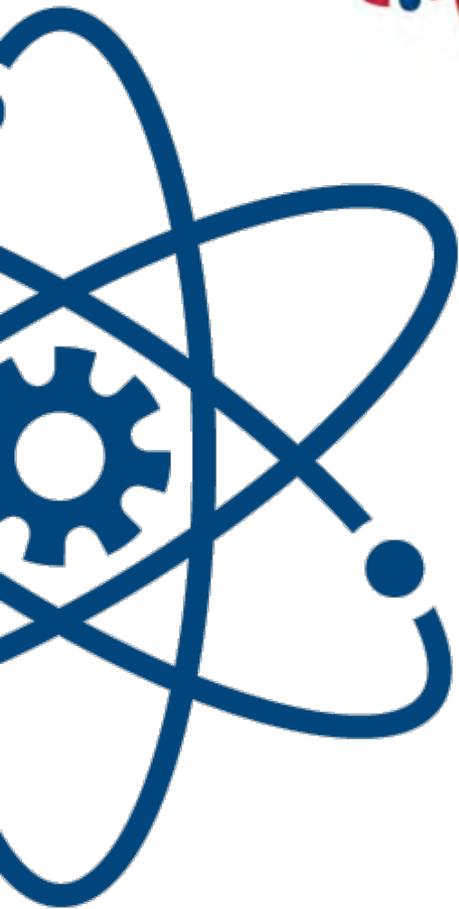


PROJECT LEAD THE WAY

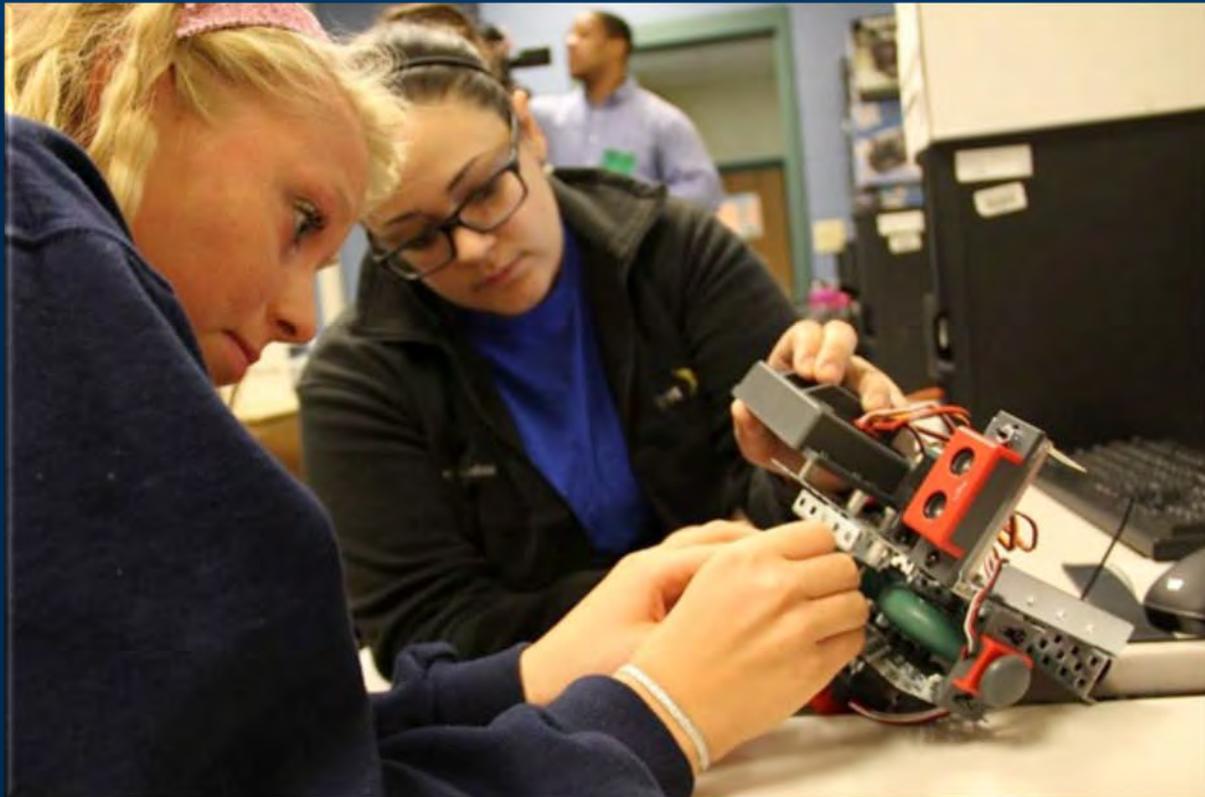
PLTW.



