

Connect™

Innovations in K-8 Science, Math, and Technology

May • June 2012

Special Edition

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CELEBRATING 25 YEARS!
A Special Edition

Thank You

This special edition of **Connect** marks our last issue. Coincidentally, this is the end of our twenty-fifth year. Originally produced as a newsletter, **Connect** evolved into a glossy-covered magazine and finally as a digital publication. It has always been independent, always advocated for relevant, inspiring education, and always featured the voices of educators and offered a way for all of you to share your ideas with one another.

Although notification that we would cease publication came before our May-June issue began production, I strongly felt some kind of last issue was called for. Not quite a newsletter, not quite an issue, this special edition is put forth to share useful information, as always (in this case, about great work happening with reptiles and amphibians), as a celebration of what we have accomplished, and to express our gratitude to our past authors, subscribers, supporters, and staff.

The halting of **Connect**'s publication could be interpreted as a sign of the times—one in which perhaps teachers do not have the time or the freedom to prioritize integrated, differentiated, inquiry-based, hands-on education. But we prefer to see it as a completion of sorts, a quarter century of reiterating the importance of these ways of teaching and learning. We leave you with a body of reference material in our [archives](#) which we hope you will continue to use.

Somehow I want there to be trumpets blaring away, choruses crescendoing, and a flurry of liberated doves or something as I celebrate you, the classroom teacher, the higher education teacher, the policy maker, the home schooler, the

retired professional, who have worked and generously offered your time, creativity, and energy, that students may develop their innate sense of wonder and industry. I want somehow to go out with a message of hope and possibility, telling you that your work is the most important thing happening today. I want somehow to leave you with a message of helping you to continue, with enthusiasm and drive, to teach tomorrow's innovators, inventors, problem-solvers, and pioneers. So, go! Teach! Support each other! And hopefully we have left you with something upon which you may continue to draw for a long time. Thank you all.

—Heather Taylor

HEATHER TAYLOR



A black-spotted salamander migrates across the road on a rainy spring night.

Connect™

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Connect offers a wide range of practical, teacher-written articles in five thematic issues through the school year. Each issue supports problem solving, inquiry, and multidisciplinary approaches to learning.

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COVER IMAGE: Joan Carey



Connect with Snakes

By Cindy Blobaum

During the past nearly thirty years, I have introduced a large number of people to live snakes. Most of the time, the introduction has been as part of a planned educational program from the nature center or zoo where I have worked. Other times, it has happened by chance during a guided hike through field, forest, or wetland, or during the Easter egg scramble at the church across the street. Whether through a planned meeting or by chance, a snake in my hand has almost always caused an instant reaction—of interest or aversion. Few people seem to have a neutral opinion about snakes. As snakes are a vital part of healthy ecosystems, it is unfortunate for snakes and us that the aversion group seems to be larger and definitely more vocal about their feelings. The best way to advocate for increased understanding and respect or even simply tolerance of snakes is through education.

Although I am not a snake expert, I have worked with live little brown snakes, garter snakes, fox snakes, bull snakes, black rat snakes, massasagua rattlesnakes, Burmese pythons, reticulated pythons, boa constrictors, and others. Through looking for wild specimens, caring for captive animals, and handling both kinds, I have learned a lot about these slithery, scaly, sensational animals. I have developed simple models that demonstrate some of the amazing snake adaptations. I have also learned how to encourage people to look closely and make connections between snakes and more familiar, comfortable objects, like shoes and baking racks. I have written up much of these materials and included them in my book, *Awesome Snake Science: 40 Activities for Learning About Snakes* (Chicago Review Press, July 2012).



CINDY BLOBAUM

Look at the scutes on this snake!

The Initial Encounter

The book is aimed at kids. Kids are great for absorbing information, but it is important for respected adults to lead the effort. Happily, many educators realize the instant attention snakes command from their students. Wishing to capitalize on that interest, they look for a presenter who can bring a live snake into the classroom. There are usually a number of options for potential snake presenters—zoos, nature centers, pet stores, and high school and college biology/zoology departments often keep snakes as part of a teaching collection. However, a single encounter with a live snake isn't enough. It's important to expand the topic with activities and information that help students make connections. So the following is a general script of how I introduce a live snake to a class, and an overview of some activities (there are a lot more in the book) that I wish a teacher would do before or after my visit.

