

MWCA Best Practices

WIB Name/WSA: Washington County Workforce Investment Board
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Innovative Programs in Education

Career Strategies in Science, Technology, Engineering and Mathematics

Robotics Academy and Precision Manufacturing Career Exploration Program

At no time in our nation's history has the need been greater for a skilled workforce across many industries, including precision manufacturing, in order to stay competitive in an increasingly global and technological marketplace.

In recognition of that need, the Washington County (MN) Workforce Investment Board initiated two innovative programs, the Robotics Academy and Precision Manufacturing Career Exploration Program. This initiative involved Stillwater Area Public Schools in collaboration with post-secondary schools, businesses and workforce/economic development professionals.

The **Robotics Academy** engaged 7th and 8th grade students in a team-building Challenge Course experience. Teams of students designed, configured and engaged a robot in a task-oriented collaborative game. The students and their parents, along with the Academy teachers, toured a local precision manufacturing company and also learned about the secondary and post-secondary education necessary for employment in manufacturing.

The **Precision Manufacturing Career Exploration Program** focused on building closer relationships among industry and school professionals, in an effort to draw more and better prepared students into exciting engineering, design and related careers in manufacturing. The initial industry focus was upon precision manufacturing, including tool and dye, mold-making and injection molding operations. The objective was to provide mathematics, science, technology teachers and school counselors with structured experiences at key manufacturing business sites.

Partners

Washington County Workforce Investment Board (WIB)
Stillwater Area Public Schools
East Metro Integration District (EMID)
MN Department of Employment and Economic Development (DEED)
Dunwoody College of Technology
St. Paul College
Midwest Robotics League
Minnesota Precision Manufacturing Association (MPMA)
Classic Manufacturing, Inc.
Granite Transformations
Haberman Machine, Inc.
Oakdale Precision Manufacturing, Inc.
Mold Craft, Inc.
Valley Dental Arts

Funding

Financial resources to develop and implement the **Robotics Academy** were needed in the following areas: teacher training program, teacher payroll for training and teaching at the Academy, materials and supplies, transportation and robotics kits. In its first year, a large proportion of the funds needed

to offer the Robotics Academy at no cost to students was provided through the East Metro Integration District (EMID). In subsequent years, the Academy will involve student fees to offset costs. Financial contributions will be sought from local foundations and businesses to complement the contributions made by the school district toward the program.

Financial resources to develop and implement the **Precision Manufacturing Career Exploration Program** were needed for teacher payroll, including the orientation session, independent research and study, company visits, feedback and application session and presentations to fellow teachers. In addition costs were incurred for materials and supplies, transportation and consulting. All of these costs were paid for by the school district primarily through designated staff development funds.

It is important to note that the planning team consisting of representatives from secondary and post-secondary schools, businesses and workforce/economic development made significant in-kind contributions of time to develop and implement these programs.

Impact

Through the **Robotics Academy** students were actively engaged in applying science, technology, engineering and mathematics concepts and were introduced to careers which involve integrating these areas of study. As a result, these secondary students gained foundational knowledge related to precision manufacturing careers.

The **Precision Manufacturing Career Exploration Program** gave secondary teachers and counselors an overview and deeper understanding of the precision manufacturing industry and of related jobs and career opportunities, from design and engineering, to fabrication, to production and related endeavors. Teachers also gained an understanding of the skills required for precision manufacturing careers including physical, cognitive, technical and effective team work skills. They now better understand the relationship between job requirements and classroom instruction in junior and senior high schools. Finally, teachers gained an awareness of career paths, earning potential and local area opportunities related to precision manufacturing. As a result of this program, teachers have designed a credit course in robotics currently being taught in the secondary schools.

Lessons Learned

As a partnership we have learned that quality programs can be developed for students and teachers through shared vision, goals and concerted effort. We are more familiar with each other's work environments and appreciate the significant contributions of all the partners. We realize that as partners we can continue to make a positive impact on the local and state economy by preparing students for their future.