight. Unknowingly, I had picked up a broad leaf with imperfections. I held the leaf up to obstruct the Pepsi machine. The leaf glowed and I saw briefly my course in our world.

What we see when we look into nature is, admittedly, not always pretty. As Gary Snyder writes, "To acknowledge that each of us at the table will eventually be part of the meal is not just being 'realistic.' It is allowing the sacred to enter and accepting the sacramental aspects of our shaky temporary personal being." Nature is decay, putrefaction, imperfection, impermanence. It is unpredictable. It leads us to the

edge of things and asks us to peer into what we thought was the void and later come to know as something else. It asks us to see ourselves differently. Too often, kids like Jake see themselves in the disapproving faces of their peers and teachers who at every turn seem to be telling them they are somehow bad, somehow flawed. Had Jake, like Dave, seen his reflection in nature, where imperfections are part of its dazzling beauty?

The Call of the Wild

Not long ago, I was at the rocky north shore of Massachusetts when I saw two young children crouching over a tide pool. They were both leaning over the dark unknown of the water with intent and concentration. "It's *alive!*" one boy exclaimed triumphantly as he thrust a wiggling green crab into the face of his companion. In his excitement the first boy dropped his pail, which a supervising parent patiently reclaimed from the surf. Both children then hung their heads in an attitude of prayer as they leaned closer and peered intensely at the creature. "Get the pail," one ordered. "We need to put it in water. It's *alive*, Mommy!" They both squealed in delight. And I too was caught up in the excitement. They hadn't been in a nature program. They weren't being led by a "knowing" adult. They were simply doing what comes naturally when children play outside.

Yet fewer than 10 percent of our children in the United States today learn about nature by being *in* nature. More than half learn about the natural world through technology and the rest from inside a classroom. The malaise we see in our children might, in fact, have much to do with this dislocation. As David Orr offers, "The sum total of violence wrought by people who do not know who they are because they do not know *where they are* is the global environmental crisis."³ This is a crisis of spirit.

What is so healing about spending time in nature is the sense of "recovery" it brings—the sense of restoring ourselves to some primal state or, as the Buddhists refer to it, of being "in right relationship to all living things." You can almost hear a collective sigh of relief from our program's students as much of what we think of as civilization starts to fall away over the five weeks we are on the island.

At first they complain about not having a television set, or say they

are bored. The Game Boys and Walkmans come out of their suitcases. This usually lasts less than a week, however, before a spirit of creativity, passion, and playfulness takes over. Students invent games; create crazy clothes and hats from things found in nature; watch sunsets; draw in their journals. They dance. Laugh. Go barefoot in the sand. They create myths not unlike those found in indigenous cultures, although with decidedly modern twists. The rock crabs bite them, they conjecture, because they are trying to sample their DNA and create a crab people; just last night, they say, Eli was carried off and replaced by a crab. And perhaps Eli in some way *was* replaced by a crab—the spirit of crab has entered his soul, transforming him and the others, bringing them into a more integrated state with nature.

Hannah, a quiet, seemingly average student who possessed extraordinary insight, summed up what she learned in the program with one word: humility. I couldn't have said it better myself. Young people's questions, insights, and honesty about nature always seem to snap me in half, making me acknowledge how small and insignificant I am. In a world where so little can be known, this thought is oddly comforting.

A Third Presence

Since we were working within the midst of one of the most complex and highly diverse ecosystems on earth—the coral reef—we chose to orient our study to the reef's ecology. That is, we studied the reef as a community, investigating the complex relationships among its members, as well as the relationship between the reef's inhabitants and their environment. Studying an ecosystem in its entirety has its advantages. Drawing the parameters for our inquiry—what we would study, what we wouldn't—was easy. The limits were drawn for us by the limits of the reef itself. We would study it all, we decided, as the reef revealed itself to us. What we didn't know when we first started this line of inquiry was how important ecology would become as a metaphor for what we as a human community were learning about ourselves.

For most students, it's difficult to consider the whole without first considering its parts. In their first moments on the reef, young people are preoccupied with its glitziest residents, the tropical fish.