INTRODUCING A LIVE SNAKE

Today you are going to meet a live snake. Before you meet that snake, I think it's important that you know a little more about it. So we're going to take a quick tour of snake anatomy. Ready? Open your eyes wide and don't blink. Imagine you can't blink. Snakes don't have eyelids. So even when they are asleep, their eyes are open.

Look at your neighbor's eyes. See that black circle in the middle? That is called the pupil. The pupil lets light into your eyes so you can see. When it is dark, your pupil gets very big so more light can get into your eyes. When there is bright light, your pupil gets very small so your eye doesn't get blinded by too much light. Some snakes have round pupils like ours. Others have pupils that, when small, look like a slit instead of a circle. Most of the time, it is nocturnal snakes that have slit pupils, and diurnal snakes that have round ones. The pupil shape will not tell you if a snake is venomous or not.

Put an index finger on the outer corner of each eye. Gently move your finger in a straight line away from your eyes. What do you run into? That's right, your ears. Those flaps of skin and cartilage on the sides of your head help you gather sound waves and move those sound waves into your inner ear. Snakes don't have any external ears. How do they hear?

Place a hand across your throat and hum. Those are vibrations you are feeling. Vibrations are made when something moves. You hear things when vibrations are traveling through the air. Those vibrations are called sound waves. Sound waves can also travel through water, wood, and soil. You can also hear by feeling vibrations through your bones.

Stick out your tongue. Wiggle it around. Put it back in your mouth. Rub your tongue around the roof of your mouth. Do you feel any holes up there? Most people don't have any holes in the top of their mouths. But at the very back of your mouth, there is a space where your mouth and nose connect. This space is why sometimes when you laugh right after you take a drink of milk, the milk comes out of your nose.

A snake has two holes in the roof of its mouth. Those holes are the Jacobson's Organ. A snake's tongue is forked; it has a right side and left side. When a snake sticks out its tongue, it gathers tiny particles on the tongue. When a snake puts its tongue back in its mouth, those particles get transferred into the Jacobson's Organ. The cells there use those particles to add more information to the smells a snake gets from its nose. The Jacobson's Organ is so sensitive, it can tell if smells are coming from the right or left fork on the tongue.

Feel the bottom of your shoe. Is it slimy? Is it bumpy? Look at the pattern on it. Compare the pattern on the bottom of your shoe with the pattern on the bottom of your neighbor's shoe. Some of you might have big bumpy patterns; other might have slick soles with no pattern.

Snakes are reptiles, which means they are covered with scales. They do not have wet, slimy skin like frogs and salamanders, which are amphibians, might. Each type of snake has its own kind of scales. Most snakes have big, flat belly scales called scutes. They use the free end of these scales to push off the ground so they can move forward. Did you know it is impossible for a snake to slither backward? On their sides and backs, some snakes have big scales on with a ridge in the middle. These keeled scales feel bumpy. Other snakes have very small, smooth scales that lay flat. These scales feel smooth and almost slippery. I wonder what type of scales my snake has? What do you think is the best way to find out? By touching it? I agree. Let's take a closer look at a live snake . . .

Corresponding Activities

VISION:

Have each student cut two 3-inch × 8.5-inch strips of paper. On one strip, use a paper punch to create small round eye holes. On the other strip, cut small vertical slits for the eye holes. Compare your view looking through each strip.

HEARING:

Tie an 18-inch piece of string to each corner of a wire rack. Twirl the free end of each string around an index finger. Place each index finger on the bone directly behind each ear. Use your middle fingers to plug each ear. Bend over so the rack hangs freely. Swing the rack into the edge of a table or counter and listen through your bones.

SCALES AND PATTERNS:

Place a piece of paper over your shoe. Take the paper wrapper off a crayon and use the side to make a rubbing of your shoe. Look at the pattern you made. Compare this pattern to the pattern on other shoes.

There is a great snake section template in the book *Remarkable Reptiles*. I have found it works well to give students specific patterns www.f.mnh.ufl.edu/herpetology/f-guide/colorpattern.htm found on local snakes to make on their section.



CINDY BLOBAUM

I can hear without my ears!

