

comment

SPECIAL FOCUS: **STEM EDUCATION**



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STEM education: Not just for the next Neil Armstrong

By Rep. Randy Hultgren (R-Ill.)

“I think I knew as a little girl that I was addicted to the stars and the universe and trying to understand it.”

“I’ve been lucky to have a number of mentors. ... For me some of the most exciting [lectures] were on neutron stars, these spinning pulsars.”

“High school teachers were really important. Also my parents — my father always challenged me [with] all kinds of math quizzes.”

This is what some of the top astrophysicists in the world told the Committee on Science, Space and Technology when I asked how they began their journey and were inspired to become scientists.

The common thread among all of them? Early, inspiring experiences followed up by relevant school subjects and caring mentors and educators that sparked their interest and gave them a vision of something bigger out there to explore.

STEM education — those key subjects of science, technology, engineering and

math — was central to their journeys.

Yet science and math education isn’t just about building the foundation for a career in research medicine, architecture, space exploration or startup technologies.

It’s about learning basic problem-solving.

It’s about learning to fail and trying again with even more determination the next time. It’s about learning resilience — good old-fashioned picking yourself up, brushing yourself off and trying again.

It’s about honing individual skills while working toward a solution.

It’s about building soft skills like confidence and teamwork while collaborating in a group on a project.

My son has shared with me his aspiration to become an astronaut — and I hope he does. Yet American jobs in every field in the future require these skills, and employees will need them to succeed and enjoy what our society has to offer.

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That’s why this fall I have launched my STEM Scholars program for energetic students in my congressional district in Illinois.

The inaugural class of 19 STEM ambassadors will represent and promote the possibilities created by science, technology, engineering and math.

My hope is that these students will form the team that cures cancer, splits the next subatomic particle at Fermilab National Laboratory in Batavia, builds the next Hoover Dam or a better robot.

But more than that, I want these students to demonstrate

the promotion of science and literature. Knowledge is in every country the surest basis of public happiness.”

Technological advances today will help ensure happiness and quality of life by improving our healthcare, economic opportunities and everyday lives.

We are rapidly heading in the direction of becoming an innovation economy whereby all citizens of the future must possess basic knowledge of technology. They also need to understand life’s big picture to see how technological improvement could improve overall society. From nurses and grocery store checkers to fashion designers and farmers, technology is central to core job skills in the future.

As we work toward that future, it is our responsibility to spark our children’s interest in the subjects and fields that will dramatically improve our world.

Hultgren is co-chairman of the STEM Education Caucus and a member of the House Science, Space and Technology Committee.

A decade is way too long to wait

US economy risks falling behind without skilled STEM workers

By James Brown and David Evans

We applaud the U.S. Department of Education report last week that presented an “aspirational” vision for STEM teaching and learning by the year 2026. To be sure, the STEM subjects — science, technology, engineering and mathematics — have been hot-button issues over the last few years, both inside and outside the Beltway. But why in the world is this blueprint for change slated for the year 2026?

The Business Roundtable and Change the Equation estimate that major American companies — already begging for skilled STEM workers — will need nearly 1.6 million STEM-literate employees for the workforce in the next five years. And these are not just STEM-centered jobs; the Center on Education and the Workforce points out “the knowledge, skills, and abilities that are associated with a STEM education are now in demand not only in traditional STEM occupations, but in nearly all job sectors and types of positions.”

The American economy simply cannot wait until the year 2026 to realize this vision for STEM education. The rest of the world will have long moved ahead.

We need to take action now to ensure high-quality STEM learning experiences for all students and their communities. Congress must provide adequate funding for the innovation and technologies needed to implement STEM initiatives. The STEM Education Coalition and the National Science Teachers Association, and hundreds of other groups, want to see the highest possible funding for the STEM-related programs outlined in the recently passed education law, the Every Student Succeeds Act (ESSA). Title II and Title IV of the act are slated to improve teaching and provide support to students. Title II support can promote innovative and improved STEM teaching and learning that includes integrated changes in curriculum, technology, teacher professional development, assessment and strong school leadership.

We are especially encouraged with the House of Representatives’s funding for ESSA Title IV Part A that would grant funds to high-need districts so they can provide students with a well-rounded education, improving both instruction and student engagement in STEM. Districts can also elect to use the funds to help increase access to STEM for underserved and at-risk student populations; support



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STEM-focused education can help instill a lifelong love of learning.

students participation in STEM non-profit competitions; integrate other academic subjects, including the arts, into STEM subject programs; create STEM specialty schools; bridge after-school and informal STEM programs; and expand environmental education in their schools.

Equally important, Congress and the administration must work with the business, professional, research and education communities toward a common vision of STEM education that will meet current and future workforce needs.

The process of learning and practicing the STEM disciplines is critical to more than our workforce and economic future. STEM ignites discovery and questioning skills in students and instills a lifelong love of learning. It is critical that we have a STEM literate citizenry that appreciates science and can understand and apply science and STEM reasoning skills to the issues and challenges we face each and every day, such as the startling advances in genetic engineering, the shifting concepts of privacy in an internet-connected world and the challenges of living with a changing global climate.

2026 is just too late!

Brown is executive director of the STEM Education Coalition. Evans is executive director of the National Science Teachers Association.

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