Gradually, though, as they come to know the names of individual fish species, they begin to form questions about the relationships among the fish and the other life on the reef, and about the larger system. Why is it common to see damselfish hiding within an anemone? they might ask. (The damselfish has evolved an immunity to the poisonous tentacles of the anemone, which provide it with safe refuge from predators.) This leads us to investigations of other symbiotic relationships on the reef. As these are revealed among an increasing number of reef inhabitants, what is made visible is the very fabric of life. The reef has shape, texture, detail. Students' questions now become deeper and progressively more focused. How is it that such an abundance of life can live in such nutrient-poor waters as those of the tropics? What created and now sustains the high levels of diversity on the reef? John Muir once described what they discover: "When we try to pick out anything by itself we find it hitches to everything in the universe."

Over time, many students come to realize that the degradation of the coral reef has as much to do with the number of SUVs we drive in the United States as it does with shoreline development among the mangroves on the leeward side of the island. They come to see the reef as if it were an orchestra in which each member has an important and complementary role. The reef could no more sustain life if you removed all of the herbivores than an orchestra could play a symphony if you removed all the string players. As Eli pointed out, "The world is incredibly interconnected." There is only one ocean, not seven. There is only one earth.

This shift to a focus on the community over the individual in our studies of the reef creates a heightened appreciation for the interdependence among the members of our group. While it's tempting for us as faculty to make the analogy ourselves to students—to point out that our group is like an ecosystem; each member is valued, has a part to play; everyone's actions affect the others and the whole; diversity stabilizes the system—we've learned to be patient. As with all good, deep, and real learning, students must discover this truth for themselves. The reef reveals itself, underscoring our interdependence more deftly than any activity we teachers could devise. Eli spoke at length about this interdependence and the powerful memory he had of his dive on the Wall. "The Wall dive is by far the most vivid experience of

my life," he explained. "Seeing the things we have been studying in a very special way, having my life dependent on people I love in a very real way, and looking off the Wall. Wow. That is a memory."

Ecology and the earth's ways help us to understand ourselves in terms of others, require us to learn how to resolve differences, ask us to listen, communicate, and value diversity. "The program . . . taught me a lot about dealing with others," Hannah said, "leadership, being cooperative, adjusting to circumstances, listening to what others have to say, and learning from them." In the words of the poet Mary Oliver, time in nature "announces our place in the family of things." For adolescents, this sense of belonging provides a much-needed refuge from the looming responsibilities of autonomy.

When you teach outside, what I think of as a "third presence" emerges, guiding and informing the learning—the earth itself will seemingly have a voice. When I've surrendered to this feeling, I've noticed my own passions reawakened. I've found the job of being all-knowing teacher impossible—nature reveals herself as too complex. Mysteries I do not yet understand reengage me as a learner. My sense of wonder and curiosity is renewed. Nature is not only the classroom, it is the teacher. The earth protects us, nurtures us, tells us about the shape of our heart, and we in kind are called to do the same for the earth.

Taking Action

We are all one in nature. Believing so, there was in our hearts a great peace and a willing kindness for all living, growing things. —Luther Standing Bear

Whole species of plants and animals are disappearing from our earth virtually every day—irretrievably lost. The warnings of scientists are morally compelling to many of us, and it seems logical they might incite action on behalf of conserving our natural resources. But in my experience nothing shuts down students faster than the doom and gloom speeches I have made about our planet's health. They seem to inspire guilt, to make students feel overwhelmed, and at best to appeal to their minds, not necessarily their hearts and souls. But we educators are human, and those of us who care about protecting the earth

are worried that others do not understand the urgency of our charge. Time and again children have taught me that our desire to incite students to act on behalf of the planet is best served by nurturing a sense of wonder and a deep relationship between each individual and any single place on this earth of his or her choosing.

