Guidelines for Business-Education Partnerships in STEM

GREATNESS
STEMS
FROM IOWANS
GOVERNOR’S STEM ADVISORY COUNCIL
www.IowaSTEM.gov

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

BUSINESSES & EDUCATION
HOW TO GET INVOLVED:

1  Iowa Governor’s STEM Advisory Council Programming
2  Regional STEM Networks & Corporate Partners
2  STEM Partnership Examples

MAKING THE CASE:

3  Supporting a STEM Pipeline
4  Acknowledgements

Building Connections Between Education and Business

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

<table>
<thead>
<tr>
<th>BUSINESS ROLE</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Real World Externships for Teachers of Mathematics, Science, and Technology</strong></td>
<td>Contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• Real World Externships provide educators with the experience to expose students to STEM careers.</td>
<td></td>
</tr>
<tr>
<td>• Accomplished by teachers working side-by-side with local businesses and organizations in or near the communities they serve.</td>
<td></td>
</tr>
<tr>
<td>• 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.</td>
<td></td>
</tr>
<tr>
<td>• For more information, visit <a href="http://www.IowaSTEM.gov/externships">www.IowaSTEM.gov/externships</a>.</td>
<td></td>
</tr>
<tr>
<td><strong>Iowa STEM Scale-Up Programs</strong></td>
<td>Your regional STEM Manager—learn who this is at <a href="http://www.IowaSTEM.gov/regions">www.IowaSTEM.gov/regions</a> or contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• STEM Scale-Up Programs are top-notch kits and curriculum distributed to educators across Iowa. See the list of current sites at <a href="http://www.IowaSTEM.gov/Scale-Up">www.IowaSTEM.gov/Scale-Up</a>. Each program prizes mentorships with local professionals.</td>
<td></td>
</tr>
<tr>
<td>• 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.</td>
<td></td>
</tr>
<tr>
<td>• More than 100,000 students participated in the 2013–2014 school year.</td>
<td></td>
</tr>
<tr>
<td><strong>STEM Festivals</strong></td>
<td>Regional STEM Managers at <a href="http://www.IowaSTEM.gov/regions">www.IowaSTEM.gov/regions</a> or contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• Each Iowa STEM region conducts at least one STEM Festival per year.</td>
<td></td>
</tr>
<tr>
<td>• 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.</td>
<td></td>
</tr>
<tr>
<td>• Business partners can support STEM Festivals by exhibiting, displaying, investing, or serving on a planning committee.</td>
<td></td>
</tr>
<tr>
<td><strong>Iowa STEM BEST (Businesses Engaging Students and Teachers)</strong></td>
<td>Contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• The STEM Council launched a district- or region-wide approach called Iowa STEM BEST (Businesses Engaging Students and Teachers).</td>
<td></td>
</tr>
<tr>
<td>• Iowa STEM BEST is an innovative high school program model built on the partnerships of businesses, K–12, and higher educational institutions.</td>
<td></td>
</tr>
<tr>
<td>• Students solve real-world problems by using industry standards and are mentored by employers.</td>
<td></td>
</tr>
<tr>
<td>• 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.</td>
<td></td>
</tr>
<tr>
<td><strong>Connect with Educators</strong></td>
<td>Regional STEM Managers at <a href="http://www.IowaSTEM.gov/regions">www.IowaSTEM.gov/regions</a> or contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• Advise school teachers, administrators, college faculty, etc. by joining committees, establishing working relationships to grow career awareness, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Other STEM Council Programs</strong></td>
<td>Contact Kari Jastorff, Program Manager at <a href="mailto:Jastorff@IowaSTEM.gov">Jastorff@IowaSTEM.gov</a>.</td>
</tr>
<tr>
<td>• A total of 14 active programs of Iowa’s STEM Council are viewable at <a href="http://www.iowastem.gov/advisory-council/active-working-groups">www.iowastem.gov/advisory-council/active-working-groups</a>.</td>
<td></td>
</tr>
</tbody>
</table>

For more information, contact Carrie Rankin, Assistant Director for Development, at 319-273-2757 or Rankin@IowaSTEM.gov.
How to Connect to STEM in Your Region

The STEM 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/regions 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 activities.

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 to Carrie Rankin at 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 in 1992, 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 proficiency 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.¹

<table>
<thead>
<tr>
<th>Mean Income</th>
<th>Education Level</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>$11,075</td>
<td>HS Dropout</td>
<td>15%</td>
</tr>
<tr>
<td>$29,224</td>
<td>HS Graduate</td>
<td>8%</td>
</tr>
<tr>
<td>$30,057</td>
<td>Some College</td>
<td>7%</td>
</tr>
<tr>
<td>$51,506</td>
<td>Bachelor’s and above</td>
<td>2%</td>
</tr>
</tbody>
</table>

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


Acknowledgements:

Iowa Governor’s STEM Advisory Council

Iowa Governor’s STEM Advisory Council Business Engagement Committee:

- Carrie Rankin, Chair
- Pat Barnes, John Deere Inspire
- 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
- Economic Development
- Business and Industry Group

Workplace Learning Connection at Kirkwood Community College

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