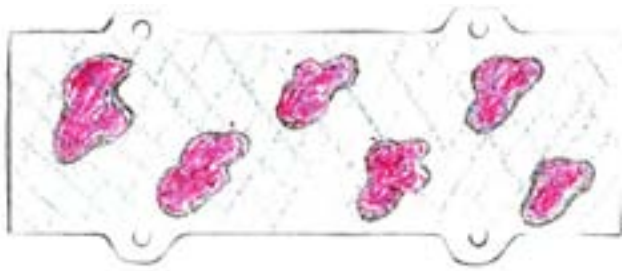


This print was created by cutting a snake shape in the bottom of a flip flop, applying paint to the shape and pressing it onto paper.

CINDY BLOBAUM

BLOTCHES

- Use one color to cross hatch your snake section to create scales.
- Using a second color, make irregular shapes on the back scales (between the tabs) and sides.
- If desired, outline the rings with a third color.



CINDY BLOBAUM



How long is this fake snake?

ONE MORE IDEA:

Have students practice estimating the length of a variety of ribbons, shoe laces, rubber hoses, and fake snakes. ✍️

*Cindy Blobaum is currently a part time naturalist with Dallas County Conservation, based in Perry, Iowa. Her work experience includes positions with a zoo in Illinois, nature centers in Colorado, Connecticut, Iowa, Nebraska and Virginia, and teaching elementary science methods classes at Drake University, Grandview University and Simpson College. She is the author of *Awesome Snake Science*, *Explore Night Science*, *Geology Rocks*, and *Insectigations*.*

RESOURCES

Bernard, Robin. *Remarkable Reptiles: Complete Theme Unit with Fascinating Facts and Awesome Activities that Teach About Lizards, Crocodiles, Turtles, Snakes, and More!* Scholastic Professional Books, 2001.

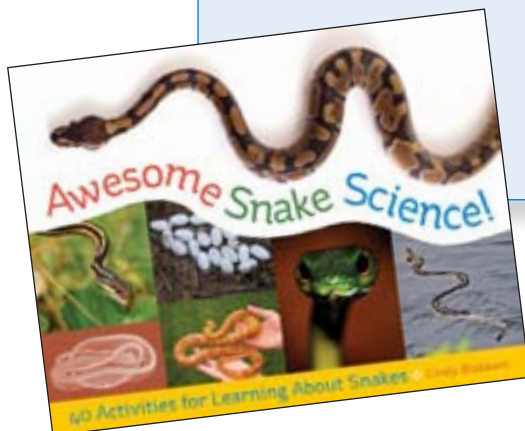
Blobaum, Cindy. *Awesome Snake Science: 40 Activities for Learning About Snakes*. Chicago Review Press, 2012.

Mattison, Chris. *Snake*. DK Adult, 2006.

Awesome Snake Science: 40 Activities for Learning About Snakes, by Cindy Blobaum, is a collection of informative and playful experiments, art projects, and games. Learn about all kinds of snakes: big, little, venomous and benign. Readers can experiment with everyday tools and materials to learn how snakes' fangs and jaws work, how snakes smell, hear, and see, interesting facts about life cycle and anatomy, and names and indentifying characteristics of many different snakes. No snakes are necessary to enjoy and learn from these experiences, and they may help even your most squeamish of students to really want to meet a live snake.

Awesome Snake Science: 40 Activities for Learning About Snakes. Chicago Review Press, due out in July, 2012. 144 pages. \$14.95.

www.chicagoreviewpress.com. 312-337-0747.



Salamander Crossing

by Joan Carey

Vernal pool exploration is by far the most sought after school program at [Bonnyvale Environmental Education Center \(BEEC\)](#) in West Brattleboro, Vermont. For two decades now, first-through-eighth graders from Brattleboro to Bellows Falls have been introduced to the amphibians and macro-invertebrates of this watery world at BEEC.

“Salamander season,” marking the beginning of all this activity at vernal pools, is notorious for its unpredictability. As legend has it there is a “Big Night” in which all the early springtime amphibians (most notably wood frogs, spring peepers, along with spotted and Jefferson salamanders) make their annual migration to their ancestral waters to sing, dance, and ultimately mate. This event is said to occur conveniently on the first warm (above 40 degrees) wet night in spring. As is often the case, life is seldom so simple. When it’s wet, it’s cold. When it’s warm, it’s dry! In recent years, big nights have been the exception, and multiple little nights have been the rule.

