



# STEMconnector

## State of STEM Data Series

This series provides short, easily digestible sets of answers to the STEM talent data questions that our members face from inside and outside their organizations.

## What progress has been made in STEM education & workforce development?

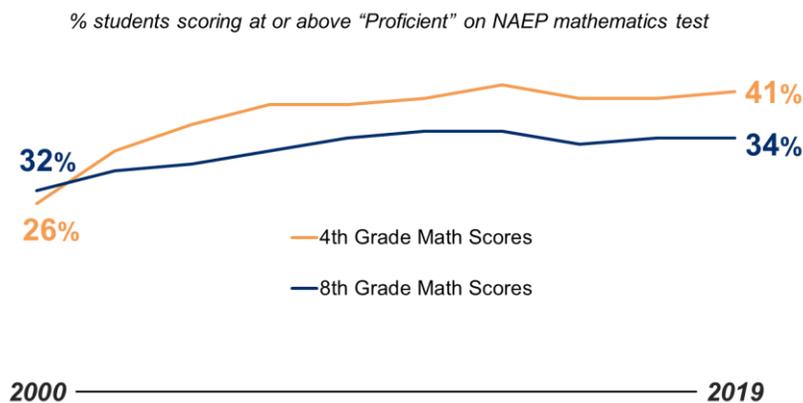
The term "STEM" was coined by the National Science Foundation in 2001 – almost 20 years ago.<sup>i</sup> They chose this term in order to focus our collective attention and activity on the importance of developing a STEM educational foundation and, ultimately, a skilled workforce that could meet the nation's economy and security imperative.

Since then, we have invested heavily in improving STEM outcomes from K-12 years, through postsecondary, and into the workforce.

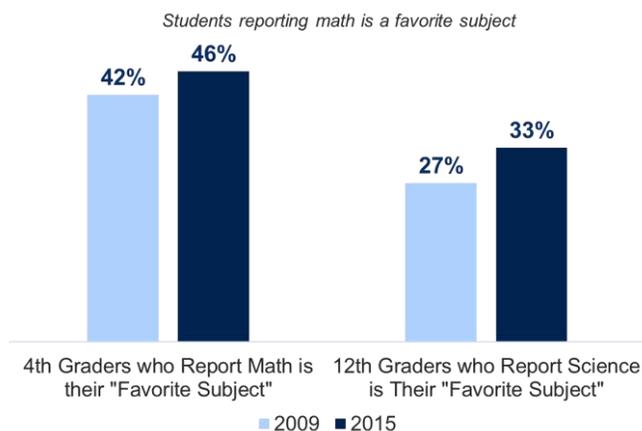
Naturally, that begs a question: Over the last two decades, have we seen any improvement in STEM education and workforce outcomes?

**Yes, we have seen *some* positive outcomes.**

1. Students are showing **improvement in math fundamentals**, with increases in the proportion of 4<sup>th</sup> and 8<sup>th</sup> grade students scoring "proficient" or above on national exams.<sup>ii</sup>



2. Students are increasingly **interested in math & science**.<sup>iii</sup>



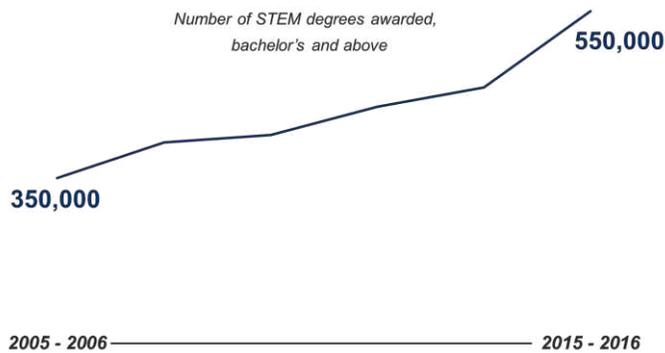


3. More students are **taking advanced STEM classes** in the K-12 years.<sup>iv</sup>

*% increase in students taking AP classes, from 2009 to 2012*

AP Calculus	56.3%
AP Biology	80.3%
AP Computer Science	286.7%

4. **More postsecondary STEM degrees are being awarded**, showing an upward trend over the last decade with degrees at the level of bachelor’s and above.<sup>v</sup>



**While we have seen improvements over the last two decades, it is simply not enough.**

While many aspects of STEM have improved over the last 20 years, there are still many aspects that have remained unchanged. Employers are still struggling to hire skilled STEM employees; are not enough STEM -ready workers in the talent pool. There has been little progress in improving the diversity of the STEM workforce, with few gains in the full inclusion and participation of women, racial and ethnic minorities, students from rural communities, and others who are often overlooked.

**What can we do to move the needle on “not enough?”**

We can start by more deeply understanding the true nature of the complex STEM talent challenge in front of us. That includes recognizing the importance of every individual, organization, and sector in the STEM talent ecosystem. It also includes unpacking the nuance of the STEM talent gaps, understanding there is no single, quantifiable gap but rather five interconnected gaps. Instead of asking “have we made any progress in the last two decades?,” we should be asking:

- How can we create meaningful partnerships across the STEM talent ecosystem?
- How can we address the five nuanced STEM gaps?
- How can we embed diversity, equity, and inclusion into our collective STEM talent work?

*If you are interested in learning more and accessing additional research, please visit STEMconnector’s website <[www.stemconnector.com](http://www.stemconnector.com)>*



### References

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- <sup>i</sup> STEM Education is branching out (2009). Pittsburg Post-Gazette. <https://www.post-gazette.com/news/education/2009/02/10/STEM-education-is-branching-out/stories/200902100165>
- <sup>ii</sup> Math Assessment (2019). The Nation's Report Card. <https://www.nationsreportcard.gov/>
- <sup>iii</sup> Survey Questionnaires Results: Students' Views of Mathematics, Reading, and Science (2015). The Nation's Report Card [https://www.nationsreportcard.gov/sq\\_students\\_views\\_2015/](https://www.nationsreportcard.gov/sq_students_views_2015/)
- <sup>iv</sup> National Science Foundation & National Science Board's Science and Engineering Indicators (2018). <https://www.nsf.gov/statistics/2018/nsb20181/report/sections/elementary-and-secondary-mathematics-and-science-education/highlights#high-school-coursetaking-in-mathematics-and-science>
- <sup>v</sup> STEM Majors Are Accelerating in Every State, Just as Humanities Degrees Are Declining (2017). EMSI. <https://www.economicmodeling.com/2017/09/01/stem-majors-accelerating-every-state-just-humanities-degrees-declining/>