

# Benefits of EC4 for Educators

By Corinne Murawski

During the 2012-13 school year, the Math & Science Collaborative (MSC) teamed with STEM-related corporations in Southwestern Pennsylvania to create an innovative, professional development experience for math and science teachers and school administrators. “The Educator Corporate Collaboration on the Common Core (EC4) provided educators with opportunities to experience real-world mathematics and science practices in corporate, industrial and laboratory contexts.” (EC4 Final Report, p. 2)

The genesis of the EC4 program was in the 2011 STEM Summit, sponsored by the Pittsburgh Technology Council. Of several recommendations from this summit (and summarized in Moving Towards U.S. Goals For STEM Education.) was one for greater collaboration between educators and the corporate sector. In acting on this recommendation, a model for corporate visits by educator teams was created. Teams from Plum, Jeannette and Fort Cherry School Districts attended one visit at each of three corporations: Alcoa, PPG Industries and Thermo-Fisher. In turn, the corporate partners designed an experience unique to their company that would help teachers see how the Math, Science and Engineering Practices are used in the workplace.



The results of the EC4 evaluation showed evidence of benefits for both the teachers and the corporate partners. Educators cited an expanded view of what those in the STEM professions do in their work. In the words of an educator from Jeannette, “I tended to view chemists, physicists, and engineers as mainly left-brain people. I have a much different opinion now. They are actually very creative thinkers and tremendous problem solvers.” Educators gained some specific examples of how students might use certain content and saw many instances of how students entering the workplace will use important 21st Century Skills, like communication, problem solving, creative and critical thinking on a daily basis. In the words of one of the educators, all the corporations “Emphasized a need for people of all academic levels who can clearly and precisely communicate to others in both written and verbal methods and how employees with varied backgrounds, educational levels, and expertise are expected to contribute to cooperative teams.” Additionally, another educator wrote, “The knowledge that I have gained is more of a reassurance of how instruction should be delivered in the classroom. At every location that we visited, problem solving, justifying answers, critical thinking, teamwork, precise measurements were incorporated to every aspect of their daily lives.



Students need to develop these skills.” Educators came away from the experience with an expanded view of the utility of hands-on, minds-on collaborative learning processes.

Lastly, and perhaps most importantly, the educators involved in the EC4 have already begun to transfer the learning from their experience into classroom practice. Involved teachers from primary to high school levels have started development of activities that require students to defend results, explain answers, communicate with others and work together productively. According to an administrator from Plum, “...students are bouncing ideas off each other and challenging one another.” And one of the educators from Plum describes the changes taking place, “I continue to incorporate more real world problems into my curriculum. I try to make the problems relevant. Also, I have thought about the way I have students work on problems as individuals and in groups. This forces students to adapt to different situations and depending on the partnership take a leadership role. I have also had students defend their answers in a group setting. This helps the students communicate their answers along with displaying a deeper understanding of the material that is being addressed.”

The EC4 will continue in 2013-14 with commitments from Alcoa and PPG Industries. At this writing, the MSC is finalizing plans for involvement of other interested school districts and corporate partners. The program will be expanding, however, educators will continue to focus on the changes already begun in their classrooms including, the use of real world contexts, productive group work and an increased focus on communication, including students ability to provide evidence-based explanations across content areas. The ultimate goal of the program comes back to its roots in the STEM Summit: Progress towards improving STEM education for the benefit of our region both educationally and economically.