I love to explore classrooms! The first thing I do when assigned to a new classroom is search through cabinets and cupboards to see what the previous teacher left behind. Often, I discover things that haven’t been used for years or that I’ve never seen before! Finding such treasures has often renewed my creativity and enthusiasm for the new school year.

Not only do I search the new indoor classroom, but I also investigate the outdoor areas around the school. They become part of my inventory of teaching materials. In fact, the outdoor areas are some of the most important because they help connect the indoor classroom to the world in which my students live.

The outdoor laboratory can be anywhere outside school walls that the teacher chooses to use as a learning area. Here, nature becomes a living textbook. By going outside the classroom to instruct, we follow Christ’s example. In the Garden of Eden, He gave Adam and Eve their first lessons, using nature for their textbook. During His ministry on earth, Jesus often used the outdoor laboratory. “He made His lessons interesting and held the attention of His hearers by frequent illustrations from the scenes of nature about them.”

Likewise, today there are pages from God’s textbook everywhere, just waiting to be studied. Students can view the heavens for hours—by day, observing weather patterns in drifting clouds; at night, studying the twinkling stars and brilliant planets of our galaxy. Rocks, logs, and grass double as desks and chairs in this classroom. They can be both seats for observers and objects of study. Kneeling down, students can peer into cracks and crevices to find whole civilizations of tiny, scurrying creatures and can smell the pungent perfume of rich loam and green, growing things. They can feel the raised veins of a leaf and hear the wind’s whisperings. Nature provides students with an unlimited supply of sensory experiences to pique their imaginations.

Using the Outdoor Laboratory

Take Inventory

Beginning an outdoor laboratory is as simple as opening the door and going outside. Just as I prepare

*Carl Swafford*
The outdoor laboratory can be anyplace outside school walls that the teacher chooses to use as a learning area.

to do battle with dust and cobwebs when exploring a new classroom, be prepared to get dirty as you take inventory of your outdoor site. Ask an outdoor expert to join you if you’re not sure where to begin. Local volunteers from nature centers, private environmental groups, and representatives from government entities, such as the state or provincial fish and game agency, forestry commission, or the soil conservation service, can help you conduct these assessments.

Start with the immediate area around the buildings. Take your time, and peer into every corner where things could be stored or hidden. Make lists of unusual objects and features of the schoolyard. Take note of areas that are gravely, mowed, wet, or wooded. Compile a list of the number and types of trees and plants. Survey the buildings for materials like brick, stone, or wood. Locate nearby vacant lots, gardens, train tracks, or parks. Many of these things can be used in the outdoor laboratory. This survey of readily available resources will help you decide which activities will work best.

Plan a Lesson

Planning is the key to success. An outdoor assignment exposes students to many sensory experiences. According to Ellen G. White: “Jesus plucked the beautiful lily, and placed it in the hands of children and youth... He gave the lesson, ‘Consider the lilies of the field, how they grow...’” This involves more than taking students out on a nature hike or sitting under a tree to read a story. These projects, though useful, are free-time activities rather than actual outdoor laboratory lessons.

Review the goals and objectives of your indoor curriculum. Perhaps students need inspiration for a creative writing lesson or materials for an art project. Or maybe you want to enrich a math or history class. Identify the lesson you wish to teach and think of ways to achieve it in the outdoor laboratory. For example, if you’re teaching a history lesson about ancient civilizations, you could have the students learn how archaeologists discover clues to the past. Students can become “urban archaeologists” as they search the schoolyard and nearby community for clues to past history. Bricks, sidewalks, and other manmade materials become part of the past that students can see and feel. They can discover history in differences between sections of buildings and layers of asphalt.

Students might also investigate the habits of residents in nearby communities. Have them collect garbage from trash cans, ditches, and roads near the school, then analyze it to see what food people in the area prefer, where they shop, and how they treat the environment.

Math skills are required to calculate the pounds of garbage per person and the cost to taxpayers for cleaning up trash.
By going outside the classroom to instruct, we follow Christ’s example.

Social and environmental issues can be explored as students study how to dispose of the waste. Should it be burned, buried, or recycled? For English class, they can write letters to community leaders telling about their concerns for the environment or volunteer to help in a community clean-up project.

Students can also imagine what it was like to be an early pioneer or indigenous person living on the school site. Have them research what would they would have used for food, shelter, clothing, medicines, and dyes.

To be effective, each activity should offer a practical approach to learning the subjects normally taught only in the indoor classroom. This will integrate and reinforce learning through hands-on experience. At all grade levels, students learn best by doing. The more realistic the activity, the more meaningful and lasting will be the lesson.1

If you need additional clues or specific help with a unit, professionals from state, local, and national outdoor education organizations can help you develop a curriculum and put you in touch with other groups or individuals who are willing to help you. Contact nature centers, parks, zoos, and aquariums about current local programs that will contribute to your curriculum. Programs like NatureScope, Living Lightly in the City, and Project WILD can provide you with prepared activities to supplement the curriculum. Such lesson plans require little equipment or time to plan and provide connections to some major textbook curriculums (e.g., Holt, Merrill, and others). They’re not always complete units, but they can help stimulate your creativity in planning outdoor activities.

