Guidelines for Business-Education Partnerships in STEM

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GOVERNOR'S STEM ADVISORY COUNCIL

www.IowaSTEM.gov

An engineer demonstrates computer numeric-controlled robotic manufacturing at Vermeer Corporation, Pella.

Building Connections Between Education and Business

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A student tries MIG welding at Hoover High School, Des Moines.

Business and Education: How To Get Involved

The Iowa Governor's STEM Advisory Council is a public-private partnership representing education, business and industry, nonprofits, students and families, and state government. It is focused on raising student interest and achievement in STEM subjects and improving STEM economic development in Iowa.

Below are some of the key programs that engage business and education through the Iowa Governor's STEM Advisory Council. Iowa businesses are invited to invest in a variety of ways, whether in the form of time, talents, or in some instances, treasures. By working together we can evaluate STEM education in Iowa.

PROGRAM	BUSINESS ROLE	CONTACT
Real World Externships	• Real World Externships provide educators with the experience to expose students to STEM careers. • Accomplished by teachers working side-by-side with local businesses and organizations in or near the communities they serve. • Business hosts are committed to STEM education in their communities and are able to provide teachers with inspiring, meaningful projects, working with mentors, enjoying strong return on investment. • For more information, visit www.iowastem.gov/externships.	Contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.
Iowa STEM Scale-Up Programs	• STEM Scale-Up Programs are top-notch kits and curriculum distributed to educators across Iowa. See the list of current sites at www.iowastem.gov/2014–2015-stem-scale-programs. Each program prizes mentorships with local professionals. • STEM Scale-Up education programs are selected by an expert review panel who recommend and approve programs based on demonstrated success while offering the flexibility to be implemented in any size community. • More than 100,000 students participated in the 2013–2014 school year.	Your regional STEM Manager—learn who this is at www.IowaSTEM.gov/hubs or contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.
STEM Festivals	• Each Iowa STEM region conducts at least one STEM Festival per year. • The regional managers engage a broad range of partners throughout the region with the intent in raising awareness and interest in STEM-related curriculum and opportunities for students at all grade levels. • Business Partners can support STEM Festivals by exhibiting, displaying, investing or serving on a planning committee.	Regional STEM Managers at www.IowaSTEM.gov/hubs or contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.
Iowa STEM Business Engaging Students and Teachers (BEST)	• The Council launched a district- or region-wide approach called Iowa STEM BEST. • Iowa STEM BEST is an innovative high school program model built on the partnerships of businesses, k–12 and higher educational institutions • Students solve real-world problems by using industry standards and are mentored by employers. • Iowa STEM BEST programs are an example of how business and education can partner to produce personalized learning experiences that prepare students for a knowledge-based economy.	Contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.
Connect with Educators	• Advise school teachers, administrators, college faculty, etc. by joining committees, establishing working relationships to grow career awareness, etc.	Regional STEM Managers at www.IowaSTEM.gov/hubs or contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.
Other STEM Council Programs	• A total of 14 active programs of Iowa's STEM Council are viewable at www.iowastem.gov/targeted_priorities	Contact Kari Jastorff, Program Manager at Jastorff@IowaSTEM.gov.

How to Connect to STEM in Your Region

The Council's network of six regional STEM hubs delivers first-rate STEM opportunities to students and teachers across Iowa. Any business, nonprofit or education entity that would like to be included as a partner in STEM for Iowa or want more information on activities, please identify and contact your regional manager at www.iowastem.gov/hubs or contact the STEM Council directly at Info@IowaSTEM.gov.

Current Corporate Partners

Numerous companies have partnered with the Governor's STEM Advisory Council to host externs, serve on a committee, invest in programs, partner with a STEM school, etc. To see a representative listing, visit www.IowaSTEM.gov/corporate-partners. We are greatly appreciative of the numerous resources of time, talent and even in some instances, treasures that many Iowa businesses provide to support the STEM Council and STEM education in Iowa.

STEM Partnership Examples from Business and Education across Iowa

The following business and school leaders exemplify partnerships and offer to be contacted for additional information.

Name: Eric Ernst
Organization: John Deere Dubuque Works
E-mail: ErnstEricJ@JohnDeere.com
Phone: 563-589-6131
Region: Northeast
Activity: Supports FIRST Tech Challenge through sponsorships and volunteerism in the Dubuque schools.

