



Illustrations: Tom Goldsmith

Developing a Sense of Place Through Native Science Activities

by Clifford E. Knapp

The traditional Indian understanding of land focuses on its use, and the duties people assume when they come to occupy it. When an Indian thinks about traditional lands, he always talks about what the people did there, the animals who lived there and how the people related to them, the seasons of the year and how people responded to their changes, the manner in which the tribe acquired possession of the area, and the ceremonial functions it was required to perform to remain worthy of living there.¹

— Vine Deloria, Jr.

A FEW MONTHS AGO, I received my copy of *Green Teacher* in the mail, and there on the front cover was a picture of a classroom without a wall, the indoor classroom seamlessly flowing into the outdoors. The theme of the issue (Fall 2009), “Two-Eyed Seeing: Integrative Science,” puzzled me. What could that mean? In the lead article, authors Hatcher, Bartlett, Marshall and Marshall explained that two-eyed seeing means the “...bringing together [of] Indigenous and Western knowl- edge ... to see from one eye with the strengths of Indigenous

ways of knowing, and from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together.”²

Tewa teacher and author Gregory Cajete calls this Indigenous way of knowing “Native science.”³ He believes that in order to understand this way of doing science, a person has to know how Indigenous people participate in the natural world and what their worldviews are. He states, “Native science is a broad term that can include metaphysics and philosophy; art and architecture; practical technologies and agriculture; and ritual and ceremony practiced by Indigenous peoples both past and present.”⁴ Western science is more narrowly defined and does not include all these other disciplines. Western science is a part of Native science, but it does not venture deeply into areas of the mystical.

According to Cajete, Native science requires understanding the roles of sensation, perception, imagination, emotion and spirit in seeking knowledge. He believes that “the cosmological and philosophical must once again become ‘rooted’ in a life-centered, lived experience of the natural world.”⁵ In other words, Native science incorporates indigenous belief systems that go beyond logic, objectivity and rational empiricism. Much of Native science, like matters of spirituality, is

difficult to express in words. Because some skeptics doubt the existence of Native science, this is a controversial area among scientists. These critics dismiss Native science as simply animism or worship of nature. They believe that Western science is culturally neutral and should not be affected by how humans view the origin of the Earth, ethical conduct and life after death.

The following activities have been inspired by the writings of people who have lived close to the land and have had a deep sense of their places. These writers could be described as indigenous people. The word 'indigenous' is derived from the Latin root *indu* or *endo*, which is related to the Greek word *endina*, meaning entrails. "Indigenous means being so completely identified with a place that you reflect its very entrails, its soul."⁶

Some of these activities could be included in what is commonly described as Western science. For example, Western science involves orienting to a place, naming nature, comparing, writing, using the five senses, attending to details, magnifying objects, finding patterns and questioning. Native science goes beyond Western science when it includes telling non-factual stories, listening to the landscape speak, sensing that we are felt by nature, speaking to the Earth, feeling rooted to the Earth, giving back after taking something (reciprocity), asking permission of the Earth, and creating art, ritual and ceremony.

1. Orienting To a Place

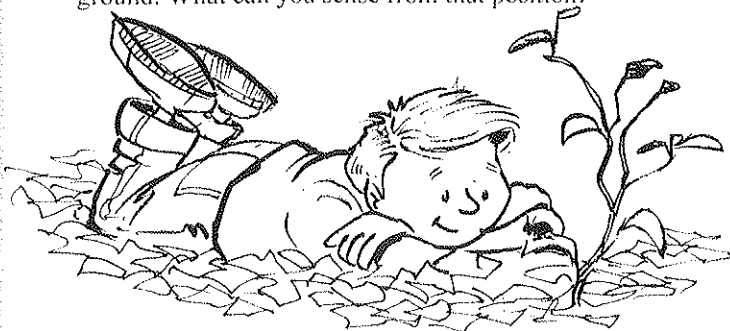
*"The four (or more) cardinal directions generally serve as allegories for sacred orientations to places in Indigenous traditions. Each has associated plants, animals and natural phenomena. And each of the plants and animals represents a perspective, a way of looking at something in the center that humans are trying to know."*⁷ — Gregory Cajete

Select something outdoors, such as a plant, rock, animal or other natural object, to examine carefully. Look at it from the four cardinal directions (north, east, south and west) and from above and below, if you can. How does changing your viewing direction change what you see?

2. Changing Positions

*"Entomology extends the limits of being in a new direction, so that I walk in nature with a sense of greater space and freedom. It suggests, besides, that the universe is not rough-hewn, but perfect in its details. Nature will bear the closest inspection; she invites us to lay our eye level with the smallest leaf and take an insect view of its plain. She has no interstices; every part is full of life."*⁸ — Henry David Thoreau

Follow Thoreau's suggestion of taking an insect's view by lying down so your eye is level with the leaves on the ground. What can you sense from that position?