Find Equipment

Outdoor teaching does not require a great deal of equipment. However, whatever you use should be relevant to the students’ experiences and applicable to the lesson. At every grade level, less is often better. No equipment is necessary for many beginning activities. Often, a rock or a tree is sufficient. Help students understand that they can explore, investigate, and discover new things outdoors without a lot of equipment. A hand lens, pencil, clipboard, paper, and a few containers for collecting objects are all you need for most simple activities.

If textbooks list materials and supplies you don’t have, improvise. Drinking glasses, plastic tubs, and zip-closed bags can replace beakers. A hand lens can serve as microscope.

Teach the Lesson

Before going outdoors, have the students focus on the activity. They should know why they are visiting the outdoor laboratory and what is expected of them. Make sure the objectives are clearly defined, planned, stated, and understood by all, yet flexible enough to allow spontaneous learning to occur. Each student should have the correct clothing, equip-
ment, study materials and background information for the activity.

As you present the activity, observe the students’ reactions and participation. Be ready to interject questions that point in the directions you want them to explore. Good questioning techniques can increase student curiosity and excitement about discovery.

A vital part of each lesson is debriefing, which gives each student time to internalize the concepts. As you combine debriefing with observations of student participation, you will be able to evaluate the activity’s effectiveness in terms of student learning. Debriefing can be done indoors or, better yet, outdoors in a selected area. An easy way to involve students in this process is to use open-ended questions to reveal what the students learned, what insights they gained, and how they reacted. This feedback provides vital information for future planning.

**Roadblocks to Success**

*Fear of Management Problems*  
Perhaps you are afraid to go outdoors because “so much could go wrong.” How will the students behave outside where there’s less control? The first rule of the outdoor laboratory is to keep your group small. If possible, solicit help from a parent or a teacher’s aide and divide the class into groups of 10 to 12 each. This will make the activities more manageable.

Be sure to prepare students for the outdoor experience. Tell them briefly what to expect, how to dress, and what to bring. Warn them about any anticipated hazards, and describe the behavior you expect of them. If you anticipate problems of wonder and a love of nature will cultivate a cooperative spirit among their students and thereby reduce the likelihood of behavior problems.

*Lack of Knowledge*  
Many teachers are afraid they don’t know enough about nature to teach outdoors. National workshops are available to help those lacking experience. Such programs provide a good source of activities, hands-on experience, and peer involvement. A one-day in-service like Project WILD is enough to help first-time teachers get started. Other popular programs are Project Learning Tree, Aquatic Wild, and Project WET. You can enroll in these free programs at most state parks and wildlife and forestry agencies.

Another program available worldwide for teachers of grades 7 through 12 is GLOBE (Global Learning and Observations to Benefit the Environment), an international project that involves teachers and students in collecting information about their school environments. This information, along with other data collected worldwide, gives both scientists and students a clearer understanding of the changes in the global environment and helps them better understand how to improve the health of the planet. (For more information on GLOBE, see Lonna Henriquez and Gerald Linderman’s article on page 29.)

Teachers who want more experience can attend a resident outdoor-education program with their students. During the two days to a week that most such programs run, outdoor educators model activities and suggest lessons that the teacher can take back to the classroom. Some of these resident centers provide pre- and post-activities, as well as follow-up visits by a staff member to the school site.

*No Place for an Outdoor Classroom*  
Outdoor classrooms can be found not just at nature centers and parks, but also in every schoolyard. Many teachers feel that nature observation requires a rural setting, but Ellen White reminds us that “The rough places of nature, the wild places, God has made attractive by placing beautiful things among the most un-sightly.” No matter how barren or unex-
citing the site might appear, you can find many things on every school property that can be used for learning. Inner-city stu-
dents can search cracks in sidewalks for
insects and plant life, then study how these illustrate adaptation and survival. They can turn a third-story window ledge into a feeding station that attracts many
varieties of birds. Anyplace can be an out-
door learning site if you take advantage of
students' natural curiosity.

The Recess Syndrome
Students have been conditioned to ex-
pect learning to stop and play to begin
when they go outside. This response oc-
curs in all age groups—kindergartners
through college age. The academic com-
munity has unwittingly taught students
that learning has to involve textbooks and
classrooms. To overcome this mindset,
you may have to begin using the outdoors
gradually. Go outside for short intervals
with one or two specific goals in mind.
For the first lesson, have students make a
five-minute search of the schoolyard for
signs of animal life. Ask them to collect
three objects to observe with a hand lens
or a microscope. Each successive trip can
take more time as interest builds in vari-
ous activities. Students thus become ex-
cited about learning both inside and out-
side the school walls.

