

ARKANSAS STEM Works Facts (2.0)

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STEM Works Defined

- STEM Works is an initiative of the Governor’s Workforce Cabinet to transform education by recognizing that future demands will be driven by the 21st century economy. STEM Works focuses on the following: (1) preparation of STEM teachers, who are skilled in problem-based learning; (2) the creation of secondary schools designed around hands-on learning, student teams, and projects that integrate elements of the Common Core curriculum from multiple subjects; and (3) fostering 21st century student-skills development that matches the needs of regional industry clusters.
- STEM Works has two major components: secondary education and post-secondary education.
 - Secondary Education Component
 - (1) The **New Technology Network High School** model integrates STEM education and extensive project-based learning throughout the entire curriculum;
 - (2) **Project Lead The Way** models offer rigorous and innovative project-based curriculums in pre-engineering in middle and high school grades or biomedical sciences in high school; and
 - (3) The **EAST Core** demonstration project will extend EAST-based principles into math and science classrooms, allowing hands-on, problem-based learning to be connected to the STEM curriculum;
 - Post-Secondary Education Component

- The **UTeach** STEM teacher-preparation model recruits college students majoring in STEM disciplines to consider becoming teachers.

STEM Works Goals

- The vision is for every high school to have a 21st century learning environment. The short-term STEM Works goal is to have 10 high schools signed up by January 2012 to begin implementing the New Tech High School model in the 2012-13 school year. The long-term goal is to have half of the state's high schools signed up within 10 years. School districts have the option of volunteering and helping to provide funding for the STEM Works implementation.
- The vision is to increase the number of new, certified, secondary STEM teachers. The short-term goal is to implement the UTeach model of pre-service teacher preparation at three or more Arkansas campuses. The long-term goal is to prepare 1,000 new, certified, secondary STEM teachers in 10 years.

New Tech High School

- New Tech high schools employ integrated problem-based learning throughout the entire high-school curriculum. Students use technology to facilitate their learning, while working on educational projects that incorporate curriculum elements from multiple classes. (For example, students study math in literature.) Students work in teams in open areas. Teachers act as facilitators to help students become directors of their learning processes.
- Students at New Tech High Schools experience a more hands-on educational process that better prepares them for the rigors of college and career. They develop a more rigorous and realistic approach to their studies, which is critical for student success after graduation.
- Schools implementing New Tech High Schools
 - 2011 Implementation
 - Cross County School District (the high school is in Cherry Valley)
 - Lincoln School District in Washington County
 - 2012 Implementation
 - Arkadelphia School District
 - Dumas School District
 - El Dorado School District
 - Highland School District
 - Hope School District
 - Marked Tree School District
 - Riverview School District
 - Van Buren School District

Project Lead The Way

- Project Lead The Way offers rigorous and innovative curriculums in pre-engineering and biomedical sciences.
- Pre-engineering is for middle and high school grades.
- The Biomedical sciences curriculum is for high school grades.
- Pre-engineering and biomedical sciences are hands-on, project-based curriculums.
- Schools offering Project Lead The Way
 - 2012 Implementation
 - Gravette School District: Biomedical Sciences
 - Jonesboro School District: Pre-Engineering
 - The NorthArk Technical Center: Pre-Engineering
 - Prairie Grove School District: Pre-Engineering
 - Riverview School District: Pre-Engineering
 - Star City School District: Biomedical Sciences
 - Implementation Prior to 2012
 - Arkadelphia: Pre-Engineering
 - Bentonville: Pre-Engineering
 - Bryant: Pre-Engineering
 - Cabot: Pre-Engineering
 - Camden-Fairview: Pre-Engineering
 - Fayetteville: Pre-Engineering
 - Mountain Home: Pre-Engineering
 - Pine Bluff: Pre-Engineering
 - Russellville: Pre-Engineering & Biomedical Sciences
 - Springdale: Pre-Engineering

EAST Core Schools

- EAST Core is a project of the EAST initiative.
- EAST Core schools will extend the principles developed by EAST for EAST labs into math and science classrooms, so that the EAST-proven hands-on, problem-based learning approaches will be connected to the STEM curriculum.
- EAST Core is in a development year.
- EAST Core Pioneer Schools in 2012
 - Harrisburg
 - Hot Springs
 - Morrilton
 - Prairie Grove
 - Star City

UTeach Arkansas

- UTeach Arkansas is modeled after a successful program and has participating campuses across the nation.
- UTeach introduces undergraduate Science, Technology, Engineering and/or Math (STEM) majors to secondary-school teaching by recruiting students and providing an initial course at no charge.
- Universities offering UTeach – 2012 Implementation
 - University of Arkansas, Fayetteville
 - University of Arkansas at Little Rock
 - University of Central Arkansas

The 21st Century Economy

- Nearly two-thirds of the jobs in today's economy are high-skill positions. The American workforce has fewer than half the number of qualified candidates needed to fill those positions.
- The lack of supply forces employers to choose among outsourcing jobs, importing skilled workers, or relocating operations to overseas markets, where there exists a growing supply of skilled workers.
- By 2020, three-quarters of the job market will require high-skill workers, and only 26 percent of jobs will be low-skill.
- U.S. workers prepared to fill low-skill and low-wage positions are in abundance, accounting for more than 100 million applicants competing for 61 million openings. The resulting glut of job seekers drives up unemployment and holds down wages for the nation's low-skilled workforce. (Source: The Global Talent Crisis, The Futurist. 2009 - Edward Gordon)

STEM Works Links to Industry

- Preparing home-grown talent to fill high-paying jobs in Arkansas is a must.
- The STEM workforce is recession proof. While many face cutbacks and layoffs in down economic cycles, STEM-skilled professionals remain in high demand.
- STEM professionals drive innovations that lead to new products, new companies, new jobs, and wealth creation.
- Industrial clusters of interest include the following:
 - Computer and Information Technology;
 - Nano-Related and Advanced Materials and Applications;
 - Biotechnology, Bioengineering, and Life Sciences; and
 - Agriculture, Food, and Environmental Sciences.

Governor's Workforce Cabinet

- Members of the Governor's Workforce Cabinet include the following:
 - Governor's Office
 - Arkansas Department of Education
 - Department of Career Education
 - Department of Higher Education
 - Department of Workforce Services
 - Arkansas Economic Development Commission
 - Arkansas Science and Technology Authority
 - Arkansas Association of Two-Year Colleges
- The mission of the Workforce Cabinet is to promote maximum coordination and efficiency among education, employment and economic development services in order to positively position Arkansas in the global economy. Stakeholders will strive toward maximum effectiveness and will remain accountable to all Arkansans. The ultimate accountability measure is whether growth in per capita income is realized for the people of Arkansas.

Specifically, the Cabinet will ensure that all Arkansans are educated and trained for the highest possible level of lifelong, knowledge-based employment and will brand workforce development broadly to include preparation for all 21st century jobs.

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