Sheldon Berman, author of *Children's Social Consciousness and the Development of Social Responsibility*, looked at research on activists and found that positive social action was "less about moral principles and more about the sense of self as connected to others and to the world as a whole." For children, Berman points out, making sense of the world and finding their place in that world, is a process. "Children, in essence, feel their way into the world. The degree of connectedness that they experience determines their sense of efficacy and their interest in participation." Furthermore, the studies in question point to "an additional motivator of activism: the need for a sense of meaning and a sense of place within the larger context."⁴

While most of the research that Berman and others who study moral development cite deals most explicitly with the social domain, surely children's sense of connection to the earth and other living creatures is a factor in this search for meaning and a growing sense of self as part of a larger context. By nurturing such spiritual connections to the earth in children, we lay the groundwork for higher levels of moral reasoning and action. As educator Dave Mayo-Smith once pointed out to me, it's one thing for a child to want to save the rain forest because of its medicinal potentials, it's another for him or her to want to save it because it has its own intrinsic worth and value as a living entity. Mitchell Thomashow considers this shift in thinking fundamental to what he calls our "ecological identity" and describes a process of development in our awareness of our basic connection to nature. The rain forest must be valued and conserved because it is the lungs of the earth (in that it supports our atmosphere by producing oxygen and taking up carbon dioxide from the system). The rain forest supports and sustains us—it is a part of us.

Berman comments further that "as the level of moral reasoning increases, people become more concerned with their integrity and act in ways that are consistent with their beliefs." The integrating effects of being in nature—coming into wholeness—can lead to direct ac-

tion. Every year, the students in Ocean Matters are required to design and execute a group research project. While this effort could focus on any topic of interest to the students, each year the group has decided to contribute to a monitoring project to assess the health of the reef. Students have then shared their data and made recommendations to the Caymanian Department of the Environment (DOE) for sustaining the health of the reef as related to managing diving pressures. The presentation of their findings to the DOE is voluntary, yet fully 90 percent of the students choose to participate, giving up their last days in paradise, which otherwise would be carefree. The passion our students have had for this project never ceases to amaze us. For Tayla, who volunteered to be group leader for this project one year, the experience carried an important "take home" message:

I think back to the last couple of days [of the program], when we were putting together our research report, doing standard deviations, working really hard. We wouldn't have accomplished as much if we didn't all feel that way about the reef and care about the project and the topic. I have a quotation that sums it up, "Nothing in the world is accomplished without passion."

The Role of the Teacher

I am alarmed when it happens that I have walked a mile into the woods bodily, without getting there in spirit. —Henry David Thoreau

Taking young people into nature does not guarantee a spiritual experience for them. One year in the Caribbean we had an unfortunate combination of two new faculty members who were not in tune philosophically with the program, two separate campuses (one for boys and one for girls), and a two-hour round-trip drive to our dive site. While some students claimed to have had a profound experience that year, for the majority of us—staff included—things never really "gelled." The faculty was busy putting out fires and dealing with logistics. The kids were fractured and distracted. There was little sense of community. The shift to a more dynamic, passionate learning environment never quite happened. A few times we could almost hear the gears shifting and sputtering, but like a car with a busted transmission we were stuck in second gear. We went home disheartened but more

focused. Our failures that summer made us realize that part of the magic we had experienced in the past had something to do with the sense of community we were nurturing and our own passion and authenticity as teachers. So what then is our role as teachers?

Chris Gawle and I learned the answer to this question the hard way. After our first successful year with the program, we had approached our teaching with a very strong attachment to outcomes. We wanted the next year's students to care as much about the reef as the first group had done. We wanted them to do a research project that had a conservation bent. We wanted to change their lives. In our very first class that second year, Chris presented a compelling argument that our seas were in serious danger due to human activity, and that this threat, through shifts in weather patterns, could seriously affect life as we know it on our planet. Later we repeatedly asserted our wish that students do a research project that dealt with conservation. Our good intentions backfired. The students seemed angry with us, splintered as a group about which research topic to pursue, and uninterested about the threats to the reef. Truth be told, Chris and I were becoming disappointed in them and they could sense it. Out of sheer frustration, Chris and I stopped trying to influence their feelings and values. We were both surprised at the result. Slowly the group self-organized. Over the coming weeks, the passion we had sought to develop too early quietly emerged on its own. We had been arrogant and overbearing in imposing our own values on our students; given a break from our agendas, they developed their own, and the group did, in fact, eventually design a conservation-focused research project.

