



**All-OPAS Workshop 2009:  
ETIC Internal OUS Grant Reporting  
February 4, 2009**

**Redmond School District  
Project Lead The Way  
Award \$ 48,683  
Students Pursuing a Career  
in Engineering (SPaCE) Project**

*OPAS Vision for the Year 2020 - All Oregonians have the opportunity to choose and successfully pursue engineering or applied science as their field of study and career, thereby helping Oregon's industries innovate and prosper in the global economy.*



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*Students Pursuing a Career  
in Engineering (SPaCE)*

- Goal: Establish a PLTW Engineering Academy as one of six academies at Redmond High School
- Best Practices: Establishing a Professional Learning Team of academy faculty and local community professional advisors has resulted in increased enrollment, job shadow, and other capstone opportunities for students



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*Students Pursuing a Career  
in Engineering (SPaCE)*

Audience	Subject Area	Number	Contact hours	Recruitment
Redmond High School	-Intro to Engineering -Aerospace Engineering	Over 130 students	-140 hours per student	-target female & Minorities -



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in Engineering (SPaCE)*

**Biggest Challenges:**

- Implementing Gateway to Technology feeder program in Redmond District middle schools – plan is to engage teachers to attend Middle School summer training at OIT
- Funding of stipends for one of two PLTW teacher training – grants paid for the training course but not stipend – lesson learned on grant planning
- Classroom space at Redmond High School – summer 08 effort successful in maximizing available space



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**Success Stories:**

- Establishment of PLTW Certified School allowing articulated college credits “resulting in substantial PLTW enrollment” and community support for the program
- Professional Learning Team (faculty and professional advisors) is providing guidance to planning a new district high school
- A “busload of students” attended Engineering Discovery Showcase at PSU January 09
- 8 Students attended Women in Engineering conference at OSU



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**Health and Science High School  
(HS2)**  
**Award \$ 74,000**  
**Leading the Way**  
**for HS Pre-Engineering Students**

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*Leading the way for  
pre-engineering HS students*

- Goal: We have blended the PLTW course into our overall school model, Expeditionary Learning (EL). The EL model requires courses to be taught through engaging curriculum, active teaching, and uses products of high craftsmanship as part of overall assessments.
- Best Practices: The PLTW model of courses fits this (EL) educational model exceedingly well. Finally, our use of proficiency-based assessment throughout the school has blended well within the overall PLTW structure.



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*Leading the way for  
pre-engineering HS students*

Audience	Subject Area	Number	Contact hours	Recruitment
Health and Science High School	-Introduction to Engineering Design (IED) -Tom Baker, teacher, all HSD2 students take IED	108 – (all) 10 <sup>th</sup> grade students	114 hours per student	-10 <sup>th</sup> grade 35% Latino, 60% females ->90% students achieve credit for IED



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*Leading the way for  
pre-engineering HS students*

**Success Stories:**

**HS2 PLTW Intro to Engineering Design**

- “A student on an IEP that scores well on tests but who needs organization help to succeed in class – he has a perfect score”
- “The student who has a behavioral problem in other classes who benefits from the tactile nature of IED, and is a model student in my class”
- “The student who is struggling in other classes who is doing well in this class because she can repeat assignments, each time receiving corrective feedback from me, until she masters the concepts”



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*Leading the way for  
pre-engineering HS students*

**HS2 PLTW Intro to Engineering Design**

•“One of the advantages of the PLTW program is that it comes with a pre-packaged curriculum. This is also a disadvantage when it comes to integrating with other classes as the scope and sequence of the curriculum is in place, and adjusting for integration usually involves a lot of re-work. There are some natural synergies in the curriculum, mostly with Math and Science, including probability and statistics (analysis of part measurement variation), measurement (dimensioning parts, measuring part features with calipers, converting between English and Metric measurements), and Geometry (sketching and modeling 3D solids). Other synergies are evident as a consequence of applying the 12-step design process that is the foundation of all PLTW classes. Several of the design steps – including defining the problem, brainstorming, identifying criteria, exploring possibilities, and selecting an approach – require students to communicate clearly both verbally and in writing, apply critical thinking skills, negotiate with others, and work effectively in teams.”



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**McNary High School  
Project Lead The Way  
Award \$ 95,000  
Keizer Engineering and  
Applied Science Pathway**

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**All-OPAS Workshop 2009:  
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*Keizer Engineering  
and Applied Science Pathway*

- Goal: Create an integrated pre-engineering and applied science pathway in Keizer beginning with 6<sup>th</sup> grade, extending through high school, and connecting with Oregon universities and community colleges.
- Best Practices: Ran an Invention contest at each feeder middle school with good recruitment results.



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*Keizer Engineering  
and Applied Science Pathway*

Audience	Subject Area	Number	Contact hours	Recruitment
McNary High School Whiteaker & Claggett Creek Middle Schools	-Intro to Engineering Design (two sections) -Computer Integrated Manufacturing	-50 IED students -15 CIM students  (Current quarter)	160 hours per student estimated	-Recruitment activities are designed to draw on underrepresented populations. -



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*Keizer Engineering  
and Applied Science Pathway*

**Biggest Challenges:**

- “Getting students enrolled in classes, recruited 21 students for Digital Electronics – ended up with only 8, not enough for a class.”
- “The primary barrier we faced was student enrollment. I thought we had done enough promotion/recruiting to offer all four (PLTW) classes this year, but when students were sorted into the classes based on requests and scheduling we didn’t have enough to offer the Digital Electronics or Principles of Engineering.”



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*Keizer Engineering  
and Applied Science Pathway*

**Success Stories:**

- McNary HS has two PLTW classes this year: Doug Stuvenga is teaching two IED classes, and Keith Anderson is teaching one CIM class. Teachers have been trained for Digital Electronics and Principles of Engineering.
- Gateway to Technology being implemented in feeder schools—Whiteaker and Claggett Creek Middle Schools.



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*Keizer Engineering  
and Applied Science Pathway*

**Success Stories:**

McNary has formed a rocketry club to promote engineering, and will compete in the Team America Rocketry Challenge. So far eight students are involved.