An Early Spring

This year, salamander season is starting off on the fast track as wood frogs began fervently singing their quack-like chorus on the advent of spring—March 20. This is the earliest sighting of wood frogs at BEEC on record, ever. School groups typically schedule their class trips to visit the vernal pool in April or May. Fortunately, on March 21, Pat Branley’s first- and second-grade students from NewBrook Elementary School were the beneficiary of this unexpected vernal choir. They came as a part of their study of animal life cycles, expecting to learn about the winter strategies that Vermont animals have been employing. Instead, they were beckoned into the woodlands to witness this amphibious rite of spring.

We followed the sound of the wood frog chorus through the courtyard, across the street, and up into the woods. Once within viewing distance of the choral group, the song descended rhythmically into silence. The magic of the moment was captured as all nineteen six- and seven-year-olds followed suit, squatting at the water’s edge and joining the hush. Seconds turned to minutes, then, as if choreographed and rehearsed to perfection, one quack led to two, which led to five, and soon we were enveloped in the raucous world of beckoning male wood frogs once again. We did not even try to collect organisms, like fairy shrimp or caddisfly larva—a common and excit-



JOAN CAREY

Recording observations in a science journal



STUDENT WORK COURTESY OF JOAN CAREY



Click above to see a video of wood frogs singing.

ing part of most visits to the vernal pool. Instead students squatted very low and made eye contact with their newfound amphibious friends.

Who Is Watching Whom?

Spencer asked, “I wonder if that frog is looking up at all of us wondering about us and what we are doing here?” Back at school, he wrote, “I am a wood frog. I see creatures I have never seen before. I stare at them. They stand on two legs. They are tall. They are loud and there are many.” Another student questioned if some of the frogs were making the noise from under

the water, noting that “Once one frog started talking they all started talking.” Many students were able to describe, in detail, the bandit-like black mask marking of the wood frog. Pat and her class left BEEC that day with pages of notes that would be translated into class experiments, stories, reports, and poems.

Students from Angela Walton’s class from Putney Central School and Linda Kosiba’s class from The Putney Grammar School have been active monitors of vernal pools both at BEEC and in Putney. They have collected data on pool size, temperature and depth over time. They have sampled the water in different seasons in search of amphibians and macro-invertebrates in various stages of their life cycles. Through these activities, the students learn to observe relevant details, to record these accurate observations on charts, and to present them in graphs and tables. They begin to understand what types of questions are testable. In doing so, they also are given the opportunity to practice real-world language and math skills.

JOAN CAREY



Field notes



Measuring water depth

JOAN CAREY

Both Neighborhood Schoolhouse and Academy School are currently involved in vernal pool monitoring programs. [The Neighborhood Schoolhouse](#) will be making weekly visits to the “Frog Pond” behind their school, while third graders from Academy School will be visiting BEEC’s vernal pool. Their work will help to deepen our understanding of the vernal pool at BEEC, and add data from a new aquatic environment to our studies. To follow their work, visit: <http://vernalpoolponderings.blogspot.com>

Crossing Guards

Many local children and their parents have become citizen scientists through BEEC’s Salamander Crossing Brigade program. These are the brave and hearty souls who venture out in the dark on those warm (40 degrees warm!) and wet spring nights to assist amphibians, en route to their ancestral breeding waters, safely across roads. Crossing guards also collect data by counting the number and types of species found, along with their locations. While this often means being up past regular bedtimes, it is an exciting way for families to spend time together. It is not necessary that families stay out until the last salamander has made their way to safety—participating at any level is a great help to the amphibians of Vermont and to BEEC’s Salamander Research Initiative. Even more, it is an opportunity to help our children learn, firsthand and by the examples of many other eager participants, how valued our amphibian neighbors are.

The spring migration of salamanders shakes us out of our routines—we cannot schedule their arrival into the convenient spots of our busy lives. But like Pat and her class, along with the many crossing guard families, if we can answer the call of the wild with just a touch of spontaneity the rewards are great. ✍

Joan Carey is the Education Program Coordinator for Bonnyvale Environmental Education Center in West Brattleboro, Vermont. To learn more about school programs, vernal pool inquiries, and professional development opportunities in life and earth sciences for k–8 teachers, you may reach her at joan@beec.org.



An enthusiastic member of the Crossing Brigade

MORE FROM THE ARCHIVES!

Want to read more ideas? These articles can be found in the *Connect* archives:

[Fourth Graders Explore Vernal Pools](#)

Connect: Vol.11 Num.3, January/February, 1998

This interview is with two fourth-grade teachers about the vernal pond project they conducted in the spring of 1997.