Paulo Freire calls this attachment to outcomes the "banking" model, wherein education becomes "an act of depositing" in which the students are the depositories and the teacher is the depositor. Freire furthermore called this model one of oppression, since the learners are seen as having a deficit.⁵ When we let go of our agendas, however, we communicate our respect for the learner. This does not mean that we should not hold high expectations for our students. Demanding excellence is appropriate. Expecting a particular values transformation is not. The questions students seek to answer should be their own; the learning should be student-centered.

While such a constructivist approach is at the center of all good

teaching, it is especially critical to inviting soul into an experience. Our souls are like wild animals, crouching in the shadows. We can stalk the animal and risk sending it running for deeper cover, or we can sit and wait and yield to its intentions, bearing witness to its presence. Most simply put, our role as teachers is to provide opportunities for students to authentically engage with nature so that, in the words of Rachel Carson, we nurture in children "a sense of wonder so indestructible it will last a lifetime."

An Ecological Pedagogy

The good news is that you do not have to take children scuba diving in the Caribbean to inspire this sense of wonder and connection. Students can develop a deep relationship with nature in their own backyards, whether they live in the city or the country. In fact, helping students connect to their own home places is preferable to taking them on exotic wilderness trips, which carries the danger that once the experience is over its more profound effects wear off. A relationship with a place in nature is like any good relationship. It should unfold over time, moving toward intimacy and respect. The relationship should not be one of dominance—the goal is "power with" not "power over." If we carefully support this process, children will come to know details about their places in the same spirit as an artist might study the face of one he loves. They will come to know the places' strengths and vulnerabilities.

Most classroom and enrichment programs in environmental education are thought of as science course work. This is one way we justify their place in the academic schedule: science is part of the core curriculum. But perhaps this alignment with science education has needlessly limited the quality of the experience of nature we provide for children. Science is a rational domain. It deals with facts, not feelings or intuition. Conversely, most outdoor adventure education focuses on feelings and inner process, not facts. In the Ocean Matters program, we have found that the most successful approach integrates both. While the content we teach is college-level marine biology, the methodologies we use to teach it combine art, literature, ritual, and other tools used in the practice of many of our world's religious traditions.

Here are some important considerations for any program aimed at developing children's sense of place and connection to the natural world.

BRINGING CHILDREN OUTDOORS

This might seem obvious, yet increasingly the majority of opportunities for children to learn about nature are vicarious: textbooks, nature TV, videos, and online projects. Many of these experiences are compelling. Via the internet, children can follow the migration path of a whale, for example, analyzing daily postings from a naturalist and sharing in the creation of hypotheses about the life history of whales. But while all of these exciting technological possibilities have value in teaching children about nature, to truly engage children's spirits you have to bring them outside.

It is helpful to plan outdoor expeditions and field trips to be what Kasha called "heads-under" experiences—ones that require students to engage directly with nature. As a supplement to the outdoors experience videos and other resources can help 1) to inspire wonder and curiosity, 2) to build up on students' questions with germane facts, and 3) to complicate and deepen children's thinking by providing information that puts their thinking in conflict. (See "Putting Feelings First," below, for information about the use of supplemental resources.)

CHOOSING A PLACE

As naturalist Richard Nelson writes, "There may be more to learn by climbing the same mountain a hundred times than by climbing a hundred different mountains."⁶

Together with your students, choose one place near your school and come to know it very well. The place you choose should have enough ecological integrity to be sufficiently complex for a study. That is, it should be relatively wild. The scale of the place can be large or small, depending on the age of your students, your access to nature, and the prior experience your students have had outside. There are two general rules of thumb I've discovered for this selection: 1) the younger your students are, the smaller the scale should be for your study (the older your students, the larger the scale); 2) with increasing

experience in nature, students will be engaged by increasingly more detailed study.

