



Project Lead The Way (PLTW) Courses and Oregon's New Diploma Requirements

Diploma	PLTW
<p>Math Requirements Students will be required to have 3 credits of math at a level of Algebra 1 and higher. Those credits can be earned in traditional math courses or through applied academics.</p>	<p>Each PLTW course has a significant mathematics component at Algebra 1 and above. Using applied academics guidelines developed by the Oregon Department of Education, schools may be able to identify the mathematics standards embedded in PLTW that would justify the award of mathematics credit. Independent of the issue of mathematics credit, PLTW supports and reinforces mathematics learned in more traditional settings.</p>
<p>Science Requirements Students will be required to have 3 credits of science that is inquiry-based. Students use inquiry-based science when they apply scientific reasoning and critical thinking to support conclusions or explanations with evidence from their investigations. Science credit can be awarded through traditional science courses or through applied academic courses.</p>	<p>Several PLTW courses have a significant science component. The Principles of Engineering, Introduction to Engineering Design and Digital Electronics primarily incorporate physical science. Using applied academics guidelines developed by the Oregon Department of Education, schools may be able to identify the science standards embedded in PLTW that would justify the award of science credit. PLTW can support more traditional science courses and the emphasis on engineering design supports the engineering design standards that are being added to the new Oregon Science Standards.</p>
<p>Essential Skills Students will be required to demonstrate proficiency in essential skills. Proficiency in the essential skills of reading, writing, applying mathematics and speaking will be required of the 2012 graduating class. Other essential skills will be phased in for students who graduate after 2012.</p>	<p>All of the PLTW courses have numerous opportunities for students to strengthen essential skills in preparation for graduation. The essential skills of applying mathematics, thinking critically, using technology, and demonstrating teamwork are fundamental to all PLTW courses. The capstone project course, Engineering Design & Development has strong connections to essential skills in reading, writing, and speaking because of the research and presentation component of the course. Those same essential skills can be easily emphasized in the other PLTW courses.</p>
<p>Extended Application Students will complete an extended application that will apply and extend academic and career-related knowledge and skills in new and complex situations appropriate to the student's personal, academic, and/or career interests and post-high school goals.</p>	<p>The capstone project course has students apply what they have learned in other PLTW courses to develop an engineering solution to a problem that they develop. As part of the course, students research the problem, design a solution, test the solution, and communicate the results of their work. This course contains many of the elements of an extended application.</p>



Relationship to Career and Technical Education Programs of Study

With the reauthorization of the Perkins Act, Oregon has instituted a set of guidelines for Programs of Study. Programs of Study provide students clear technical and academic instruction that leads to careers that require high skills, provide high wages, and are in high demand. At some point before 2013, Perkins funds in Oregon will be used only to support Programs of Study. The Perkins funds can be used to purchase equipment or to provide professional development related to any approved Program of Study. Perkins funds can be used on a limited basis for the development of new Programs of Study. Programs of Study must meet four general criteria as described below.

CTE Programs of Study	PLTW
A program of study must have courses that are based on rigorous technical and academic standards. These programs lead to industry recognized degrees or certificates in high wage, high skill, and high demand careers.	All courses in PLTW are based on standards developed with industry input. Math and science content is infused throughout the curriculum so that students are prepared for high skill, high wage, and high demand jobs in engineering and engineering technology.
Courses based on standards in a Program of Study must be aligned so that there is coherent instruction and must provide articulation with post-secondary opportunities.	The PLTW courses build technical and academic skills that carry throughout the program. Post-secondary credit is awarded by OIT and several community colleges if students complete PLTW courses and meet performance levels on the PLTW end-of-course exams.
Technical skill assessment is an important aspect of Programs of Study. Technical skill assessments must be valid and reliable.	End-of-course exams produced by PLTW provide a means of measuring technical skill attainment in PLTW courses. The exams are valid, reliable, and nationally-normed.
Student services including student leadership opportunities must be part of any Program of Study. Students should be aware of their career opportunities through career guidance.	In Oregon, several schools link SkillsUSA, a student leadership organization, to PLTW. Students that take PLTW courses and are part of SkillsUSA gain leadership experience and are able to compete in SkillsUSA state and national events. PLTW also provides training for school counselors to help students understand their career options related to PLTW.