Editor's Note

Teaching Investigation Skills

Investigation skills are taught for several reasons—to help students become better thinkers and problem solvers; to help them be better versed in the nature of scientific work; and to help them remember content and facts. But it has been frustrating to me as a teacher and teacher educator to find specific ways to teach these skills. We know that students do not learn new science skills in observation, for example, without explicit attention to the skill. Simply observing something does not improve observation skills. Yet almost every major commercial curriculum will rattle off all of the process skills in a lesson when none are directly taught. Throughout this issue, we aim to fill some of those gaps.

Investigation skills help students become better thinkers and problem solvers; help them be better versed in the nature of scientific work; and help them remember content and facts.

- Science, if boiled down to its essence, would involve the conduction of fair tests. While the scientific method we memorized in junior high doesn't exist in a rigid form, the idea of a fair test still has considerable power. In "Are You UV Safe?" (p. 26), the authors lead students from developing questions through collection and interpretation of data.
- Observation skills are fundamental to many scientific investigations. We use tools to extend our vision to distant stars or focus on things too small to see. In "Unlocking the Power of Observation" (p. 32), young students are taught what makes good scientific observations.
- Traditionally, science fairs were the one place that students were able to practice independent investigation skills. Many times dreaded by students and parents alike, students often felt ill prepared to develop a question, develop an investigation, or make a conclusion. The results were often some sort of foaming papier-mâché volcano. Well, hop on "The Road to Stress-Free Science Fairs" (p. 36) for rescue! This author moved the science fair from homework assignment with varying parental support to an in-class event with support and less pressure. The same process can be used by any teacher wishing to teach investigation skills.
- Probability is important in many sciences, and it is critical to evaluate statistics offered in the news. Investigations often require some knowledge of whether something happens by chance or might be due to a treatment or change. But, it can be a tough topic to teach. "The Confidence Game" (p. 40) offers help in the form of a game in which students become familiar with probability and confidence through tossing dice.

Observant readers will notice a new column, "Perspectives" (p. 64). This column grew from responses and requests from readers. In this era of accountability, we must be able to back up choices with evidence. Each month, this column will provide a summary of research on a topic of common interest to elementary science teachers and leaders—you! The first column tackles a big area—the effects of teaching through inquiry. Please share the column with colleagues (like principals or district administrators) who might value or need this information. We hope the new column serves to reinforce, defend, and extend our knowledge of solid classroom practice.

Lastly, as *Science and Children's* editor, I occasionally receive a piece that stretches me. We don't often have a place for poetry in the magazine, but when I saw the poem, "There's More to Teaching Science" (p. 24), I was sure it had a place in *Science and Children*. It's a perfect way to start the year, and we are pleased to present it here. Why not read it to your class and discuss what science really is.

With investigation at their center, we hope the articles this month help you lead your students to a deeper understanding of how science is conducted and the types of questions science can and cannot answer. I applaud your efforts!

Chris Ohana