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Earth Science in the Curriculum- or Not



As someone who is deeply engaged in Earth science, you know how vital the geosciences are to living in today's world. Students and their parents receive daily reminders in the form of news headlines about natural disasters, energy crises, technological advances, and global climate controversies. No matter who you are, the importance of this discipline is clear.

Yet many educational systems are turning their backs on Earth science. Public schools are dropping Earth science from the curriculum. Geoscience enrollments at higher education institutions are faltering, and some colleges and universities are closing relevant departments. As a result, not only are citizens ill-informed on key issues, but our nation's economic and geopolitical standing is threatened by a critical lack of expertise in the public and private sectors. Geoscientists are failing to make the case — to students, parents, education officials, and key decision makers — that Earth science ranks among the most important science subjects for young people to study.

Why? Federal mandates, such as the No Child Left Behind (NCLB) legislation, have led public schools to limit the scope of curriculum and instruction. Much of the academic focus has been on subjects (primarily reading and mathematics) that appear on standardized tests. However, in 2007, NCLB mandates that science is to be tested once a year in each of the three grade bands: 3-5, 6-9 and 10-12. This new testing requirement may make school districts more amenable to visiting geoscientists as a resource to both students and teachers, but only if Earth science is considered as much as of a "core science" as biology, chemistry and physics. If your community is like many others, education decision makers may be scaling back or eliminating Earth science offerings.

Maybe your local school principal is discouraging spending classroom time on the subject or your school board is excluding it from the district's required curriculum. State legislators could be minimizing Earth science content in academic standards and testing and/or nearby colleges and universities could be dismantling geology departments

or folding them into other departments that downplay geoscience.

As we write this, some states are increasing the science requirements for high school graduation. For example, Texas has increased the number of years of science classes from three to four. Although no firm decisions have been made, at least this presents an opportunity for a core class that focuses on or includes Earth science. Other states currently have local districts with Earth science courses or components in their curricula. As a whole, however, in most of the United States, students will spend their high school years with little or no exposure to Earth science.

On the other hand, virtually every state requires strong Earth science courses or components in middle school. While this seems like good news, consider that middle school science course vary in depth of content and scientific thinking. Many middle school science teachers, while talented and dedicated, lack formal instruction in Earth science. And 6th grade is a long time ago for most of us—but it serves us to remember that most adults (and voters), will at best have a middle school level appreciation for Earth science issues.

You, however, can make a difference by becoming involved in your local schools. With your geoscientific expertise and ties to the community, you're in a perfect position to point out the importance of Earth science to students, teachers, school administrators and parents. To help your efforts, the American Geosciences Institute has created the Pulse of Earth Science web site with state by state information on the status of Earth science education. Look up the data for your state to see if Earth science is an endangered subject for grades 6 – 12 students. If Earth science is under threat, follow the advice in the Advocacy Guide. The guide has information on how educational policy is made, what you can do to influence that policy and what your expected results might be.

Above all, be visible as an enthusiastic and involved representative of the geosciences in your local schools. Bring as much content, critical thinking, and applied analysis as you can when you visit middle school classes (and think of the students as future voters). Write your state and local school boards in support of rigorous Earth science classes as core parts of high school graduation requirements. Remind them of how critical it is for the citizens of your state to understand local Earth resources or geologic hazards. Work with educators to integrate Earth science in classes to cover science standards and prepare for state-wide exams. You do know your local science frameworks and tests, right?