

What Is STEM?

STEM is an acronym for Science, Technology, Engineering, and Mathematics. At the heart of STEM disciplines and as a result of their synergy through education is a coalescence of skills in critical thinking, innovation and creativity.

Why Does It Matter?

In an increasingly technological world, Wisconsin citizens face economic competition on a global scale. Critical thinking, innovation and creativity are the tools needed to succeed in this new reality. America's scientific and technological leadership is essential to our economic growth, national security and a productive future for our children.

America's STEM challenge has been well documented in recent years, including Thomas Friedman's seminal bestseller *The World Is Flat, America's Perfect Storm* by the Educational Testing Service, and *Rising Above The Gathering Storm* by the National Academies. Each of these works describes how we are facing a critical talent gap in science, technology, engineering, and mathematics, the international "language" of innovation.

In his GROW Wisconsin initiative, Governor Doyle's vision for economic growth and job creation is to position Wisconsin to compete at the high end. This goal requires the state to ensure that the best-trained and most educated people are making and delivering the highest quality goods and services in the world.

We can support our young people as well as adults who may be re-careering or building their careers by supporting them, encouraging them via excellent instruction, and motivating them with real world applications and hands-on problem solving and research opportunities.

Wisconsin's future prosperity and competitive position – and its opportunities for thriving in this ever-flattening world – will be won or lost based on the quality of our human capital and our collective capacity for leadership in innovation. Now, more than ever, we need skilled, knowledgeable and ethical citizens, ready to succeed in life.

What Is The Wisconsin STEM Portal?

The Wisconsin STEM portal is envisioned as a site that would serve as a centralized meeting spot for educators, students, businesses, career facilitators, citizens, and policy-makers to connect STEM needs with educational and career opportunities in their communities and throughout the state.

Why Is It Needed?

In order for Wisconsin to be globally competitive in an innovation economy, we need to have a reliable talent pipeline producing well-qualified, STEM-competent workers. The practical manifestation of this strategic vision can be realized through the development, implementation, and active management of a clearinghouse to connect STEM-related resources and needs in our state.

What Will It Look Like?

The portal will include educational resources for K-20 including:

- successful work/school collaborations (text and video)
- blogs

- podcasts
- repository of funding sources
- statewide calendar of events
- matchmaker function; connecting “partners seeking partners” (typically, business-education partnerships)
- STEM-related data source for all constituents along the talent development pipeline
 - means by which partners may participate in STEM outreach
 - methods by which partners may participate in STEM outreach
 - materials that can be made available to those involved in STEM outreach
 - supporters other than the primary constituents along the STEM talent development pipeline

What Are The Success Measures?

- General
 - Increased awareness of “What is STEM?” and “Why STEM Matters”
 - Increased number and quality of STEM learning and networking opportunities
 - Increased number and quality of partnerships between K-12, college/universities, and business/industry
- K-12 Education
 - Improved “line-of-sight” for students linking early STEM interest to educational pathways and ultimate career opportunities
 - Increased number and quality of STEM-related programs in and out of the classroom
 - Increased number and quality of STEM-related resources to support students and their families, teachers, counselors, and administrators
 - Increased number and quality of teacher training opportunities
 - Increased number and diversity of STEM-competent students graduating high school
- Colleges and Universities
 - Increased number, competency, and diversity of students entering STEM-related programs
 - Increased retention of all students within STEM-related programs
 - Increased number and quality of STEM-related programs in and out of the classroom
 - Increased number, competency, and diversity of students graduating from STEM-related programs
- STEM-Based Employers
 - Increased number, competency, and diversity of candidates entering the STEM workforce
 - Improved templates for employers to use to develop and implement STEM-based “Socially Aligned Business Initiatives”
- Wisconsin Taxpayers
 - Improved efficiency of workforce/economic development efforts
 - Positive PR value from Wisconsin STEM portal being seen/used as a national model
 - Access to private and federal funding sources for STEM programs

How Will This Be Accomplished?

Successful outcomes will be realized through comprehensive collaboration with a broad array of organizations linked by a common need to improve the STEM talent development.

Functional partners and their potential contributory roles include:

- Associations - assist with outreach and access to economic/workforce development grants
- Businesses - partnerships
- Foundations - funding
- Government agencies - partnerships
- Governmental jurisdictions - assist with outreach; partnerships
- K-12 education - partnerships
- Programs - partnerships; cross promotion
- Post-secondary education - partnerships
- Media - outreach

Who Is Involved In This Effort?

A unique collaboration of individuals from public agencies and private organizations has been represented in efforts to date:

- Department of Public Instruction
- Department of Workforce Development
- Engineers & Scientists of Milwaukee
- Educational Communications Board
- Information Technology Association of Wisconsin
- University of Wisconsin Center on Education and Work
- Wisconsin Science Network
- Wisconsin Technical College System

Are Other States Doing This?

Many regions and states have launched STEM efforts. Most are one-dimensional; representing the STEM challenge through the lens of a single functional organization (e.g. an effort led by post-secondary educators, with minimal benefit provided for K-12 education or STEM-based employers). Many are limited to specific, parochial programs.

What Is The Timeframe?

- Planning (November 2008 – February 2009)
- Design (March 2009 – April 2009)
- Testing (May 2009 – June 2009)
- Implementation (July 2009 – September 2009)
- Sustainability cycle (operate, maintain, grow, refine) (October 2009 onward)

How Will This Effort Be Funded?

- Engineers & Scientists of Milwaukee was awarded an “exploratory investment” from the WIRED grant to develop the clearinghouse concept

Wisconsin STEM Portal – Frequently Asked Questions

- The Educational Communications Board was awarded a grant from the Corporation for Public Broadcasting for the development of resources that will be used on the Wisconsin STEM portal
- Other funding avenues (including corporate and private foundations, federal grants, etc.) are being pursued

Who Is The Target Audience?

The target audiences are those within the “STEM Triangle”. The STEM Triangle represents the primary constituents along the STEM talent development pipeline:

- K-12 education: Public, private, charter and choice schools (i.e. students, families, teachers, counselors, administrators, etc.)
- Post-secondary education: Technical colleges, 2- and 4-year colleges and universities (i.e. students, families, faculty, administrators, etc.)
- STEM-based employers and employees from private sector (i.e. business/industry) and public sector (i.e. governmental agencies)

What Can I Do To Support This Effort?

I. Initially:

- Advocacy
 - Bring your individual and/or organizational perspective to the message of “Why STEM matters to all of us in Wisconsin”
- Funding
 - Development, implementation, sustaining of Wisconsin STEM portal
 - Individual STEM programs
 - Individual schools or school districts
- In-kind services
 - System testing prior to launch
 - Administrative support
 - IT support
 - Donation of expertise (i.e. loaned staff)
 - Donations of facilities and amenities for meetings, conferences, workshops, etc.
 - Governmental affairs
 - Grant writing
 - Legal services
 - Marketing and public relations
 - Printing and mailing
 - Student interns

II. Beyond the development stage:

- Advocacy
 - Bring your individual and/or organizational perspective to the message of “Why STEM matters to all of us in Wisconsin”
- Funding
 - Continuing funding and in-kind support
 - Scholarships
- Volunteerism
 - Adopt-a-school programs
 - After-school programs

Wisconsin STEM Portal - Frequently Asked Questions

- Career fairs
- Coaching, mentoring, tutoring
- Competitions
- Conferences/workshops
- Co-op/internship programs
- In-school programs
- Field trips
- Job shadowing
- Science fairs
- Summer camps
- Teacher externships