



**EXPECTED
OUTCOMES**

20%

increase in Advanced Placement (AP) exam pass rates particularly in STEM content areas

20%

increase in students with disabilities and limited English proficient enrolling in AP STEM classes

75%

of all students successfully completing precalculus with a B or better

100%

of all students reaching standard on the state math test



Engineering Global Solutions

Problem-based learning at Sammamish High School

THE AWARD

In September 2010, Sammamish High School was awarded a \$4.1 million federal grant as part of the U.S. Department of Education's i3 program. The winning proposal, "Re-imagining College and Career Readiness: STEM, Equity and Rigor in a Comprehensive High School," is a five year blueprint to implement problem-based learning (PBL) curricula across all subject areas with special emphasis on "Engineering Global Solutions" to stimulate interest and growth in Science, Technology, Engineering and Math (STEM).

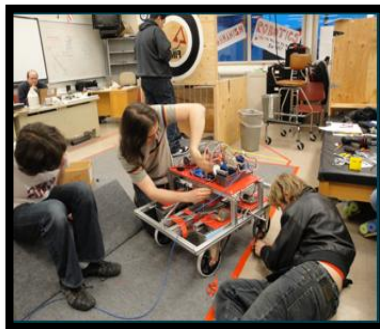
THE PROGRAM

As STEM professionals begin to retire over the next decade, the ensuing skills shortage will lend new urgency to the need for K-12 education that emphasizes science, technology, engineering and math. As the country's demographics shift toward a more diverse population, it is vital that all students have access to a strong STEM education. The i3 grant will allow Sammamish High School and Bellevue School District to respond to this need through the following three key steps:

- Design and enact problem-based curriculum in AP and Non-AP courses
- Implement a series of specific supports for struggling students with an emphasis on increasing mathematics literacy
- Work with partners to provide professional development for teachers who implement the new problem-based curricula and evaluate its effectiveness
- Scale up innovations to the District and the State in partnership with Washington STEM

THE PLAN

<p>ESTABLISH problem based learning in every classroom</p>	<p>RECRUIT mentors from industry to work one-on-one with teachers, students, and classroom based teams</p>	<p>ADMINISTER multiple assessments to demonstrate college readiness</p>	<p>IMPLEMENT <i>Starting Strong</i> summer program for grades 9-12</p>
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PROJECT PARTNERS

Project partners provide funding and various forms of in-kind support for the program. The partners include the following organizations:

UW Institute for Science and Mathematics Education

Washington STEM

Bellevue Schools Foundation

Microsoft

The Boeing Company

The George Lucas Educational Foundation

Google

Sammamish Totem Enrichment Programs

College Board

Educational Policy Improvement Center

Knuth Research

Bellevue Schools Foundation

CONTACT

Thomas Duenwald
Principal/Project Director
duewaldt@bsd405.org
425-456-7600

Kim Herzog
i3 Grant Project Leader
herzogk@bsd405.org

Adrienne Curtis
i3 Grant Project Leader
curtisa@bsd405.org

Kelsey Youmans
i3 Grant Project Manager
youmansk@bsd405.org

FAQs

What is STEM?

STEM is curricula focused on the study of Science, Technology, Engineering and Math. STEM may also incorporate traditional career and technical education (CTE) courses as well as vocational studies.

What is an i3 award?

The i3 (Investing in Innovation Fund) award is a competitive federal grant given to applicants with a record of improving student achievement in order to expand the implementation of, and investment in, innovative practices that are demonstrated to have an impact on improving student achievement. Out of the 1700 candidates who applied for the i3 award, 49 were winners. In Washington State, only Bellevue School District received a grant.

What is problem-based learning (PBL)?

PBL requires students to collaborate in small groups to solve complex problems to research and revise ideas over time with a teacher acting as a facilitator throughout the learning process. Professionals in related fields will provide real-world validation of content knowledge and participate in evaluating student work.

How will PBL change the student experience?

The PBL approach to teaching and learning engages students in investigating and designing innovative solutions to address the broad challenges of the 21st century facing local, national, and global communities. The curriculum focuses not only on how to develop students' effective written and oral communication skills but also on higher-order critical thinking skills. The skills honed through PBL engage students' curiosity and imagination and encourage collaboration and adaptability. Teachers will work with industry experts to guide and evaluate student work.

How does this new curriculum address the unique needs of Students With Disabilities (SWD) and Limited English Proficient Students (LEPS)?

Increased instruction time for LEPS and SWDs will be provided with a focus on mathematics. They will also receive one-to-one mentoring from local professionals about college access and have opportunities for internships and job shadowing. Specific support will also be implemented for underserved students identified by teachers and counselors to participate in an intensive starting strong program held for two weeks in the summer.

Who are participating mentors?

Mentors are professionals from various industries across Washington State. They include business people from Google, Boeing, T-Mobile, Microsoft, and Coin Star, among others.

How can I become a mentor?

Contact Kim Herzog, herzogk@bsd405.org, to discuss possible placements.

How will the innovations be scaled-up?

With the support of the U.S. Department of Education and other partners, Sammamish High School will become a center for PBL and STEM curriculum, serving as a resource to other schools in Bellevue School District and beyond in the future.