3. Understanding Yourself

*"What people make of their places is closely connected to what they make of themselves as members of society and inhabitants of the earth."*⁹ — Keith H. Basso

Go to a special place, sit alone there for a while, and write a paragraph about that place. Then join the group and discuss how what you wrote relates to what you know and who you are. Do you agree that the place helped you understand yourself?

4. Telling Stories

*"Wherever you went, the sight of an animal, the call of a bird, the presence of a rock reminded you of an instructional story."*¹⁰ — Malcolm Margolin

Many Native stories are "spatially anchored," or centered in specific places. In Yurok tradition, stories were told to teach life lessons. Select a location and create a teaching story that is connected to that place. Share it with others. How can stories about places teach lessons?

5. Naming Places

*"For [the Kwakiutl], a name was a story. We say 'Yancouver,' naming an island for a captain; we say 'Victoria,' naming a village for a queen. For them, a place name would not be something that is, but something that happens. They called one patch of ocean 'Where salmon gather.' They called one bend in the river 'Insufficient canoe'.... If the Kwakiutl habits of naming were childlike, naïve, they were also utterly mature. Their language shows connections where we have made separations."*¹¹ — Kim Stafford

Name a place using a brief descriptive phrase or sentence that tells a story of what is happening or has happened there. Then share the name with others to see if they can guess where that place is. Do you know of other place names that describe what happened there?

6. Naming Plants and Animals

*"It was his [Ohiyesa's uncle's] custom to let me name all the new birds that I had seen during the day. I would name them according to the color or shape of the bill or their song or the appearance and locality of the nest — in fact, anything about the bird that impressed me as characteristic."*¹² — Charles Eastman (Ohiyesa)

Name some plants or animals as though you were the first person ever to see them. Select names describing physical characteristics or behavior of the plants or animals. Do you know other plant and animal names that indicate their physical characteristics or behavior?

7. Comparing

*"Ideas about the habitat are frequently set in elaborate similes and metaphors which equate disparate objects in a fashion that at first seems quite unfathomable."*¹³ — Paul Radin, writing about the Winnebago (Ho-Chunk) Indians

Select something in your place and create a simile (a figure of speech comparing two things using "like" or "as") or a metaphor (a figure of speech comparing two things directly). Did writing the similes or metaphors help you understand the thing better or see it in a different way?

8. Looking, Using, Communicating

"Some ethnographers (scientists involved in a branch of anthropology that considers the subdivisions and families of humans, their origin, characteristics, distribution, and other traits) believe that people interact with the landscape in at least three different ways: observing what happens there; using it in a physical way that sometimes changes it; and communicating about it to others." ¹⁴ — Keith H. Basso

In a small group, interact with a particular landscape in each of these three ways and then discuss how the members of your group responded to these different tasks. Did you discover something new about the place by doing this?

9. Listening to the Landscape

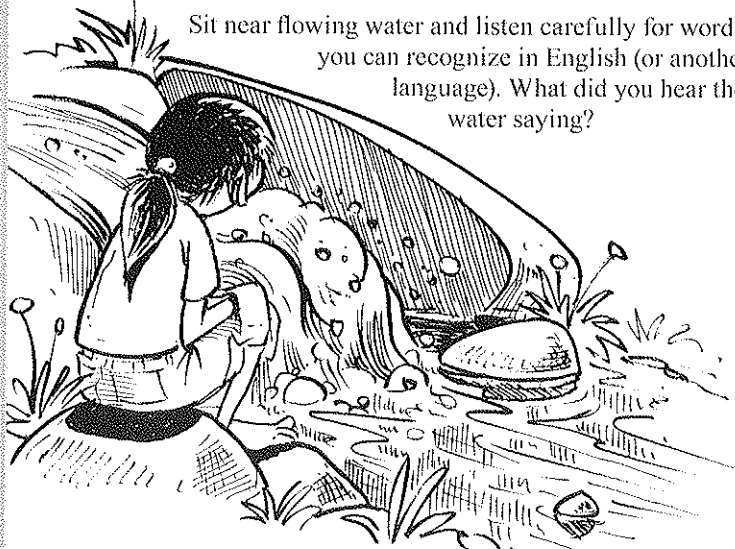
"In indigenous, oral cultures, nature itself is articulate; it speaks. The human voice in an oral culture is always to some extent participant with the voices of wolves, wind, and waves — participant, that is, with the encompassing discourse of an animate earth." ¹⁵ — David Abram

Listen to the language of the landscape. If this landscape could speak to you, what would it say? If the landscape were capable of doing something about what it just said, what would it do?