Author: Casey Murrow

[Pondering Pools All Year Long](#)

Connect: Vol.11 Num.3, January/February, 1998

Who can resist the sight of a bandit frog or a yellow polka dotted salamander? Vernal pools, also known as, “wicked big puddles,” are the best places to grab a glimpse of these seldom seen amphibians. A vernal pool is a small shallow pond forming in the spring with rain and snow melt. They last for only 2 or 3 months until their water evaporates.

Authors: Paul Bocko, Susie Denehy

[Intensive Field Studies: Middle Schoolers Contribute to State and National Research](#)

Connect: Vol.11 Num.1, September/October, 1997

In this remarkable four-week program, students conduct significant research on amphibians and reptiles.

Author: Casey Murrow

Searching for Ohio's Amphibians And Reptiles

by Martha Shaw and Charlotte Stiverson

Taking the time to look is such an important part of being outside...

Weaving nature topics into all-theme studies creates connections and deeper understanding. As the Lower School librarian and fourth-grade teacher at Columbus School for Girls in Columbus, Ohio, we decided to collaborate and interlace into all areas the study of amphibians and reptiles. Ohio is a main theme of fourth grade; this study of amphibians and reptiles tied in perfectly with our work in prehistoric Ohio and Ohio's natural habitat, as well as with our research, creative writing, and math.

Our first major unit of study focused on the prehistoric Ohioans, the people of Ohio who lived 2,000 to 15,000 years ago. While the students learned that these past people did not leave any written records, they did discover the many artifacts and primary sources that teach and remind us about their lives. We researched and toured historic sites around the state, the girls realized how much these people were connected to the land. Many of the surviving artifacts represent some form of nature. As we looked closely, we found several amphibians and reptiles, such as Serpent Mound, Alligator Mound, and effigy pipes of snakes and frogs. Through observations and class discussions we came to realize that these creatures had to be living over 2,000 years ago in order for them to be depicted in the work of the prehistoric people.

Connecting with Creatures

To continue our interest and understanding, each girl adopted an Ohio amphibian or reptile. Fortunately our Ohio Department of Natural Resources is a wonderful educational resource. The staff there willingly provided each student with Ohio field guides, one on reptiles and one on amphibians, as well as student magazines with information on this topic. After a class session spent perusing these guides and discussing the differences between amphibians and reptiles, each girl selected a creature to study. These selections were then used for researching information to create a classroom field guide, as well as to work on various projects.

As we researched, we looked for the characteristics that help to identify these different amphibians and reptiles. Each girl received a worksheet for recording information, which was then copied over onto a final guide sheet. Not only did the girls look for habitat, food, and identification characteristics, but they also tried to determine the population status both in numbers and location. Ohio maps were colored to indicate counties where their amphibian or reptile can be found today. We talked about how plants and animals have become endangered and then discussed why this is happening and how we can work to protect our wildlife's

Haleigh pauses from her research to illustrate her field guide entry for the smallmouth salamander.



MARTHA SHAW

habitat. One of the field guide responses asked the students to record their ideas for the protection of wildlife. Many listed saving land, avoiding development of land, watching how we walk on the land, and helping animals when we see them on the road.

Heading Outdoors

After ample time was spent researching and discussing these amphibians and reptiles, we took a walk to a local park to look for amphibians and reptiles and to learn more about their habitats. We checked under logs, looked along the creek, and walked quietly so as not to disturb or scare any wildlife. Normally past classes have not been as inclined to take quiet nature walks, but this class had learned a Native American walking technique when visiting one of the prehistoric mound sites. They wanted to use it again while trying to experience as much nature as possible.

The private, hidden life of amphibians and reptiles can make finding these critters challenging, especially with time limited mainly to the first and last two months of the school year. While we didn't find reptiles or amphibians on our walk, we did observe lots of things, such as rotten logs, swimming ducks, moss, leaf litter, and singing insects, and finding the habitats of these creatures. Taking the time to look is such an important part of being outside, and one that can easily be lost in today's world. Having this time to look and appreciate nature provides the students a deeper level of understanding and compassion. We ended our walk at the creek overlook, giving time to write reflections, short stories and poems and to draw. Some chose to write acrostic poems using their amphibian or reptile's name for the first letter of each line. Nina wrote one for her eastern box turtle:

Science, History, and More

When ending our prehistoric Ohio unit of study, we included a creative project that linked the prehistoric people with the amphibians and reptiles. The assignment involved two options:

Option 1: Create a 3-dimensional representation of your Ohio amphibian or reptile that represents our time period and will let future generations know something about our current environment and habitat.

