WONDER of Learning Leads to WONDER of Science
I have just returned from peaceful Lake Tiak-O’Khat in north central Mississippi where we ended yet another year-long series of retreats for the WONDER (Writing Opens Doors of Educational Realms) of Science. Although this year’s group was the smallest, it was one of the most powerful. Dynamite really does come in small packages!

Ten years ago, I had no idea teaching science—or teaching writing—could be so exciting. Facing teacher burnout, my friend Anne Wilson encouraged me to attend a mini-institute at our local writing project. “There’s this former teacher that I think you’d like to hear,” she explained. “His name is Bob Tierney and he used to teach science ... and coach.” I agreed to give it a try.

For the first three days of that mini-Institute, I was indoctrinated in the philosophies of the writing project—teachers teaching teachers, writing-based learning, writing as a process. I liked what I heard because it made sense. Finally Bob arrived, and sure enough, I immediately saw how writing could transform a science classroom. Bob explained many of the writing-based strategies he’d used, and described his students’ enthusiastic responses. Bob Tierney was talking to me!

When the new school year began that August, I took back the twenty or so strategies that Bob shared with us that summer, eager to incorporate writing-based instruction into my own teaching. The problem was that I was so excited and impatient that I tried too much too soon. My exhausted students, their writing hands still smoking as they trudged to their next class, were heard saying, “He’s been to another workshop.”

That first year was probably a bit taxing for my students, but I was having fun, experimenting like a real scientist in a lab with all sorts of new equipment and chemicals. The next summer, I attended the summer institute, and subsequently developed my own on-the-road demonstration, showing teachers how I had incorporated writing into my science classroom. I shared ideas for science journals, new ways for students to take notes, alternate ways to write lab reports, and a host of other writing-based activities and strategies.

While I was on my personal quest to improve my science classroom, Sherry Swain and Sandra Burket, co-directors of the Mississippi Writing/Thinking Institute, were developing the series of WONDER of Learning programs, designed to provide staff development in writing education to teachers of at-risk students. Over the years, Sherry and
Sandra had expanded the WONDER of Learning programs to include reading, social science, and even mathematics. One day I sheepishly asked, "Why isn’t there a WONDER of Science?" Sherry and Sandra replied, "We’ve been waiting for you!" So with the support of my own personal cheerleading squad, I began planning the first WONDER of Science series.

Each of the WONDER programs follows the same pattern. In the summer teachers attend a three-and-one-half-day intensive workshop, saturated with writing project philosophy. Then, during the school year, we meet again for four
week-end retreats, usually held at a retreat at beautiful Lake Tiak-O’Khata. This model allows teachers to discover new ideas, try them out in their classrooms, and then meet together again to discuss triumphs, questions, and more new ideas.

For the WONDER of Science, participants share two days in the summer with Bob Tierney. Bob pumps the crowd with wit and wisdom, fielding questions from the K-12 science teachers. His true stories about teaching in the urban Fremont schools near San Francisco help teachers at all levels to identify with their own students. Organizing the basic content of the remaining four retreats is left to me. However, I usually have no problem with this task since the WONDER participants have lots of ideas that I merely set in motion.

Tuition for the retreat is often paid with Eisenhower Funds, monies made available mainly for the training of mathematics and science teachers. Here’s a typical schedule: We convene in the dining hall at 6 p.m. for a seafood buffet, followed by a very informal let-your-hair-down meeting in a room surrounded by oaks, elms, and monstrously tall pine trees. We write in journals for twenty minutes, share what we’ve written, then show samples of our students’ writing. We talk about our successes and our gallant attempts at making science come alive with writing-based activities. If participants do not feel inclined to share, they simply sit and listen, whatever feels natural. No pressure to perform—after all, it is a Friday evening, the end of yet another hectic week, and most participants are to be commended for their effort to show up at the lake. After a restful night and a breakfast on the sundeck, we reconvene to discuss why certain strategies did or did not work, to show more samples of student work, and to pick each others’ brains. There is no podium, no clock on the wall, and no hurry to leave on Saturday afternoon.

Looking back on the past six years of the WONDER of Science, I now appreciate the power in the teachers-teaching-teachers model. Good teachers have a lot to offer one another. School districts don’t have to hire experts who charge exorbitant fees to motivate us to do better jobs, because we are the experts. And when teachers come together, especially in a relaxed setting away from school, and talk about what’s happening as we begin to incorporate more writing into our science classes, we can’t help but improve our teaching. The WONDER of Science has been a powerful tool, and is continuing to provide surprising and welcomed changes for teachers—and their students.
To illustrate that the elementary and secondary teachers were seriously bonded and intended to extend this new relationship to our students, we decided to ask some of our classes to write each other, to become pen pals.

My students balked a bit, thinking they had nothing to say to second-graders about themselves, let alone science. However, with a bit of coaxing, my sophisticated tenth- and eleventh-graders penned short introductory letters to Lea Montgomery’s second-graders, telling a bit about themselves. Within a week we had a response. I announced to my class, “Your pen pals from Mrs. Montgomery’s class have written back, but I suppose we can wait until the end of the period before we take a look inside.”

“NO!” they defiantly exclaimed. “We want to know NOW!”

Inside the bulging brown envelope were hand-written letters, heavily decorated, complete with pictures of each student. I passed out the letters and my students laughed and smiled as if they had received free passes to the movies for a year. I asked them to respond and to tell their new pen pals what we were studying in science. “Remember,” I warned, “explain it in language that they will understand.”

As it turned out, the students began to bond through the mail, and in the spring, Lea and her assistant teacher, brought the second-graders to our school to visit. My students took them into the lab and performed several mini-experiments with them. Then we split up into small groups and the high-schoolers took their younger friends on a tour of the school. When they returned to the classroom, we played ecology games and did a graph on the board to illustrate what had happened during one of the games.

As the second-graders boarded the bus to return to their own school, they passed by us and several hugged me and my student teacher who said later that her heart almost melted. One little brown-eyed girl paid us the biggest complement by saying, “I can’t wait until I get to high school.”

You can decide for yourself whether this strategy was successful at breaking down any barriers that may have existed between high school and elementary school students.

— John Dorroh