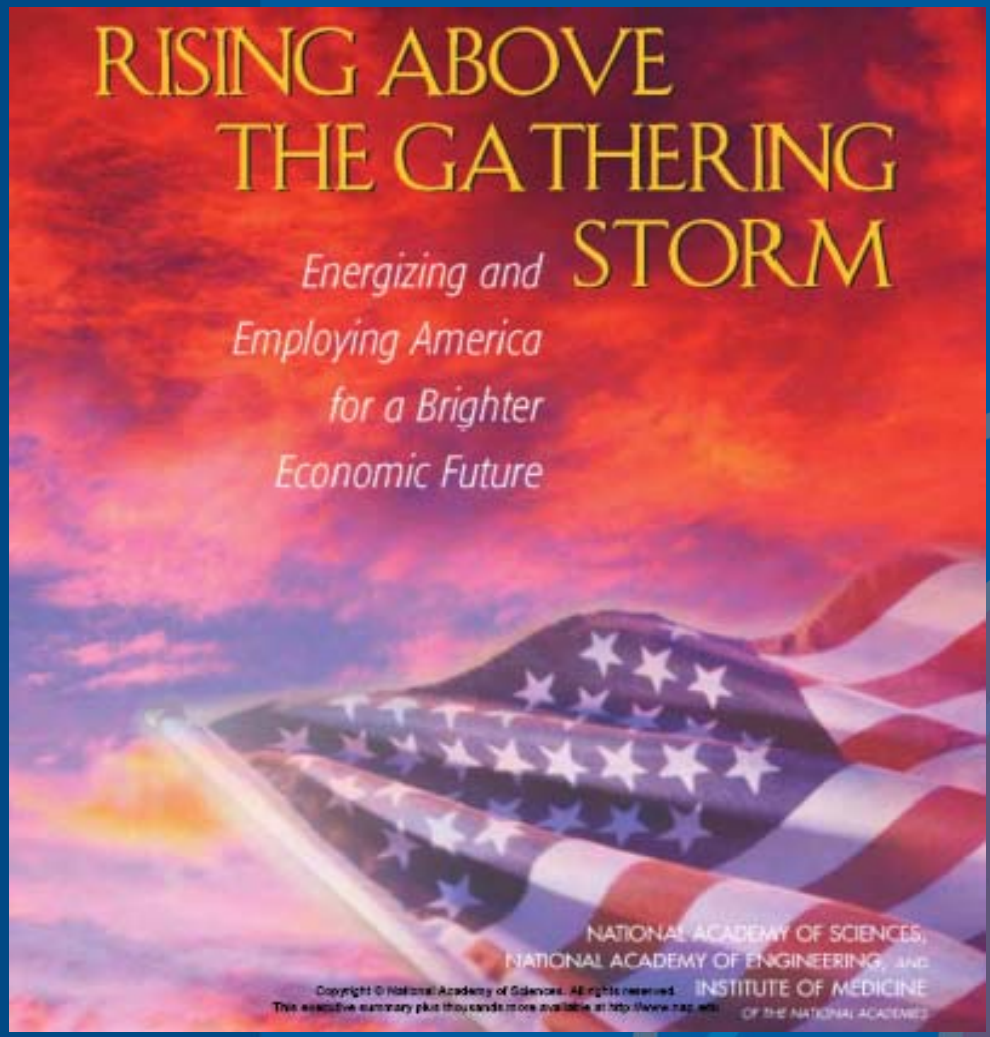
Project Lead The Way:
Forging The Innovation Generation

a 501 (c)(3)
not-for-profit corporation

Building Blocks
How Schools and Business Can Partner to Improve American Education

The Woodrow Wilson International Center for Scholars
February 27, 2008



"Without high-quality, knowledge-intensive jobs and innovative enterprises that lead to discovery and new technology, our economy will suffer and our people will face a lower standard of living." page 1

The National Academy of Science, National Academy of Engineering and Institute of Medicine

November, 2005

Project Lead The Way® STEM Curriculum Programs

Engineering:

Middle School:

Gateway To Technology

(5 units)

High School:

Pathway To Engineering

(8 courses)

Post-Secondary:

- **Pre-Service**
- **Community College**

Biomedical Sciences:

High School:

Biomedical Sciences

(4 courses)

