Using Geochemistry to Improve Access to STEM Education

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Access to higher education is a prerequisite to success in modern society. Over the past decade, the net price (tuition minus financial aid) at public, four-year colleges has risen 6.7% per year beyond inflation. In the previous two decades, the rate of increase was lower, but still more than 4% above inflation. If this trend continues, it threatens one of the core elements of the American Dream, putting a college education out of reach for many young people in America, especially for middle-class families who have difficulty qualifying for financial aid. And those who cannot afford higher education will have limited opportunities to succeed in a global economy based on knowledge and innovation. As geochemists, we have an opportunity (and an obligation) to contribute to changing this trend, particularly in making science, technology, engineering and mathematics more accessible, preparing students for employment in the science and technology jobs of the future. A key part of this effort is to focus not just on colleges and universities, but also on middle and high school curricula and pedagogy. A variety of possible strategies will be discussed for using earth science, and geochemistry in particular, for making fundamentals of basic science and technology more accessible to students at multiple levels from middle school through university, simultaneously improving education outcomes and lowering costs.