Project Lead The Way is the nation's leading provider of science, technology, engineering, and math (STEM) curriculum for elementary, middle and high school students.

Our mission is to **prepare**
students for the **global economy.**

Engage their **minds** and
their **interest** early..



Preparing Students For the Global Economy



World Class-Curriculum

**PLTW
Launch**

**PLTW
Gateway**

**PLTW
Engineering,
PLTW
Biomedical
Sciences,
PLTW Computer
Science**

*College,
career,
and
beyond*



World-Class Curriculum

- All PLTW curriculum is activities-, project-, problem-based.
- PLTW curriculum aligns with Common Core State Standards and Next Generation Science Standards.



What makes a PLTW classroom different?

PLTW classrooms:

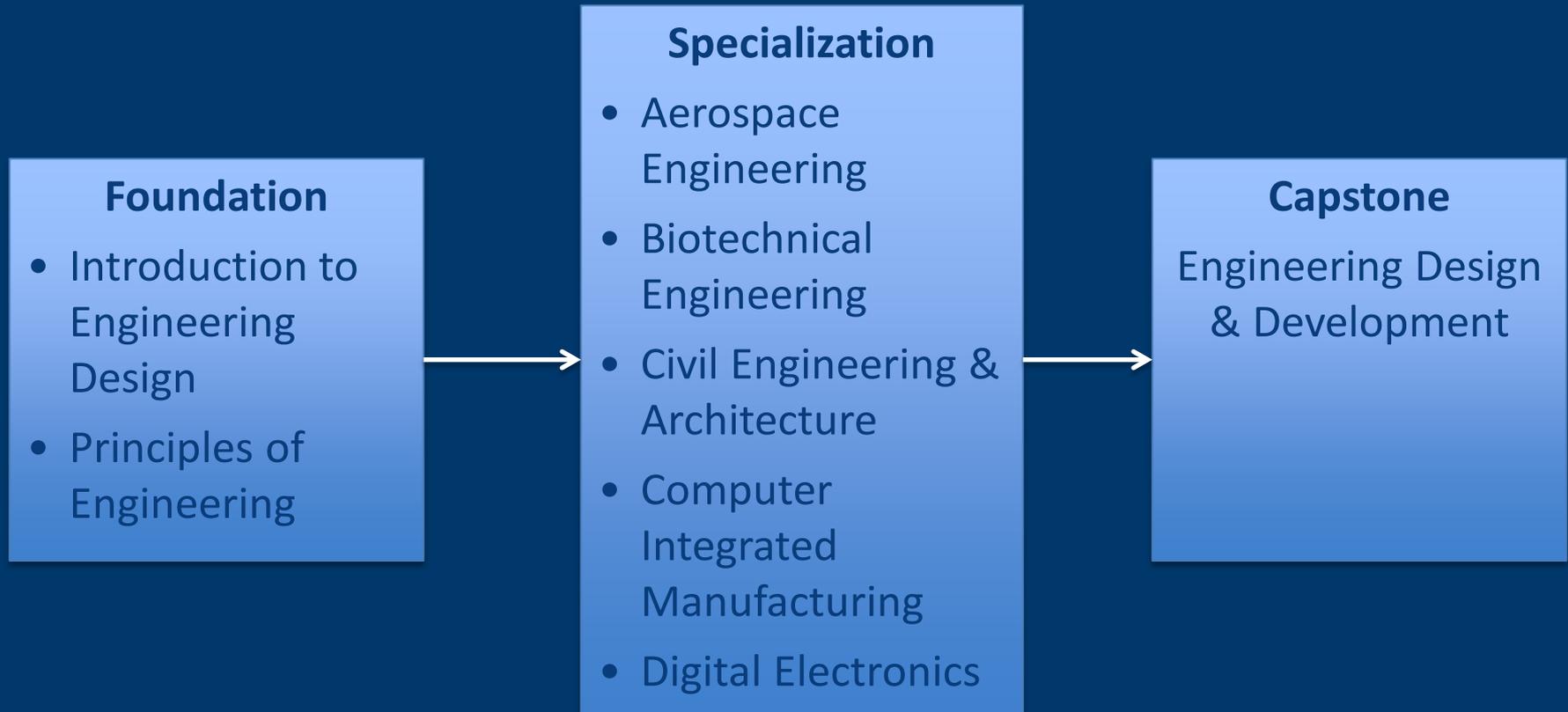
- Launch critical thinking
- Challenge students to make mistakes
- Integrate technology in the classroom
- Encourage teachers and students to learn together