Name: Tim Felderman, Principal
Organization: Crestwood High School
E-mail: tfelderman@howard-winn.k12.ia.us
Phone: 563-547-2764
Region: Northeast
Activity: Back to school Industry Tours for grade 7–12 teachers at start of school year

Name: Greg Olenick
Organization: Acieta LLC.
E-mail: golenick@acieta.com
Phone: 712-388-6420
Region: Southwest
Activity: Partners with Council Bluffs CSD to start a Technology Academy in the high schools.

Name: Adriana D'Onofrio
Organization: Rockwell Collins
E-mail: amdonofr@rockwellcollins.com
Phone: 319-295-6519
Region: Southeast
Activity: Partners with United Way and AmeriCorps to host a free summer camp for low-income middle school students. Rockwell Collins Education Outreach Plans

Name: Carrie Baird
Organization: Pella Corporation
E-mail: bairdcd@pella.com
Phone: 641-621-3626
Region: South Central
Activity: Supports the PEERS program and facilitates STEM classroom activites.

Name: Teri Vos
Organization: Vermeer Corporation
E-mail: terivos@vermeer.com
Phone: 641-621-7908
Region: South Central
Activity: Supports student internships, teacher externships, student and classroom visits, STEM-related organizations and childcare at Yellow Iron Academy

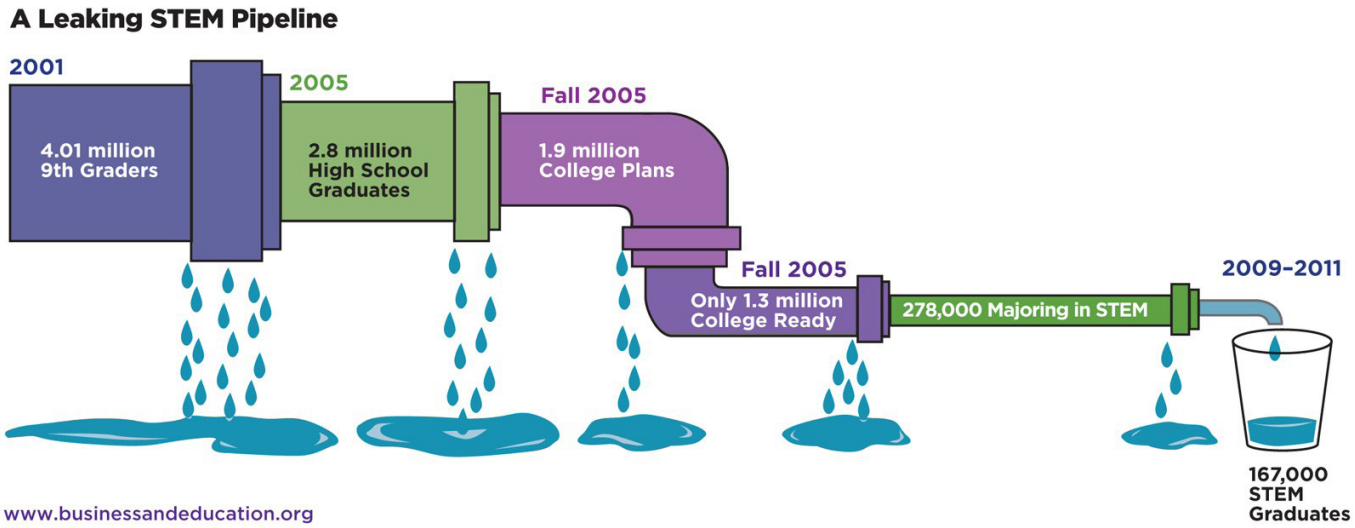
For additional examples, contact the STEM Council at info@iowastem.gov.
Please provide us with your great partnership examples at http://iowastem.gov/toolkit-examples

For more information, contact Carrie Rankin, Assistant Director for Development, at 319-273-2757 or Rankin@IowaSTEM.gov.

Making the Case: Supporting a STEM Pipeline

Why We Need Business Engagement in STEM Education

1. The talent pipeline is today's bottom line.
2. Companies are competing for a limited number of workers graduating in STEM fields. We must secure Iowa's future by supporting high-quality STEM education to prepare a skilled workforce and strengthen our state's competitiveness.