Elementary school students will likely be engaged by a small patch of earth in your school's backyard. They can be absorbed for long stretches of time by digging for worms and insects and looking under rocks and logs—a natural treasure hunt. Adolescents will usually need larger tracts of nature to be sufficiently engaged. If this is the first time you and your middle or high school students have done such a study, you might choose an acre or more of forest or desert, for example, or a streambed or stretch of rocky shore. As your students gain more experience as a group, you might encourage them to become progressively more focused in terms of scale. They might eventually even choose one single tree to explore.

If you are limited to an urban location, do not be discouraged. Much can be gained from studying a small stand of trees in a city park or in your schoolyard, or from studying the moon and the stars regardless of your students' age and level of experience.

STUDYING ONE PLACE OVER TIME

You cannot really know a place until you've studied it over time. It's best if your study spans different seasons, different weather, different times of day. Remember that the span of time that is optimal is almost always eco-dependent. It is important to study a temperate zone ecosystem over four seasons, while in a tropical zone a shorter time scale may be appropriate. If you are exploring a small stand of forest in New England, for example, it would be best if you could study it throughout the year, but much can be learned about a coral reef within shorter time frames—daylight versus night, before or after storms. Aim to maximize the length of your exploration to capture the variety that is inherent to your ecosystem within the limits presented by your situation.

ENGAGING THE SENSES

Little in the way of traditional education engages all our five senses, but nowhere is this more important (and more possible) than out of doors. Throughout children's experience in nature, call upon them to use each of their senses. The goal is to help children develop a

mindful presence outside—that is, to become aware of their surroundings at a level of detail that transcends our normally relatively detached way of being in the world. The goal is that they come to know a place through their bodies, not just their minds.

Focusing on one sense at a time can be a very useful way to do this. You might have students form pairs, close their eyes, and listen to their place, taking turns writing down everything their partner hears or any pictures or thoughts that come to mind. Or ask them to compare two branches of two different trees through touch or smell, or to pay attention to the sounds of birds or animals at different times of day or different seasons.

While most people are accustomed to learning about nature through visual observation, there are ways of seeing that go beyond students' usual experience. I was once on a ferry in Alaska when I heard a fellow passenger make note of how disappointed she was that she hadn't yet seen any whales on the trip, whereas I had seen many. I started to point out various whale signs to her and then to others who gradually gathered. Astounded, a woman asked, "How do you find them?" I had learned from two summers teaching on a whalewatch to see the telltale clear patch of water above where the animal has descended or the spray of their blow or the disturbance of their bait on the surface and the birds that might gather there.

One effective way to shift students' focus to such details is to have them walk through a very small stretch of nature taking note of everything they see. Through multiple passes on the same strip, they will start to notice different and new things. With excitement they can watch their list grow to incorporate the tracks of animals, their scat, a broken branch, bushes that have been mostly stripped of berries by birds, and so on. Later you might encourage students to hypothesize about what animal left the tracks or broke the branch, filling in valuable information as your students' questions require. Or you can encourage students to see nature more three dimensionally, by having them walk in silence paying attention to the shadows rather than the sunlit world. While I've often taken students on guided tours in nature, where I point out the interesting things we pass, I've found this is most effective when timed later in your time together; students' first several lessons on "seeing" should be solo.

PUTTING FEELINGS FIRST

Rachel Carson once wrote, "I sincerely believe that for the child . . . 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." In our rush to meet academic standards, this simple wisdom is often sadly lost. Your first sessions with children in nature might predominantly explore children's feelings about the experience. The feelings then become the hook on which children's curiosity and desire to know more are hung. Later sessions in nature that are more content driven can likewise have a feelings component, though it need not be dominant. This is sometimes as simple as giving children time to reflect in journals or share with a partner how the experience has made them feel. Or it might involve responding to a piece of literature someone else has written about the ecosystem you are studying. Most importantly, it involves slowing down the experience enough to leave room for children's feelings and to show you value them by listening.

