STEM

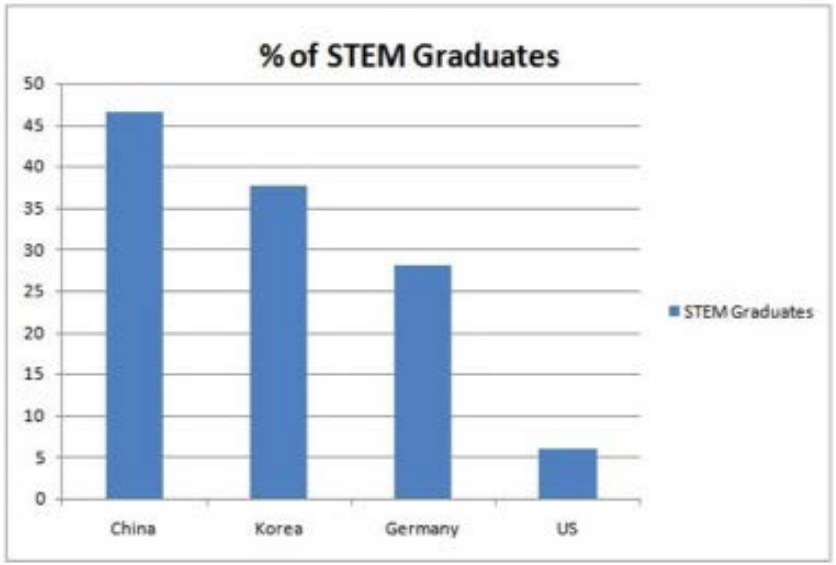
SCIENCE • TECHNOLOGY • ENGINEERING • MATHEMATICS

Solidifying Partnerships with Education and Industry

OKLAHOMA STATE DEPARTMENT OF EDUCATION

WHAT DO YOU SEE?

- According to the U.S. Bureau of Statistics STEM jobs are expected to increase by 21.4%. and 80% of jobs in the next decade will require technical skills.



Graph provided by STEMventures.org

BY THE NUMBERS

- The U.S. will have over 1 million job openings in STEM-related fields by 2018; yet, according to the U.S. Bureau of Statistics, only 16% of U.S. bachelor's degrees will specialize in STEM.

OKLAHOMA SNAPSHOT

- The Alliance for Science & Technology Research in America (ASTRA) has projected by 2018 there will be 81,000 STEM related Oklahoma jobs that will need to be filled.

4 YEARS FROM NOW!

SHOULD WE BE WORRIED?

- The Alliance for Science & Technology Research in America (ASTRA) has reported that only 24.9% of Oklahoma students show interest in STEM

- National Average is at 25.5% interested in STEM

SO WHAT MUST CHANGE?

- No longer can we just look for the schools alone to solve this National Crisis!

- Full commitments by education and industry to work together for the long term and align educational standards with that of industry expectations/needs.

STEM VISION

- *To ensure Oklahoma students become inspired learners and prepared leaders who can solve the challenges of a world of vastly emerging STEM careers.*

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WHO'S INVOLVED?

- Stakeholders are…
  - STEM business and industry leaders in Oklahoma
  - Formal and informal STEM educators
  - Local, state, and federal elected officials
  - Local and state chambers of commerce
  - Professional societies active within the state

WHAT'S THE GOAL?

- Create a robust consistent K-12 STEM educational experience for ALL students in Oklahoma so that they may make informed decisions on STEM career pathways and see the *relevance* of instruction as it relates to the workforce.

EDUCATIONAL CHALLENGES

- Garnering the holistic support of business and create a sense of urgency to move from the "discussion phase" to actually making the commitment.

- Creating a common language that representatives from education and those from business can use to forge strong long lasting partnerships.

EDUCATIONAL CHALLENGES

- Convincing companies to avoid the "curriculum du jour" trap and instead support *standards- and research-based* education programs that have a track record.

- Articulating at the outset the outcomes both partners expect and how they will benchmark those outcomes and measure success.

EDUCATIONAL CHALLENGES

- Identifying the win-win for both parties when the cultures are so different.

- Finding common ground and developing mutual respect when the partnership involves scientists/engineers working with teachers

INDUSTRY CHALLENGES

- Changing personnel at partner schools and school districts. (losing the focus)

- Facing the threat of a new curriculum potentially being adopted by a school district

INDUSTRY CHALLENGES

- Increasing state and federal mandates for schools that focus primarily on math and language arts leaving STEM curriculum behind

- Gathering and keeping all the partners together at the table (staying the course)

INDUSTRY CHALLENGES

- Uncovering the people within the company who have the energy—and passion—to make things happen.

EDUCATIONAL REWARDS

- Partnering with business brings a whole new level of resources to the table
    - STEM expertise (rigor and relevance)
    - Professional Mentorship
    - Financial resources
    - Human resources
    - Political clout

INDUSTRY REWARDS

- Improving education for the next generation and helping to foster a diverse STEM talent pool and a science literate workforce.

- Creating an environment where the partners have an open dialogue and lasting relationships endure.

INDUSTRY REWARDS

- Building employee morale and enthusiasm.
- Recruiting and retaining high quality employees.
- Fostering goodwill for companies in their communities.

OSDE STEM TEAM

- Jeff Downs –Executive Director of STEM
- Tiffany Neill- Director of K-12 Science
- Levi Patrick- Director of Secondary Math
- Jennifer Lamb- Director of Elementary Math
- Lori Boyd- Director of Advanced Placement
- Joel Smith- STEM Coordinator

DID YOU KNOW?

In this report, we have responded to the recommendations made by Governor Mary Fallin's Science and Technology Council (See Appendix A). Three Goals create a framework for the report, seen below in (1) red, (2) orange, and (3) green. Each Goal is supported by multiple strategies which are shown below the goals and listed as A, B, etc.

As the report progresses through each Goal, there is an introduction to the goal that helps clarify its necessity and introduces the related strategies. Subsequently, each strategy is introduced with a title, related projects and expected results.
Related projects are categorized as Bold, New, and Existing. **Only Bold projects are detailed in this report**.

Much research has gone into the development of this strategic plan and, although each report, book, or journal article is not always referenced in the descriptions provided, a Works Consulted section has been provided at the conclusion of the report.

1 Access to STEM Education	2 Highly Effective STEM Education	3 Leverage Stakeholder Support
A Innovative Instruction	A Teacher Recruitment	A Community Partnerships
B Learning Environment	B Teacher Expertise	B STEM Awareness
	C Professional Development	
	D Recognition	

*Details not provided in the report.