

Editor's Note



Dear Colleagues,

If we remembered just a small fraction of what we've been taught, we'd all do well on *Jeopardy*. If I try to recall what I actually learned from, let's say, my Early Medieval History of Europe class, I remember—and may even still be able to discuss—the ascetic monks who sat on poles or in caves removed from any

comforts or distractions. Why did I remember this? I wrote a paper about them. Then I remember dental caries in early agricultural communities and the cyclic religious revivals throughout American history. Why do I remember these when the other neurons from college seem to have atrophied? I wrote papers about them.

How does writing help? If we look to that important summary of research, *How People Learn* (Donovan, Bransford, and Pellegrino 1999), it is clear that writing in science can fill several functions in learning. First, it can help both student and teacher understand what they think they know. Preconceptions can become apparent through writing. If teachers know what students think about a subject, teaching can become more focused.

A second principle from *How People Learn* is that concepts must be taught in some depth. Writing is a perfect avenue for that, allowing students to explore subjects in greater depth. Finally, metacognitive skills are critical for developing conceptual understanding in a subject. We all know from struggling with papers in college that there is nothing like writing a paper or essay exam to expose gaps in our knowledge.

In an elementary classroom we often conduct discussions in lieu of written work. While discussions are necessary and helpful, they don't often capture everyone's understanding or even a complete view of a single student's understanding. Writing can help us know what we know as well as what we don't.

There is one more practical reason for using writing to

teach science: It can also help you teach writing skills. If a teacher only uses writing as a vehicle to learn science, an enormous opportunity is missed to teach both. At a time in which teachers are pressured to teach more and more to higher standards, writing in the content areas can provide an authentic way to teach writing skills.

The articles in this issue can help. "Making Thinking Visible" (page 20) demonstrates how to promote greater critical-thinking skills through writing. Students assess their own thinking in order to understand science as well as become better writers. This model has potential to help teachers promote greater reflection and learning.

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"Student-Centered Notebooks" (page 26) provides tips for teachers to incorporate science notebooks into their teaching. It has long been a pet peeve of mine that teachers provide students with worksheets that tell them what to record. Sure, as students are just beginning to write or learn about a topic, scaffolding is necessary. But at some

point students need to observe and record for themselves. The authors explain some ways to use and assess notebooks that students maintain as they study science.

In "Project Notebook" (page 30) the authors share how they introduced other teachers to the uses of science notebooks. Teachers are often willing participants in professional development built around curriculum integration. This workshop provided solid rationale and guidance to teachers implementing notebooks.

"The Art of Reviewing Science Journals" (page 43) sketches out what teachers need to understand and do in order to use journals effectively. In my own early teaching experience, I remember having students write journals but not fully knowing what I should do with them. This piece helps teachers become clear about why and how.

We at *Science and Children* hope you have a few leisurely moments over the winter holidays to relax and rejuvenate. See you in the New Year. Cheers!

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