

## **Title of Project** Educator/Corporate Collaboration on the Common Core (EC<sup>4</sup>)

### **Summary of the Project**

#### Collaboration is the Basis for the Proposed Approach

After helping to plan and implement Southwest PA's 2012 STEM Summit, the Math & Science Collaborative (MSC) compiled the deliberations in a published report, "Moving toward U.S. Goals for STEM Education." Summit discussions had been based on consideration of the National Academies report, "Effective K-12 STEM Education." Summit sessions had featured the National Academies *How People Learn* research and the newly released Common Core State Standards (CCSS) and the emerging Next Generation Science Standards (NGSS). In March, MSC Steering Council considered which recommendations it chose to move forward. Employers and K-12 administrators representatives agreed that developing "meaningful partnerships between business and K-12" would advance STEM learning.

A subcommittee was formed to take action. After considering the needs and expertise of the corporate and education sectors, it selected corporate visits by educators as a strategy that capitalized on employer capacity to address the educator need to see the CCSS and NGSS in action in the workplace-- to develop first hand understanding of why they matter so greatly.

As planning progressed, teachers from all three levels (elementary, middle and high) were involved at the invitation of their administrators. The resulting approach is based on the premise that for the greatest impact, it is **teachers** who can most effectively, year after year, convey workplace experience to educate the student about the applied, practical aspects of STEM. This proposed approach differs from models that focus the industry experience on individual students or groups of students. Although direct experiences may motivate the student, the committee discussed that its effect may be short-term, and may not always be targeted appropriately for the differing stages of students' education. As the team explored various possibilities, the testimony of the teachers made clear that while the application of the practical aspect of STEM is important at all levels, the best approach can vary significantly by the different levels. The proposed approach will allow the teachers to develop relevant approaches based on their intimate knowledge of their students' interest and capabilities. Facilitated, focused collaboration of the teachers with the hosting companies is the core of this approach.

The subcommittee recommended an initial pilot of a research-based approach that could then be expanded to additional companies and districts in the second year. Building on the previous AIU managed Educator-in Residence program, this project proposes to have MSC lead the development, refinement, and expansion of a model Educator Corporate Collaboration that enables K-12 educators to better understand the requirements of the modern workplace. In particular, educators will be exposed to how the implementation of the CCSS mathematical and NGSS scientific practices, which represent the greatest shifts required of educators to adequately prepare students, are utilized in the workplace.

#### Initial Pilot

During the 2012-2013 school year, three corporations (Alcoa, PPG Industries, and Thermo-Fisher Scientific) will host visits from educator teams from three school districts from three counties (Plum Borough in Allegheny County, Fort Cherry in Washington County, and Jeannette City in Westmoreland County). Each district will select a team of educators involving science and math teachers from the elementary, middle and high school levels. Accompanied by a

district administrator, they will comprise a seven person team. Each district team of seven educators will visit each of the three corporations for one day each.

#### Corporate Participation

- A. Begins with three two-hour meetings at each of their locations in early fall.
  - 1. MSC staff meet with corporate leadership team to:
    - a. Share goal of workplace examples of common core practices
    - b. Identify selected corporate audience for next steps
    - c. Develop calendar for next two meetings and 3 educator visits
  - 2. MSC staff meet with identified corporate audience to:
    - a. Introduce and develop understanding of the practices featured in the newly defined math Common Core State Standards (CCSS) and Next Generation Science Standards (NGSS)
    - b. Make assignment to think about where educators would be able to see those practices in the workplace during upcoming visits.
  - 3. MSC staff meet with identified corporate audience to:
    - a. Develop schedule for one day visits by educators
    - b. Gather information on necessary procedures and processes that educators will need to follow for visit.
- B. Involves 3 days of visits to their corporate site, i.e. 1 day for each district team with fuller description below.

