

Project Lead the Way PLTW®

Purpose:

The Division of Community College and Workforce Preparation within the Department of Education has developed a statewide system that utilizes a national pre-engineering program called Project Lead the Way® (PLTW). This statewide system fosters the integration of academics into career and technical education and creates a seamless transition for students to move from the secondary level to higher education. PLTW is a 501 © (3) not-for-profit corporation that promotes pre-engineering education for middle and high school students. PLTW incorporates strong partnerships between the public schools, higher education institutions and the private sector to increase the quantity and quality of Iowa's advanced manufacturing and biotechnology workforce. The broad scope of the PLTW program prepares students for engineering and related careers at Iowa's community colleges and four-year institutions. PLTW consists of the following courses:

- ❖ Biotechnology Engineering
- ❖ Civil Engineering and Architecture
- ❖ Computer Integrated Manufacturing
- ❖ Digital Electronics
- ❖ Engineering Development and Design
- ❖ Gateway to Technology
- ❖ Introduction to Engineering and Design
- ❖ Principles of Engineering

In addition, PLTW offers an exciting Middle School Technology Curriculum: Gateway To Technology. This project provides a project-based, hands-on learning approach for middle schools. The curriculum is 45 weeks in length and is divided into five nine-week units from the following: Design and Modeling; The Magic of Electrons; The Science of Technology; Automation and Robotics; and Flight and Space. Designed for all students, the units address national standards in math, science and technology.

Activities and Accomplishments:

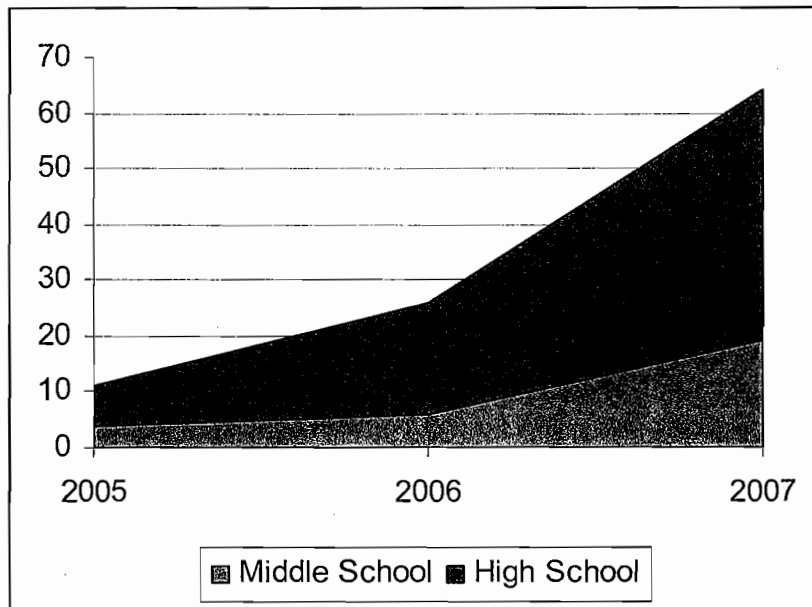
- ❖ The University of Iowa and Iowa State University serve as PLTW affiliate universities. Each university has sent professors to training in 2006 and offered two-week training institutes in the summer of 2007 for the following courses: Gateway to Technology, Introduction to Engineering, Principles of Engineering, Digital Electronics and Biotechnical Engineering. PLTW requires that every teacher successfully complete a two-week intense training institute conducted by an affiliate University-College of Engineering. Sixty-four teachers were trained in the summer of 2007. Thirty-seven teachers received training by Iowa State University or the University of Iowa and twenty-seven received training from affiliate universities outside of Iowa. A total of ninety-six teachers and professors have gone through summer institutes and are certified to teach PLTW courses.

- ❖ Both the University of Iowa and Iowa State University provide the opportunity for students to receive credit for PLTW courses. Credit is offered in for all eight PLTW pre-engineering courses.
- ❖ Counselors play a key role in answering students and parents' questions about the PLTW program and in successfully enrolling students in appropriate PLTW courses. They also counseling students as they consider engineering, engineering technology, and related career fields of study. Fifty-two (52) participants attended a PLTW counselor's conference that was held at Iowa State University in November 2006. November 12, 2007 is the scheduled date for the next counselor's conference. This conference will be held in Iowa City.
- ❖ The private sector has committed more than \$1.6 million to assist educational institutions implement PLTW.
- ❖ PLTW is providing consulting services to the National FFA organization as FFA develops an agriculture curriculum that will continue to use the PLTW curriculum development model. Iowa is interested in becoming a pilot state as National FFA begins to implement the courses.

Results:

- ❖ The number of PLTW program sites that have been established has increased by 53 from 2005-2007.

PLTW program sites



Title of chart

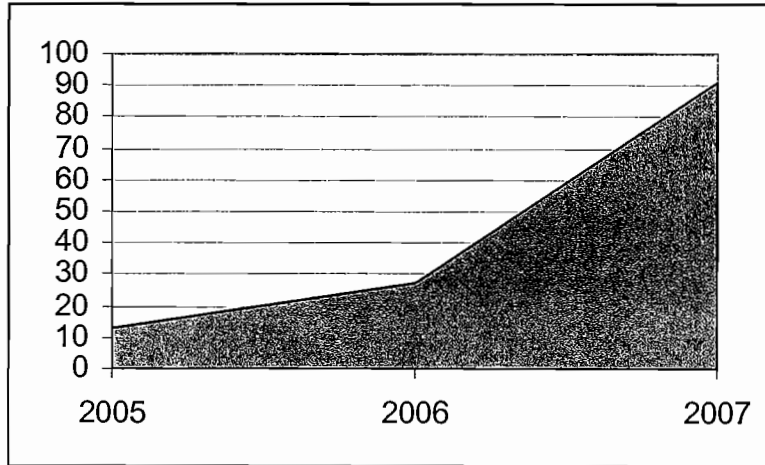
	Fiscal Year		
	2005	2006	2007
Middle School	4	6	19
High School	7	20	45

❖ Iowa's PLTW Enrollment trends

- PLTW enrollment in 2005-06 was compiled for the six public high school sites. The total enrollment 233, 83(%) were male, 17(%) were female.

❖ Every teacher must successfully complete a two-week intense training institute conducted by an affiliate University-College of Engineering. Iowa PLTW teacher training by year:

PLTW teachers trained



○

	2005	2006	2007
Teachers	13	27	91

❖ College Credit

- In 2005-06, 49 students applied for university credit for the Introduction to Engineering course and 39 received credit. Eleven (11) students applied for university credit for the Principles of Engineering course and 11 received credit.

❖ Professional development will be offered in 2007-08 to counselors, and PLTW teachers through conferences, summer training sessions and web-based professional development training opportunities.

❖ In order to assist schools who implement PLTW, there will be a continued focus on expanded funding resources. The Kern Foundation has approved another round of grant applications and some community colleges have focused on a regional focus to funding resources.