Agriculture Education

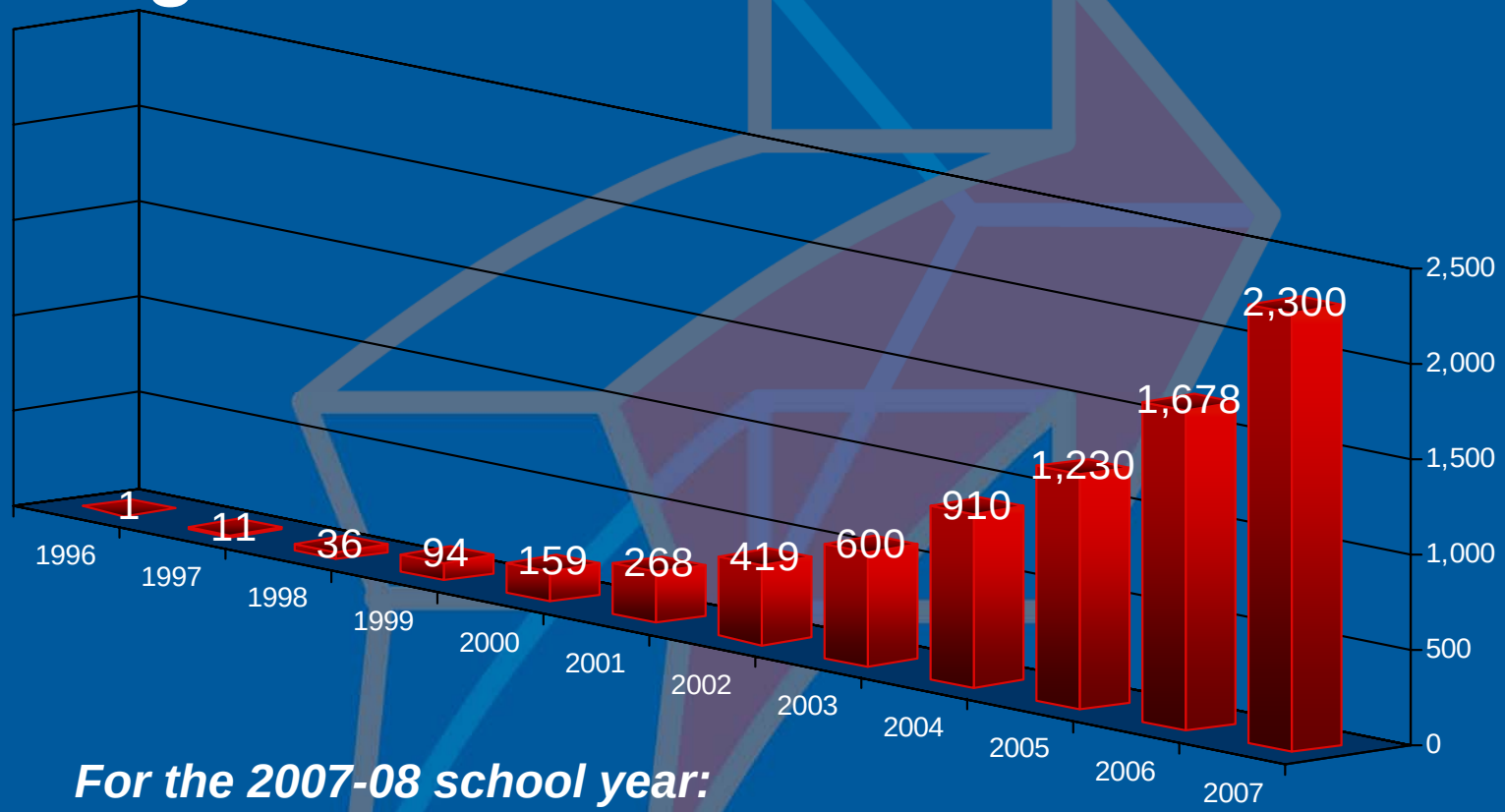
(Council for Agricultural Science Education):

High School:

Agriculture Education

(7 courses)

Growth in PLTW Schools:
Engineering



For the 2007-08 school year:

- ***2200 schools***
- ***200,000 students***
- ***7000 Trained Teachers***
- ***49 states & DC***

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Mission Achievement Strategy

- Teaching and Learning
- Partnership

Teaching and Learning

- Rigorous & relevant **curriculum**
- Rigorous & relevant **professional development** for teachers and school counselors.

Pathway to Engineering
High School Program

Foundation:

Introduction to Engineering Design
Principles of Engineering
Digital Electronics

Specialization:

Computer Integrated Manufacturing
Civil Engineering and Architecture
Biotechnical Engineering
Aerospace Engineering

Engineering Design and Development

Course program requires concurrent study of college preparatory mathematics each year.