#### Educator Participation

- A. Results from district leadership selecting its team, seeking leaders who will actively engage in the visits, and will share their findings with their district colleagues.
- B. Involves visits to three corporations on 3 days over the late fall and early winter.
  - 1. Day One (late September/early October)
    - a. MSC staff provide orientation including:
      - i. Review of the practices featured in CCSS and NGSS.
      - ii. Overview of requirements of corporate visit
      - iii. Introduction of tools for capturing observations.
    - b. Corporate hosts feature practices in action in the workplace
      - i. Educators are rotated by pairs to various settings
      - ii. Educators note evidence of the practices they observe
    - c. MSC staff facilitates debriefing
      - i. Educators share evidence of practices
      - ii. Corporate hosts observe findings
  - 2. Day Two (mid-October/early November)
    - a. MSC staff provide orientation including:
      - i. Overview of requirements of corporate visit
      - ii. Review of CCSS and NGSS and tools for capturing observations
    - b. Corporate hosts feature practices in action in the workplace
      - i. Educators are rotated by pairs to various settings
      - ii. Educators note evidence of the practices they observe
    - c. MSC staff facilitates debriefing
      - i. Educators share evidence of practices
      - ii. Corporate hosts observe findings
  - 3. Day Three (mid- November/early December)
    - a. MSC staff provide orientation including:
      - i. Overview of requirements of corporate visit
      - ii. Review of CCSS and NGSS and tools for capturing observations

- b. Corporate hosts feature practices in action in the workplace
    - i. Educators are rotated by pairs to various settings
    - ii. Educators note evidence of the practices they observe
  - c. MSC staff facilitates debriefing
    - i. Educators share evidence of practices
    - ii. Corporate hosts observe findings
    - iii. Educators assigned to consider implications for classroom practices
- C. At MSC Network Connections (February 7, 2013) a featured breakout session will convene the educator participants to discuss their experiences. MSC will facilitate discussion of implications for classroom practices. As well as being open to observation by other interested educators from the region, the session will be videotaped.

After careful analysis of the external evaluators findings of the initial experience, this pilot will be expanded from one to three cohorts in the 2013-2014 school year, involving other interested corporations and school districts. With additional analysis of evaluation reports over a two year period, the refined model will be shared with participating corporations and at the STEM Summit for expansions both within the region and across the nation.

### **Description of the benefits to be achieved from this project**

Educators will attain new understanding of how the newly required CCSS mathematical and scientific practices are prevalent in the workplace. Employers will also build understanding of the nature of the changes underway in education, enabling them to focus their involvement to indirectly enable on-going student learning of newly required essential key practices by their facilitated connections to K-12 educators. With a well-designed program consisting of workplace observations by teachers, debriefs, reports, workshops and panel discussions, MSC will develop a blueprint for similar programs across the region, and nationally.

### **Describe the population that will be served.**

Each district designates a team of 7. The pilot cohort involves 21 educators, expanding in the second year to involve an additional 3 cohorts, involving 63 educators from 9 districts, visiting up to a total of 9 businesses. Two of the three initial pilot districts are identified as resource poor as indicated by high percentages students qualifying for free and reduced lunch. In the expanded pilot, preference will be given to resource poor districts.

### **Plans for evaluating and reporting results**

MSC, as the project leader, will contract for an external evaluation. The external evaluator will collect and compile data, analyze and report findings. Data collected will include daily visit debriefs and written reflections of all participants (employer and educators). The Network Connections session of piloting educators will be professionally videotaped. The Steering Council sub-committee, comprised of school district administrators, teachers and industry members will review the findings.

A report on the results of the pilot will published in the MSC Journal (distributed to 15,000 SW PA educators) and will be shared at the 2013 STEM Summit to recruit additional participants for the second year. Modules for orientation of employers and educator/employee de-briefs will be refined by MSC and made available for expansion across the region and nation.

### **Budget and Request**

The two year pilot, initial and expanded, is budgeted at \$150,000, to be supported by three requests of \$50,000 each to the three corporations participating in the first year. The budget staging would require about \$50,000 in the first year, and \$100,000 for expansion from one cohort to 3 cohorts in the second year.

Budget Breakdown of the \$150,000 for the two year pilot is as follows:

**Year One**

MSC Staffing Costs	(Corporate Orientation, Visitation Facilitation and Debriefing)	\$25,000
Educator Costs	(Substitutes, Materials, Lunches at Visits, Travel to Businesses)	9,000
Professional Videotaping	(Network Connections Findings Session)	1,000
Evaluation Costs	(Focus Group, Analysis of Teacher and Employer Reflections)	<u>5,000</u>
SUBTOTAL		\$ 40,000

**Year Two**

MSC Staffing Costs	(Corporate Orientation, Visitation Facilitation and Debriefing)	\$72,000
Educator Costs	(Substitutes, Materials, Lunches at Visits, Travel to Businesses)	28,000
Evaluation Costs	(Focus Group, Analysis of Teacher and Employer Reflections)	<u>10,000</u>
SUBTOTAL		\$110,000