Iowa depends on a sound STEM education system to bolster the employment prospects within Iowa and to enhance the overall quality of life in the state.

STEM educators need Iowa businesses that support STEM programming to help build a solid education and career path for Iowa's youth because:

- Most of Iowa's high-demand occupations for the period 2010–2020 are in the STEM fields of medical/agricultural science, financial systems, advanced manufacturing and information technology (Iowa Workforce Development b, 2013).
- Iowa will demand a total of 67,330 STEM jobs by 2018, up from 57,830 in 2008 (Carnavale, 2011); especially in the priority sectors of bioscience, information technology and advanced manufacturing.
- Iowa's STEM employment sector is projected to grow by 18% and pay better than any other job sector through 2018 (Iowa Workforce Development b, 2013).
- Iowa students can perform better in STEM subjects. Iowa's 8th graders ranked 25th in mathematics in 2013 and 17th in science in 2011 on the NAEP, whereas in1992, no other state outperformed Iowa (National Center for Education Statistics, NCES; 2013).
- Iowa needs to diversify the talent pipeline in STEM, however, the proportions of minority students, those of low socioeconomic status, and students with disabilities that exhibit proficiencey are consistently lower than the overall rates of achievement in mathematics and science, creating barriers that need to be dismantled.

More education is associated with higher earnings and higher rates of employment in Iowa.[i]

Mean Income	Education Level	Unemployment
$11,075	HS Dropout	15%
$29,224	HS Graduate	8%
$30,057	Some College	7%
$51,506	Bachelor's and above	2%

References:

U.S. Census Bureau (2011). Current Population Survey. Figures are based on the total persons in the civilian labor force. http://www.census.gov/cps/data/cpstablecreator.html

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Change the Equation (2012). STEM Vital Signs. http://www.changetheequation.org/stem-vital-signs

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National Center for Education Statistics, National Assessment of Educational Progress (NAEP). (2013). 1992 and 2013 Mathematics Assessments. Retrieved from http://nces.ed.gov/nationsreportcard/statecomparisons/acrossyear.aspx?usrSelections=1%2cMAT%2c0%2c13%2cacross%2c0%2c0

Acknowledgements:

Iowa Governor's STEM Advisory Council

Iowa Governor's STEM Advisory Council Business Engagement Committee:

- Carrie Rankin, Chair
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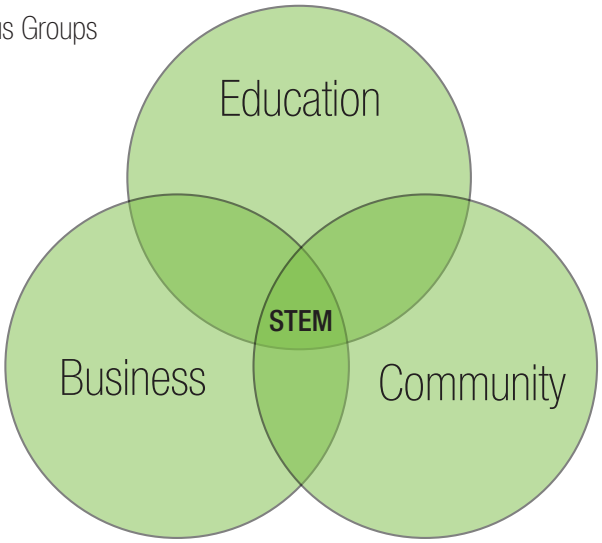
- Jenny Becker, Rockwell Collins
- Kacia Cain, Des Moines Public Schools, Central Campus
- Michelle Huggins, Shive Hattery
- Mary Lou Erlacher, Kirkwood WLC
- Robin Habeger, DuPont Pioneer
- Rachel Hurley, Monsanto
- Tina Sherrill-Range, Iowa Lakes Corridor Development Corporation
- Sharon Rosenboom, Northwestern College

Iowa Governor's STEM Advisory Council—Business Engagement Focus Groups

- Educator Group
- Ecomomic Development
- Business and Industry Group

Workplace Learning Connection at Kirkwood Community College



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