Curricular and Extracurricular Education Programs

Attribute	Curricular Program	**Extra-Curricular**
Instructors	Paid	Volunteer
Goal	To have students master the learning	To inspire students and foster an appreciation
Students' Meeting Time	Daily during school year; 180 hours	Occasionally, concentrated periods of time
Professional Development	Pre-Assessment, Immersion and Ongoing	Varies
Curricula	Rigorous, relevant with assessment and college credit	Activities, processes, challenges
Complement	Prepares students to excel including in extra-curricular venues	Motivates students to engage in further curricular experience

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Curriculum Attributes

- Integrates national standards of learning in mathematics, science, technology and English-Language Arts
- Project and problem-based
- Provides a context for the application of mathematics and science concepts in real world settings
- Promotes the ongoing development of critical-thinking, problem solving and group collaboration skills

RIGOR / RELEVANCE FRAMEWORK

Evaluation	6	**C** **High Rigor** **Low Context**			**D** **High Rigor** **High Context**	
Synthesis	5					
Analysis	4					
Application	3	**A** **Low Rigor** **Low Context**			**B** **Low Rigor** **High Context**	
Understanding	2					
Awareness	1					
Bloom's Levels of Learning		1	2	3	4	5
		Knowledge	**Apply in discipline**	**Apply across disciplines**	**Apply to *predictable* real-world situations**	**Apply to *unpredictable* real-world situations**

PLTW

Application Model

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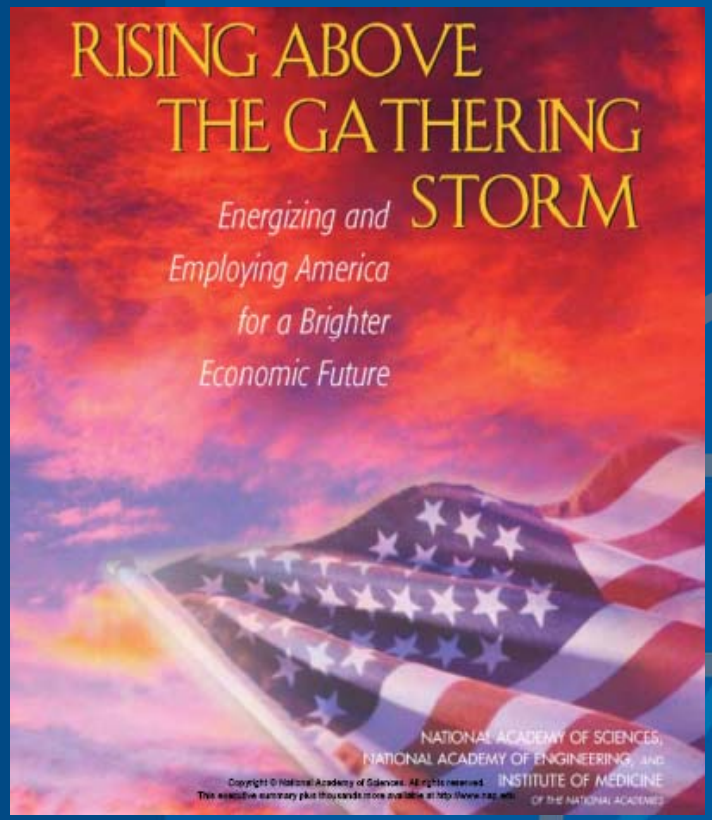
Adapted from W. Daggett

National Recognition



Recommendation

K-12 curriculum materials modeled on world class standards. ***The model for this recommendation is the Project Lead The Way pre-engineering courseware.***

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Three Phase Teacher Professional Development Program

Partnerships

- American Aerospace Industry Association (AAIA)
- Autodesk
- Intel Corporation
- Lockheed Martin
- National Action Council for Minorities in Engineering (NACME)
- National Fluid Power Association
- NASA
- Northrop Grumman
- Rockwell Automation
- Rolls Royce
- Society of Manufacturing Engineers-Education Foundation

The Northrop Grumman Corporation and Project Lead The Way®

- Fiscal support of program implementation
- An industry mentoring pilot program intended to support and enhance teaching and learning in the PLTW classroom.
- Pilot Sites
  - California
    - Poway Unified School District, San Diego
      - Rancho Bernardo High School
      - Bernardo Heights Middle School
  - Virginia
    - Gloucester County School District
      - Gloucester High School
      - Page Middle School

Mission

We will create dynamic partnerships with our nation's schools to prepare an increasing and more diverse group of students to be successful in science, engineering, and engineering technology.