

## PROGRESS REPORT

### Investing in Innovation (i3) Matching Funds, Re-imagining Career and College Readiness: STEM, Rigor, and Equity in a Comprehensive High School

---

#### EXECUTIVE SUMMARY

In September 2010, Sammamish High School was awarded a \$4.1 million federal grant as part of the U.S. Department of Education's Investing in Innovation (i3) program for *Re-imagining Career and College Readiness: STEM, Rigor and Equity in a Comprehensive High School*. This project is one of 49 projects nation-wide chosen for i3 grant funding and the only one in Washington State. The final award was made possible through multiple matching grants from foundations, businesses, and the community to secure the required 20% private-sector matching funds.

Sammamish High School has a multi-ethnic student body with approximately 40% of students from low-income households. Bellevue School District beginning Limited English Proficient students (LEPS) are served by Sammamish and approximately 15% of students qualify for special education services. LEPS and students with disabilities (SWDs) face unique challenges because of gaps in their schooling histories and sometimes inadequate preparation for high school. This project focuses on Science, Technology, Engineering and Math (STEM) and problem-based learning (PBL), extends academic rigor, and implements targeted support for LEPS, SWDS, and low-achieving students. Targeted support includes extended learning, youth mentoring, and extended career/college counseling.

#### PROJECT GOALS

The *Re-imagining Career and College Readiness: STEM, Rigor and Equity in a Comprehensive High School* project is a five-year blueprint to implement PBL curricula and increase achievement across all subject areas. Sammamish High School emphasizes "Engineering Global Solutions" to stimulate interest and growth in Science, Technology, Engineering and Math (STEM). Four key goals of the project are: (1) enactment of PBL in STEM courses and across the curriculum, including PBL Advanced Placement (AP) courses; (2) support struggling and disadvantaged students to increase math literacy; (3) create professional development to help teachers implement and evaluate PBL curricula; and (4) build collaboration with other school districts through national and regional forums.

#### PROJECT PROGRESS

Progress to date has been made across all areas of the project. A summary of project progress is included in the attached table. Highlights include:

- **PBL curriculum development and implementation.** In 2010-11, the first year of this project, PBL Advanced Placement (AP) courses in Environmental Science and U.S. Government and Politics were offered to multiple class sections. In addition a Biology/Chemistry course was revised partway through the year to provide PBL through a complex ocean acidification project. Five PBL courses are implemented this current school year, 2011-12, as summarized in the attached table.
- **Support for struggling and disadvantaged students.** The STEM mentoring program has been launched, including recruitment, training, and placement of STEM professionals as mentors with individual students and as classroom mentors. In addition, an August student support program, Starting Strong, was offered to incoming 9<sup>th</sup> through 12<sup>th</sup> grade students to help them prepare for the fall term and focus on career and college readiness.
- **Professional development.** Teaching staff from Sammamish High School are building professional development around the following themes: student voice; literacy; assessment; collaboration; and problem-based learning. Professional development through peers was targeted through the 2011-12 school year. In August 2011, all staff at Sammamish High School participated in five full days of professional development with sessions focused on each of the five themes.
- **Collaboration.** Sammamish High School is partnered with Washington STEM, a nonprofit organization dedicated to advancing STEM education, and the University of Washington Institute for Science and Mathematics Education. The project partners will foster collaboration and disseminate information to other schools and school districts. In the first year of the i3 project, team leaders participated in one national meeting in Washington D.C. and two community forums organized by the Bellevue Schools Foundation.

## Investing in Innovation (i3) Grant Outcome Metrics

### Sammamish High School, Bellevue School District

Metric	Baseline	2010-11	2011-12	2012-13	2013-14	2014-15
<b>Increase in student interest in math and science:</b>						
Enrollment at Sammamish High School <sup>1</sup>	961	1085	1065			
Enrollment in STEM AP classes	385	481	814			
<b>Other student outcomes:</b>						
Number of students with disabilities enrolled in AP STEM classes	18	9				
Number of limited English proficient students in AP STEM classes	6	24				
AP exam pass rates	36.20%	42.62%				
AP STEM exam pass rates	35.20%	37.31%				
Percent students completing pre-calculus with $\geq$ B grade	48%	49%				
Percent students with disabilities completing pre-calculus with $\geq$ B grade	18%	24%				
Percent limited English proficient students completing pre-calculus with $\geq$ B grade	10%	35%				
Percent students meeting math standards on Washington State HSPE <sup>2</sup>	44.30%	**				
Percent students passing Washington State algebra exam	N/A	78.60%				
Percent students passing Washington State geometry exam	N/A	63.30%				
Percent students meeting science standards on Washington State HSPE	56.10%	51.40%				
Percent on-time graduation	86.10%	N/A				
Percent extended-time graduation	88.80%	N/A				
<b>Increase in teacher competency</b>						
Number of PBL/STEM training sessions developed	0	5	tbd			
Number of PBL/STEM training sessions held	0	0	5			
<b>Progress towards curriculum improvement:</b>						
Number of STEM classes offered <sup>3</sup>	43	46	46			
Number of AP classes offered <sup>4</sup>	26	24	24			
New PBL STEM course design <sup>5</sup>	1	3	3			
New PBL STEM class implementation <sup>6</sup>	1	2	2			
New PBL AP course design <sup>7</sup>	1	2	1			
Number of PBL AP class implementation <sup>8</sup>	1	2	3			
<b>Number of innovative activities offered:</b>						
College Corps	X	X	X			
STEM Mentoring Program		X	X			
Starting Strong (target incoming 9th graders)	X	X	X			
Starting Strong - target struggling students 9-12, focus on STEM, college & career			X			
<b>Number of collaborative partnerships developed:</b>						
University of Washington (UW) LIFE Center	X	X	X			
UW Institute for Science and Mathematics Education		X	X			
Bellevue College		X	X			
George Lucas Educational Foundation	X	X	X			
College Board	X	X	X			
Washington STEM		X	X			
Education Policy Improvement Center		X	X			
Randy Knuth, Knuth Research		X	X			

student outcomes not available (N/A) at this time

Table Notes:

1. In 2009-10 Bellevue School District closed the alternative Robinswood Middle/High School. Most of Robinswood high school students transferred to Sammamish HS for the 2010-11 school year.
2. Washington Math High School Proficiency Exam (HSPE) discontinued after 2010 and replaced with state end-of-course exams in algebra and geometry.
3. Total science, technology, engineering and math (STEM) classes offered.
4. Total Advanced Placement (AP) classes offered.
5. New Problem-based learning (PBL) STEM course design schedule:  
PBL Bio-Chemistry 2010-11, 2011-12  
PBL Introduction to Programming 2010-11  
PBL Art & Design 2010-11  
PBL Algebra 2 2011-12  
PBL Health Science 2011-12
6. New Problem-based learning (PBL) STEM course implementation:  
PBL Bio-Chemistry implemented 2011-12  
PBL Introduction to Programming implemented 2011-12  
PBL Art & Design implemented 2011-12
7. New problem-based learning (PBL) AP course design:  
PBL AP Environmental Science 2010-11  
PBL AP Human Geography 2010-11, 2011-12  
PBL AP World History 2011-12
8. Problem-based learning (PBL) AP class implementation:  
PBL AP U.S. Government & Politics implemented 2009-10  
PBL AP Environmental Science implemented 2010-11  
PBL AP Human Geography implemented 2011-12