10. Listening to Water

"It is not by chance that, when hiking in the mountains, the English terms we spontaneously use to describe the surging waters of the nearby river are words like 'rush,' 'splash,' 'gush,' 'wash.' For the sound that unites all these words is that which the water itself chants as it flows between the banks." ¹⁶ — David Abram

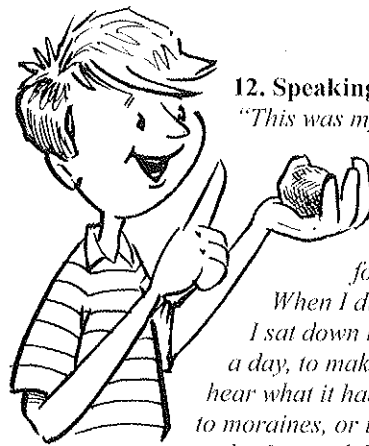
Sit near flowing water and listen carefully for words you can recognize in English (or another language). What did you hear the water saying?



11. Feeling and Being Felt

According to Richard Nelson, the Koyukon Indians of north-central Alaska believe that "the surroundings are aware, sensate, personified. They feel. They can be offended. And they must, at every moment, be treated with the proper respect." ¹⁷

Select a tree nearby and touch it gently. Try to feel the tree touching you, and treat it with respect, gentleness and reverence. Listen to the tree and try to learn from it. Do you think that the surroundings have soul or spirit?



12. Speaking To Nature

"This was my 'method of study': I drifted about from rock to rock, from stream to stream, from grove to grove. Where night found me, there I camped. When I discovered a new plant, I sat down beside it for a minute or a day, to make its acquaintance and hear what it had to tell. When I came to moraines, or ice-scratches upon the rocks, I traced them back, learning what

I could of the glacier that made them. I asked boulders [sic] I met, whence they came and whither they were going." ¹⁸

— John Muir

Find a small rock and speak to it (not about it). What did you chose to say to it? Did it "speak" back to you? If so, what did it say?

13. Staying in the Present

David Abram uses the following exercise to help him focus on the present moment and place. Give his method a try to see if it helps bring you into the here and now:

"I locate myself in a relatively open space. I relax a bit, take a few breaths, gaze around. Then I close my eyes, and let myself begin to feel the whole bulk of my past — the whole mass of events leading up to this very moment. And I call into awareness, as well, my whole future — all those projects and possibilities that lie waiting to be realized. I imagine this past and this future as two vast balloons of time, separated from each other like the bulbs of an hourglass. And then, very slowly, I allow both of these immense bulbs of time to begin leaking their substance into this minute moment between them, into the present. Slowly, imperceptible at first, the present moment begins to grow. Nourished by the leakage from the past and the future, the present moment swells in proportion as those other dimensions shrink. I let the past and the future dissolve entirely. And I open my eyes...." ¹⁹

14. Attending

"Attention, in the Indigenous sense, has to do with the focus of all senses. Seeing, listening, feeling, smelling, hearing and intuiting are developed and applied in the Indigenous perspective of attention." ²⁰ — Gregory Cajete

Pay attention to your environment by using as many of your senses as you can at the same time. Try not to think about which individual senses you are using. This process is called 'synaesthesia,' the overlapping and blending of the senses. Then try separating your senses to pay careful attention to your place. Which way of sensing is easier?

15. Feeling Rooted

"Stories are prized because of their unique capacity to enhance the experience of rootedness to place." ²¹

— Belden C. Lane

Read a story about a place that helps you feel rooted there. How did the story help you to feel rooted? How can feeling rooted in a place help you?

16. Touching the Earth

"It was good for the skin to touch the earth and the old people like to remove their moccasins and walk with bare feet on the sacred earth." ²² — Luther Standing Bear

"Nobody seems to have the time to touch the earth; nobody is willing to put their hands into the soil. How can you know anything important unless you do that?" ²³

— Leon Shenandoah

Go to an outdoor place and remove your shoes and socks to walk barefoot on the Earth. (Make sure there is nothing sharp to injure your feet.) Bend down and touch the ground with your palms. Describe how it feels to touch the Earth directly in these ways. Do you feel the power and strength of the supporting Earth?

17. Questioning

"He [Ohiyesa's uncle] did not expect a correct reply at once to all the voluminous questions that he put to me on these occasions, but he meant to make me observant and a good student of nature." ²⁴ — Charles A. Eastman (Ohiyesa)

Go to a natural area and think of some important questions that might help others to observe the place closely and develop a more complete understanding of it. Select one of your questions and try to answer it yourself.