TEACHING THE FACTS

While the latest educational reforms have rightfully encouraged a quality of knowing that is deeper than rote memory, much has been lost, I believe, in our modern rejection of the discipline of memorization. When we memorize, we literally *re-member*, or again incorporate a distinct part into the whole, "adding it unto ourselves forever," as writer Brenda Ueland once described it. Students in the Ocean Matters program become proficient in identifying over a hundred reef flora and fauna—learning the Latin species names for invertebrates and algae that at first glance look like little more than "snot on rock" (as one teenager put it), as well as the common names for the more compelling reef vertebrates including fish, turtles, and sharks. While most students groan at first at the brute work involved in memorizing names like *Acapora palmata* and *Siderastria sideria*, I've yet to see a single one fail to eventually master this task given enough practice and support. And, most importantly, I've yet to see a student not moved by the sense of power and mastery that knowing the names of things imparts.

When we help students learn the names of the plants and animals that inhabit a place, we are helping them establish an intimate relationship with that place. Not to do so would be like setting students loose in a new school but suggesting they not learn the names of all of their new friends.

INCLUDING UNSTRUCTURED TIME

Many of us have special memories of playing in nature as children—climbing trees, inventing games, or simply playing hide-and-seek in the backyard. Unfortunately, these experiences are rare for many of today's children. When children "muck about" outside, they are developing their relationship with nature on their own terms. This is critical to both children's construction of meaning and their own sense of authenticity about that experience. Every moment that children spend in nature, even moments that seem silly and undirected to our adult eyes, can contribute to their growing sense of self and relationship with place.

AVOIDING SHAME OR GUILT

Once, early on in our work in the Caribbean, a small group of students spotted a green turtle on the reef while we were diving. In their excitement, several took off swimming in hot pursuit of the animal, and one eventually gained enough ground to touch its shell. The turtle looked back for one second and then hightailed it out of there. Green turtles are endangered and as such are protected by the Endangered Species Act, which clearly stipulates that such pursuit of an animal is illegal. That day, in our anger and self-righteous zeal, Chris and I followed the students out of the water, interrupting their squeals of excitement over the turtle sighting to lecture them harshly on why what they had done was wrong. I'll never forget their crestfallen faces—though at the time I thought I had done the right thing. Later that very same year I attended a conference at which nature writer Robert Finch described a similar experience with an enthusiastic child who had grabbed for an alewife during the annual run. My face became hot with recognition as Finch talked about how we adults often stamp out children's zeal with our admonitions, when in fact we should encourage their sense of wonder. I now handle such situations differently.

When a student does something clumsy or potentially harmful to a creature, it's most often out of excitement or ignorance. Rather than shaming students, we can first connect to and validate their enthusiasm and then invite them to take a larger perspective by asking what they think that creature might have been feeling at the time; most often they will make the commitment on their own never again to remove a creature from its home or to chase it or otherwise seek to possess it.

PROMOTING INDIVIDUAL AWARENESS
AND GROUP INTERDEPENDENCE

From literature and personal experience we know that times of solitude are often when people feel closest to nature, but leaving time and opportunity for solitude in an educational program can be difficult. I've found that cultivating even short breaks when students can be alone in nature works well, especially if the breaks are regular. Given unstructured time in nature, many students will spontaneously seek out solitude. It was common for students in *Ocean Matters* to sit alone on the rocks and gaze at the water or watch the sunset, or to sit under a tree by themselves during the free time we built into each day.

Equally important is creating a sense of a community through shared experience. The collective memory of a group's time in nature can help bridge differences among group members and create common ground. Interestingly, when we polled former students of *Ocean Matters* about their most powerful memories from the program, most from a given year shared the same story. The spotting of an eagle ray or the experience of a night dive can become almost a signature moment, creating a group identity.

These communal experiences are most profound, I've found, when they require students to be dependent on one another in some important way. In our group research projects, for example, each student had an essential role, and because each project was carried out on scuba, students took responsibility for one another's lives. As Kasha pointed out, such a connection is not left to chance: "I gained a trust in others out of necessity." It is important to set students up for success by supporting them in learning the skills of collaboration—communication, appreciation of differences, and the healthy expression of

feelings. We used team-building activities throughout the program and held daily student-led research meetings to help deal effectively with any conflicts as they occurred.