The Outdoors Is Not Just for Science
The outdoor classroom is a resource
room for all subjects and every grade
level. Certain parts of the curriculum can
best be taught out-of-doors. For example,
in grades K-2, students can go outside for
sensory walks during which they look for
colors, shapes, textures, and patterns, or
go on a special hike to look for items that
can be classified as nouns. They can col-
clect acorns, nuts, and stones to use as
math manipulatives.

Students in grades 3 and 4 can put
food in an animal track box, leaving it
out until the next day to see what kinds of
nocturnal creatures visit the school. They
can also make feeders for various types of
daytime animals.

Fifth and 6th graders will enjoy seeing
things in perspective. Drawing a life-sized
great blue whale on the parking lot allows
them to understand the enormity of this
animal more effectively than just looking
at its picture in a book. They can also po-
sition appropriate-size spheres on the ath-
etic field to represent the planets of our
solar system. For math class, they can be
asked to figure exact distances using this
scale model.

Seventh and 8th graders can measure
the amount of water flowing through a
creek or ditch and estimate how long it
would take that water to fill a local swim-
mimg pool. They can observe plants and
animals and write about them in a haiku,
a cinquain, or some other type of poem.

Problem-solving takes on a new mean-
ing on the high school level when coupled
with the outdoor laboratory. Students can
use math class to solve real engineering
problems, such as estimating the amount
of rainwater runoff from the parking lot.
Where does it go? How is it diverted to
reduce soil erosion? They can observe and
measure spider webs to understand basic
geometry applications. History classes can
research and debate local wildlife issues.
English classes can do creative writing ex-
ercises like pretending to "interview" ani-
mals after observing their activities.

The Challenge
The 21st century will bring even more
challenges in motivating students. Our
knowledge base will continue to increase
faster than we can assimilate it, and the
electronic media will consume even more
of the time and energies of our students,
distracting them from the natural world
around them. How can teachers solve this
dilemma? The outdoor classroom is part of
the answer.

By using students' innate curiosity
about nature and the outdoors, we can
help them develop their powers of inquiry,
reasoning, and creativity. This will help
satisfy their need for excitement naturally,
and provide the most powerful benefit of
all—a connection with the Creator. "The
book of nature is a great lesson book,
which in connection with the Scriptures
we are to use in teaching others of His
character . . . . As the works of God are
studied, the Holy Spirit flashes conviction
into the mind."* #

Carleton (Carl) L. Swafford, Ph.D., is cur-
cently Professor of Education at Southern
Adventist University in Collegedale, Ten-
nessee, and coordinator for the outdoor

Beginning an outdoor laboratory is as simple as opening the door and going outside.

teacher-education master of science pro-
gram at the university. Dr. Swafford has
taught math, science, and social studies at
the junior high and high school levels and
has worked as a naturalist/interpreter for
summer camps, nature centers, and nat-
ural history organizations. In 1995, he
was chosen Project WILD teacher of the
year for the State of Tennessee. You can
contact him at the School of Education and
Psychology, Southern Adventist Uni-
versity, Collegedale, TN 37315, or by E-
mail at swafford@southern.edu.

REFERENCES
1. Ellen G. White, Thoughts From the
Mount of Blessing (Mountain View, Calif.: Pa-
2. ______, Christ's Object Lessons
3. L. Roller, Outdoor and Environmental
Education Manual (Nashville, Tenn.: Metro-
politan Nashville-Davidson County Schools,
N.D.).
4. NatureScope, National Wildlife Federa-
tion, 1400 16th St. NW, Washington, DC
20036-2266; M. O'Conner, Living Lightly in
the City: Environmental Education Guidebook
for Grades K Through 3 (vol. 1, 1983);
________ and K. McGlaughlin, Living Lightly
in the City: Environmental Education Guide-
book for Grades 4 Through 6 (vol. 2, 2nd ed.,
1982); M. O'Conner, Living Lightly on the
Planet: Environmental Education Guidebook
for Grades 7 Through 9 (1983); ________, Liv-
ing Lightly on the Planet: Environmental Edu-
caiton Guidebook for Grades 10-12 (vol. 2,
1995) (for information on Living Lightly ma-
terials, write to Schlitz Audubon Center, 1111
East Brown Deer Rd., Milwaukee, WI 53217);
Project Learning Tree, 111 19th St. NW, Suite
780, Washington, DC 20036; Project WILD,
3340 Grosvenor Lane, Bethesda, MD 20814,
fax: (406) 994-1919, phone: (406) 994-5392,
E-mail: 422et@msu.oscs.montana.edu.
5. L. Roller, Baggage Tags for Learning
Out-of-Doors (Nashville, Tenn.: Metropolitan
Nashville-Davidson County Schools, N.D.).
7. ______, The Ministry of Healing (Moun-
tain View, Calif.: Pacific Press Publ. Assn.,
1905), p. 194.