Option 2: Create a 3-dimensional representation of your Ohio amphibian or reptile that represents artifacts from prehistoric Ohio.

Both of these options required that the media selected to use for this project should be recycled and reusable, which ties in with our fourth-grade class being the class responsible for



CHARLOTTE STIVERSON

While visiting our local park, Jeffrey Park, the students spend time observing, drawing, and hunting for signs of reptiles, amphibians, and other spring happenings.

EASTERN BOX TURTLE

Everywhere in Ohio almost.

A very common turtle in Ohio.

Small and large.

The box turtle may carry a wide variety of markings.

Eats small animals and plants.

Really shy.

Nice.

Beautiful.

Often found in woodlands.

X-rays? I wonder what they look like.

Their habitat is sometimes under rotting logs.

Usually it is dark brown, or black, accented with yellow streaks.

Rarely different colors than dark brown, black and yellow streaks.

Their length is 4.5 –6 inches.

Loving.

Eastern Box Turtle.



For her three-dimensional project, Sophia crafted a hand-sewn foxsnake, complete with a rattling tail.

maintaining our division's paper recycling program. Plans and drawing ideas were due a week after the assignment, and the final project was due two weeks later. Many creative ideas appeared, including a hand sewn foxsnake with beans to create the rattle in the tail and a diorama of the prehistoric habitat for the Eastern wormsneke created from a gummy worm living amongst mounds made from yogurt cups.

Throughout the year we have read magazines, done amphibian and reptile puzzles, and have completed geometric math sheets with turtles made from hexagons and frogs made from circles. We have created an Ohio amphibian/reptile field guide from our identification worksheets. This field guide also includes drawings and pourquoi tales, with titles such as "How the Hellbender Got So Long," "How the Salamander Lost Its Fur," "How the Eastern Wormsnake Got Its Name," and "Why Did the Ouachita Map Turtle Have Yellow Stripes?." Creating stories about the adopted amphibian or reptile encouraged the students to think further about the characteristics and appearance that defines this animal, as well as to be creative.

Through this study, the students have developed observation skills, often arriving in the morning and telling of nature sightings, such as a deer or raccoon in a backyard or a goldfinch in a birdfeeder. As spring comes to central Ohio and as we return from

spring break, we plan to continue our trips to the local park to hunt for amphibians and reptiles. Whether we find a snake or salamander or end up listening to the birds sing and the fish jump around the creek, we are observing our world. Through researching and through making observations, the girls now have a better understanding of the roles these amphibians and reptiles play in our natural world and how we need to be responsible citizens who provide a protected environment in which people and nature can live together. ✍

*Martha Shaw began her career as a public children's librarian in Maryland and became Lower School librarian at Columbus School for Girls in Columbus, Ohio, twenty-six years ago. During the fourth-grade year, Martha and Charlotte have also applied the art of book whispering, learned from Donna Lynn Miller, author of *The Book Whisperer*.*

Charlotte Stiverson has taught fourth grade at Columbus School for Girls in Columbus, Ohio, for over twenty years.

RESOURCES

In Ohio, the Ohio Department of Natural Resources (ODNR) is a wonderful resource for educators. Each year ODNR produces a young adult magazine that contains lots of information that students enjoy reading. One of the magazines we used had information on frogs and salamanders, which provided an ideal way to discuss as a class these animals. Games to play and games to make were included in this magazine along with the articles. ODNR also provides kits for different areas of study that are signed out for two weeks. We used their amphibian and reptile kit, which contained skulls, skins, stamps, books, x-rays, and other hands-on items to help the children explore the topic further. Be sure to check out your state's department of natural resources to see what materials they can supply to further your unit of study.

CONTINUING WITH *Connect*

Subscribers may continue to access all their issues by using the links to Yudu, which has hosted **Connect** since January of 2010. All of these digital issues will also live on the [Synergy Learning website](#) as PDFs. Synergy Learning will continue to maintain the [Connect archives](#) as well, so most of our published content is still available to you!