18. Magnifying the World

"The small hand lens is the perfect auxiliary to the human eye and mind. It opens a door to a whole new world of discovery in one's backyard or along the woodland trail. The lens takes up where the senses leave off, thereby sharpening all of them. Life, say the enthralled initiates to the world of the hand lens, is never quite the same after that first excursion into magnification, and the enlarging of human perspective, understanding, and appreciation of the world." ²⁵

— Virginia S. Eifert

Explore an outdoor area using a magnifying hand lens. What new discoveries or surprises did you find?

19. Using Adverbs, Adjectives, and Verbs

"Current! That's what makes a brook or a mighty river. Water is downhill motion. One good travel game is 'adverb hunting,' and streams are natural haunts for adverbs. Adverbs, you remember tell 'how,' modifying the action in verbs. How does the current flow? Swiftly, silently, swirlingly, slowly, stealthily, sluicingly, subtly. You may find adjectives easier, modifying the noun current. Fast, dashing, slow, lazy, hurrying, lingering, undercutting, depositing, circling, eddying. Or perhaps best, look for verbs. Verbs have action — and a stream always has action." ²⁶

— John W. Brainerd

Observe moving water or other movements in nature (e.g., trees swaying in the wind, clouds moving across the sky, bees foraging for nectar) and make lists of adverbs, adjectives and verbs to describe the motion. How does this exercise expand your awareness of the place?

20. Pledging Earth Care

Gary Snyder, a logger, poet, essayist, philosopher and activist, wrote a poem titled "For All," which contains a pledge of



allegiance to the Earth, emphasizing our interrelatedness:

*I pledge allegiance to the soil
of Turtle Island,
and to the beings who thereon dwell
one ecosystem
in diversity
under the sun
With joyful interpenetration for all.* ²⁷

Compose a pledge of allegiance to a place that reflects how you feel about it.

21. Finding Patterns

"I responded immediately when I received Douglas Wood's manuscript. I had recently seen a film by Richard Feather Anderson, which mentioned that in nature there are eight patterns in the way things grow. He had been inspired by a book called *Patterns in Nature*, by Peter S. Stevens, a teacher at MIT." ²⁸ — Wendy A. Halperin, artist

Look for different patterns or designs in nature. Can you find as many patterns (eight) as Stevens did?

22. Giving Back

"When the badger is alive he eats this herb. Whatever herb the badger introduces is especially good. Some consider his medicine stronger than that of the bear, as he digs deeper and farther into the ground. Eagle Shield said that he buried a little tobacco as an offering to the badger whenever he dug any of these roots." ²⁹ — Frances Densmore

Select a plant that is important to you and offer it to the Earth as a way of saying thank you for its blessings and gifts. Some native people offer tobacco, sage, cedar, sweetgrass or corn pollen as ways of showing gratitude. Does giving something special back to the Earth help you feel more thankful?

23. Asking Permission

"You must ask permission of the plant or the medicine will not work. Plants are alive; you must give them a good talk." ³⁰

— Navajo elder

When picking berries, fruits or edible plants for food or for making tea, ask the plant for permission to pick it. After picking from the plant, show your gratitude in some way. How does asking the plant for permission change the way you think about picking it?

24. Moving in Nature

"[Mary] Austin recognizes that how we move through or experience a particular natural environment can have lasting effects on how we perceive or come to value that environment." ³¹ — Corey Lee Lewis

Move through a natural area in a way that you think will allow you to experience the place fully. After you do this, share with others how you chose to move and describe how it changed the way you view the place.

25. Recognizing Interdependence

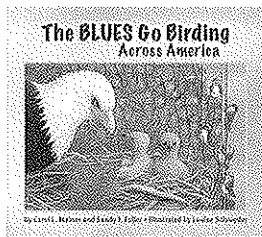
"We are all related' is a metaphor used by the Lakota in their prayers. It is a metaphor whose meaning is shared by all other Indian people." ³² — Gregory Cajete

Observe your surroundings and list the ways that you are related to that place. Then list the ways that all the things in that place are related to each other. How might becoming aware of how you are related to your surroundings cause you to value it more?

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Editor's Note: Clifford Knapp has designed worksheets that provide more detailed introductions and instructions for some of the activities in this article. The worksheets are posted at <www.greenteacher.com>. You will find the link to them in the table of contents for this issue (Green Teacher 88).

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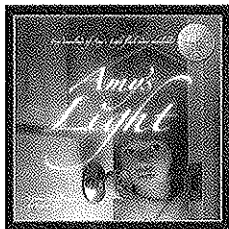
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