

“Step away from the textbook...”

A Success

I am so excited about the direction that science education is taking. After attending training for the Connecticut BEST portfolio scoring this summer this became even more apparent. I am thrilled that we look for teachers to support children in gaining conceptual knowledge through higher level thinking, and that inquiry in the science classroom is supported with such vigor. With movements such as Project 2061 and the AAAS Benchmarks there is great hope for science literacy in America. And what a crucial time for this to occur when the continuation of technological advances are being held hostage due to misinformation and misunderstandings of American citizens! The time has certainly come to take away the mystique of the sciences and to dispel the myth that only the elite can understand the Sciences. We must help all Americans understand that it is not only their right to be science literate, but they have the ability to be so.

My idealism keeps me energized. I have actually witnessed this “educational renaissance” taking place, and I do believe the more we get the word out there the more powerful the movement will become. With my eighth grade students, I work the entire year to get them to be confident critical thinkers and to view the world around them differently. The greatest compliments that I receive come from them in the form of statements such as, “...while I was playing soccer all I kept thinking about was forces, momentum, ...” The fact that they begin to think these thoughts at all is even more powerful.

In my graduate courses at UNH (University of New Haven), I practice what I preach. So often the students have heard the buzzwords such as inquiry, but have not seen it in practice. I conduct my classes as I do at Bailey Middle School and the results are amazing. The students I have in my science methods class begin to truly open their eyes, comparing and contrasting their former science education. They are overwhelmed with the differences. They become invigorated about teaching science beyond textbooks and yellowing lecture notes. They also learn that all students, including inclusion students, have the ability to become science literate. I continually spread the word that anyone can learn anything, it is all in the way it is presented. There is such hope for science education. As an educator I am proud and excited to be a part of a group that advocates a positive change in our teaching methodologies.

My Vexation

What saddens me about science education is that despite the fabulous research done and the countless articles on the subject, the majority of educators still do not seem to be getting it. Instead of challenging the mind and fostering critical thinking skills teachers so often ask students for nothing more than to regurgitate what they have been told or have read in a text book in boldface. We have become a nation of borrowed knowledge merely memorizing for the moment. Unfortunately students turn off to the incredible world of science because of this approach. In the fall 2004 issue of *The Howard Hughes Medical Institute Bulletin*

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scientists expressed their feelings about the science education their children were receiving. It was simply titled “The Case Against Rote.” The irony of the standardized science portions of state tests is that although they are being designed to look for conceptual knowledge they miss their mark. So many teachers preach “We need to do content, content, content.” The resulting problem of this teaching approach is that students become dependent learners lacking confidence to critically think.

The dependency on memorization is only part of the problem, and the lack of connections made between science concepts and the real world is another. Science teachers often miss wonderful opportunities to inspire their students by not integrating concepts with students’ interests. Our dependency on textbooks alone limits the enriching experience that we could otherwise provide our students. The ‘textbook only’ approach hinders the innate curiosity inhibiting ones’ ability to internalize concepts as they relate to life experiences.

I am honored to be a part of this conference and I look forward to the collaboration with my peers to address the following:

- How do we encourage teachers to allow students to get their hands dirty through explorations and lab work?
- How do we transition from being the “sage on the stage” to a learning facilitator.
- What can we do to ensure that science is truly for all Americans?