USING RITUAL, MYTH, ART, AND REFLECTION

Art, myth, and literature are wonderful ways to connect to students' imaginations, to move from the particulars of their experiences to the universal. In *Ocean Matters* we have students draw each of the reef creatures they sight in a special notebook. While most of us are not particularly gifted artists, everyone seems to enjoy drawing, especially once any expectation about "talent" is removed. The simple task of drawing a creature creates a certain type of intimacy with that animal; the partnership of hand and eye concentrates one's focus on its shape and coloring and other important details. You might use a poem, an essay, or a folktale as a point of departure, or have children create their own stories and myths to explain phenomena in nature. Such activities stimulate children's imaginations and connect to a more universal level of experience.

Rituals honor the mystery inherent in nature and are useful team-building components if their symbolism is appropriate to your purpose. For example, you might try adopting the practice of using a "talking stick" to indicate whose turn it is to speak. The speaker's words are like the sound of the wind through the leaves—we only hear them if we really stop to listen. Likewise, the listener might hold a stone, to ground him and imbue him with patience. You might encourage students to create their own rituals or suggest some yourself.

WEAVING NATURAL METAPHORS AND OBSERVATIONS INTO CHILDREN'S LIVES

Even during your time with children indoors, nature can be a powerful tool for creating meaning. Nature's rhythms—the seasons, light and darkness, weather—can be apt metaphors for change in children's lives, just as they were for Dave. Just noting the phase of the moon as we might ordinarily note the date of the month can help shift students into a sense of groundedness and connection with nature; so can being conscious of the foods that are in season, or teaching children to tell time at night by looking at the sky, using the Big Dipper's

position like the hands of a clock. Aim to present the natural world to be as significant as the man-made world by your conscious inclusion of it in your language and in your students' awareness.

NURTURING A SENSE OF PLACE

What's special about where you live? How did natural resources inform the culture of your area—the industry, the placement of homes? Do any of your roads follow older footpaths or livestock paths to natural resources such as water? What can the place names used by the native people tell us about the area that you didn't already know? How might using those names versus the Anglo names change your relationship to that place, if at all? What would the land look like if you stripped away all the development?

Few children (or adults) are aware of just how their towns or cities were shaped by nature. Boulders that they walk by every day may have been left by glaciers; the shape of a stand of trees on a hill might make the pattern of wind in that area visible. But they will not be likely to notice these things unless you encourage them to do so. Help children to form questions about their natural heritage and then do research. When answers are not available, encourage them to make their own best guesses. For example, if you cannot recover native people's place names for your area, have children create their own, honoring the special gifts of nature, like "place of eel fishing" or "place of river rocks." Special occurrences in nature, such as eclipses, storms, and migrations, can also be brought to children's awareness in order to better acquaint them with where and when they live.

The Power of Love

It is the day Chris is leaving early from the Caribbean to return home for his graduate school exams. I rush to class just in time to see him say good-bye to the Ocean Matters students. Chris has written on the white board in the classroom, "Take-Home Lesson: Replace the love of power with the power of love." The students consider it and several bow to write in their notebooks. Then, wordlessly, one by one, they get up and come forward to hug him. At six feet two inches, Chris has to bend to embrace the students. Individually each student is added to the hug until they are all enfolded into one complete unit.

Someone grabs my hand and I, too, am added to the heaping hug. A few shed tears. And then Chris is off in the van to the airport. Later I notice that one student, Helen, has changed the screen saver of her computer; it now flashes "replace the love of power with the power of love" as it sits on a common table near where we all are eating together.

Could it be that simple, I wonder? We've certainly learned a lot about love in our time together on the reef. Two years after we were all together with Jake, students from that year are still asking me about him and how he is doing. I've had to answer that I don't know. Jake's mother hasn't been able to give me any information about him; they have fallen out of touch. It's unsettling not to know where Jake is or if he's okay. I hope that he still has places where he feels he belongs, where he's not alone and his many gifts are valued. And I hope that if Jake calls out, he can hear the earth answer.