Hot Off the Press to Cool On-Screen

What a pleasure to see each new issue of *Connect*, ready for our readers! For many years, we waited for the printing presses to roll to a stop. More recently *Connect* took on a digital form—each issue with exciting and usable teaching ideas. Altogether, this process has gone on for twenty-five years and nearly 150 issues. With regret, we have had to call a halt to our production of the magazine, for financial reasons, not educational.

Change, over that period of time, is inevitable and welcome. In education, it has brought all sorts of opportunities, from technological advances, to great new literature, better buildings and infrastructure, along with the essential ingredient: teachers with far more resources at hand, ready to be used, if circumstances allow.

For those of us who have focused on encouraging inquiry, problem solving and the support of teachers creating flexible learning environments, recent years have brought constraints. The national focus on high-stakes assessment has increased pressure for uniformity in classrooms and schedules. The negative messages about schooling brought on by No Child Left Behind legislation have left too many schools in a reactive situation, threatened by state agencies, and worried about parent and community attitudes to news about public education.

Creative Responses

A few days ago, I listened as longtime *Connect* author, Bob Coulter, talked to a group of educators and other professionals at Antioch New England in Keene, New Hampshire. Bob, who is based at the Missouri Botanical Garden in St Louis, noted a more limited set of opportunities for inquiry in classrooms. Later, he told me that some school groups scheduled to come to his ecology center have canceled at the last minute, required to stay in school and prepare for upcoming tests.

Despite challenges, Bob Coulter is a great model for us in terms of responding constructively to current circumstances. Now, for example, he is working on ways to use new technology in support of creative learning. In several different projects, he is using the best of educational games with kids to explore options for inquiry. Upper elementary students in one of his projects have designed their own investigations and built games to extend their learning and that of others. Some of this work occurs in out-of-school time and, here again, Bob is exploring new avenues to give kids access to resources well beyond conventional school settings and hours.

There are many ways to keep creativity in classrooms. *Connect* has published dozens of them. We remain determined to find ways to keep this kind of communication going, though for us it will no longer be in a magazine format. To our writers and to our readers, thank you for your participation in a twenty-five year experiment!

To Heather Taylor, our longest serving and very skilled editor, thank you for dedication to quality and to creativity! To Susan Hathaway, who has kept us on track, on time, and focused for all of these years: You have really been both the glue that keeps an organization together and a major component of the leadership since you arrived on the scene! Thanks to both of you and to so many others who helped to start *Connect*, nurture it, and point us in constructive directions.

Casey Murrow

EXECUTIVE DIRECTOR,
SYNERGY LEARNING INTERNATIONAL, INC.

Synergy Learning International

While **Connect** will no longer produce new issues, **Synergy Learning** is still going strong and continues to offer quality professional development in many ways.

We design professional development experiences for specific situations—and we do that with you, the schools and educators wishing to pursue a specific set of goals.

Our on-site workshops and short courses are designed for groups of educators in the areas of science, math, technology-at-work and integrated curriculum. The sessions engage teachers in activities and discussions around a specific theme or area of the targeted curriculum. The purpose is to share both skills and information on a subject, new techniques or teaching methods, and provide for transferability of this information to the classroom and school. Designing the sessions is a collaborative process of meeting the needs of the educators and sharing our expertise.

We focus on several components:

- multiple sessions
- opportunity to test new ideas in classrooms
- time for feedback and discussion with colleagues
- exploration of national and state standards
(both for the requirements they present and the opportunities they raise)
- attention to assessment;
- follow-up after the formal sessions are over

We do not offer one-time workshops since there is a great deal of research that documents that these have minimal value.

EXAMPLES

Our work has taken us from Alaska to North Carolina and throughout the northeast states. On the Hopi Reservation in Arizona, we worked with teachers to make the curriculum more responsive to students' experiences, using resources with which they were familiar. In North Carolina, we worked with teachers in an urban elementary science and technology magnet school to refine the curriculum and to increase its relevance over a three-year period.

In a year-long course now underway in Vermont, teachers began by setting group and personal goals and then planning a schedule that met their needs and related to classroom plans as well.

In another Vermont school, teachers wanted both professional development and community awareness of their work. In this project, Synergy Learning staff conducted sessions with teachers and also modeled in-class work with students.

To learn more, visit [Synergy Learning Professional Development Page](#) or contact our Executive Director, Casey Murrow: casey@synergylearning.org.



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Innovations in K–8 Science, Math, and Technology

Special Edition