



# Better Teacher Pay Would Improve Math and Science Instruction

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In many schools across the country, students hand in lab reports and math homework to teachers who have no background in science or math. The Missouri Department of Elementary and Secondary Education says that Missouri schools suffer from teacher shortages in those subjects. Governor Blunt has pledged to address the problem. He held a Math and Science Summit last month, and he recently named twenty scholars to a Math and Science Alliance.

Such state-wide initiatives are a good start, but we're unlikely to solve the problem until changes are made at the local level. Unfortunately, when it comes to hiring math and science teachers, school districts' hands are tied. Under Missouri law, school districts must use rigid salary schedules that apply to all teachers. They can't offer better pay to teachers of shortchanged subjects, or to teachers with valuable credentials and experience. Those restrictions prevent school districts from hiring the best teachers. Crucial subjects like math and science are the hardest hit.

What causes a teacher shortage? In a recent study, University of Missouri economist Michael Podgursky looked at public school teachers' wages compared to the wages earned in other professions. He found that teachers as a group aren't underpaid, but some individual teachers are. Most teachers, if they weren't teaching, would probably find jobs in nearby fields like social work and library science. Teachers earn more than those professionals on average.

However, math and science teachers might choose to work in architecture or engineering—fields that pay better than teaching. Podgursky found that teaching is an attractive position compared with the other options available to English majors, but that a physics

major often has much more lucrative alternatives. Therefore, when school districts offer the same salary to English and physics teachers, physics teachers are in short supply.

A National Center for Education Statistics (NCES) study of biology teachers highlights the problem. Of U.S. secondary-level public school students in biology classes, 39 percent were taught by a teacher who did not have a major or minor in biology. Some of these teachers had studied elementary education, physical education, or English. When science majors go into engineering, preparing the next generation of scientists is left to people who would be better qualified to teach Shakespeare or soccer.

Poor teacher education holds the U.S. back as it struggles to catch up with other countries in math and science instruction. Students in Asian countries such as Japan, Korea, and Singapore consistently score higher than American students on the Trends in International Mathematics and Science Study (TIMSS). The difference between U.S. teachers and teachers in other countries stands out in a TIMSS report on eighth-grade mathematics teachers' backgrounds. In the U.S., only 41 percent of eighth-grade students were taught by teachers who had majored in mathematics, 30 percentage points below the international average.

In order to solve the math and science teacher shortage, school districts will have to break away from strict salary schedules and offer math and science teachers better pay. This past session State Rep. Allen Icet sponsored a bill that would allow districts to use hiring incentives to attract teachers with desired qualifications or experience. The state of Missouri should give districts the option to reward hard-to-find teachers. If math and science teachers are offered reasonable salaries, they'll no longer be hard to find.

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## About the Author



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