PLTW Engineering

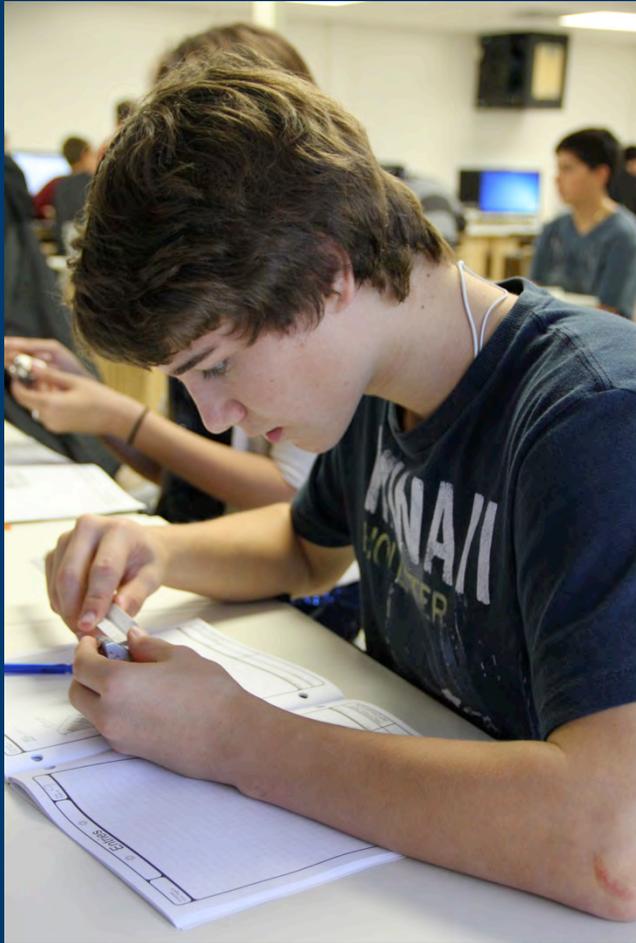
Collaborative, rigorous, and relevant, PTE students solve open-ended problems; learn and apply the engineering design process; and develop teamwork, communication, and critical thinking skills.



PLTW Engineering Course Structure



Introduction to Engineering Design Overview



IED Units

- Design Process
- Technical Sketching and Drawing
- Measurement and Statistics
- Modeling Skills
- Geometry of Design
- Reverse Engineering
- Documentation
- Advanced Computer Modeling
- Design Team
- Design Challenges

Principles of Engineering Overview



POE Units

- Energy and Power
- Materials and Structures
- Control Systems
- Statistics & Ballistics

Projects

- Solar Hydrogen System
- Truss Design
- Pneumatic Brake Design
- Self Propelled Vehicle

PLTW Engineering: Specialization Courses

- **Aerospace Engineering (AE)**
 - Learn the fundamentals of atmospheric and space flight through projects such as designing an airfoil, propulsion system, rocket and glider
- **Biotechnical Engineering (BE)**
 - Engage in design problems related to biomechanics, cardiovascular engineering, genetic engineering, tissue engineering, biomedical devices, forensics and bioethics
- **Civil Engineering and Architecture (CEA)**
 - Discover the design and construction industry while designing both residential and commercial projects using Autodesk® 3D-architectural design software
- **Computer Integrated Manufacturing (CIM)**
 - Explore designing products for manufacturability, manufacturing processes, CNC machining, factory system modeling, automation, and robotics
- **Digital Electronics (DE)**
 - Learn the fundamentals of combinational and sequential logic circuit design and create fully-functioning digital circuits

PLTW Engineering: Capstone Course

- Engineering Design and Development (EDD)
 - Research, design, and construct solutions to engineering problems
- Components
 - Project Management
 - Researching a Problem
 - Designing a Solution
 - Creating a Prototype and Testing Plan
 - Evaluation and Reflection on the Design Process
 - Presentation of the Design Process
 - Going Beyond Engineering Design and Development

A photograph of students in a computer science classroom. In the foreground, a young man with short brown hair is looking towards a young woman with long brown hair who is interacting with a tablet. The tablet screen displays a blue interface with several white circles. Behind her, another young man in a grey t-shirt with 'ASH' in red letters is looking at the tablet. To the right, a student in a blue and white hoodie is partially visible. The background shows a light blue wall with electrical outlets. The text 'PLTW COMPUTER SCIENCE' is overlaid in white on the left side of the image.

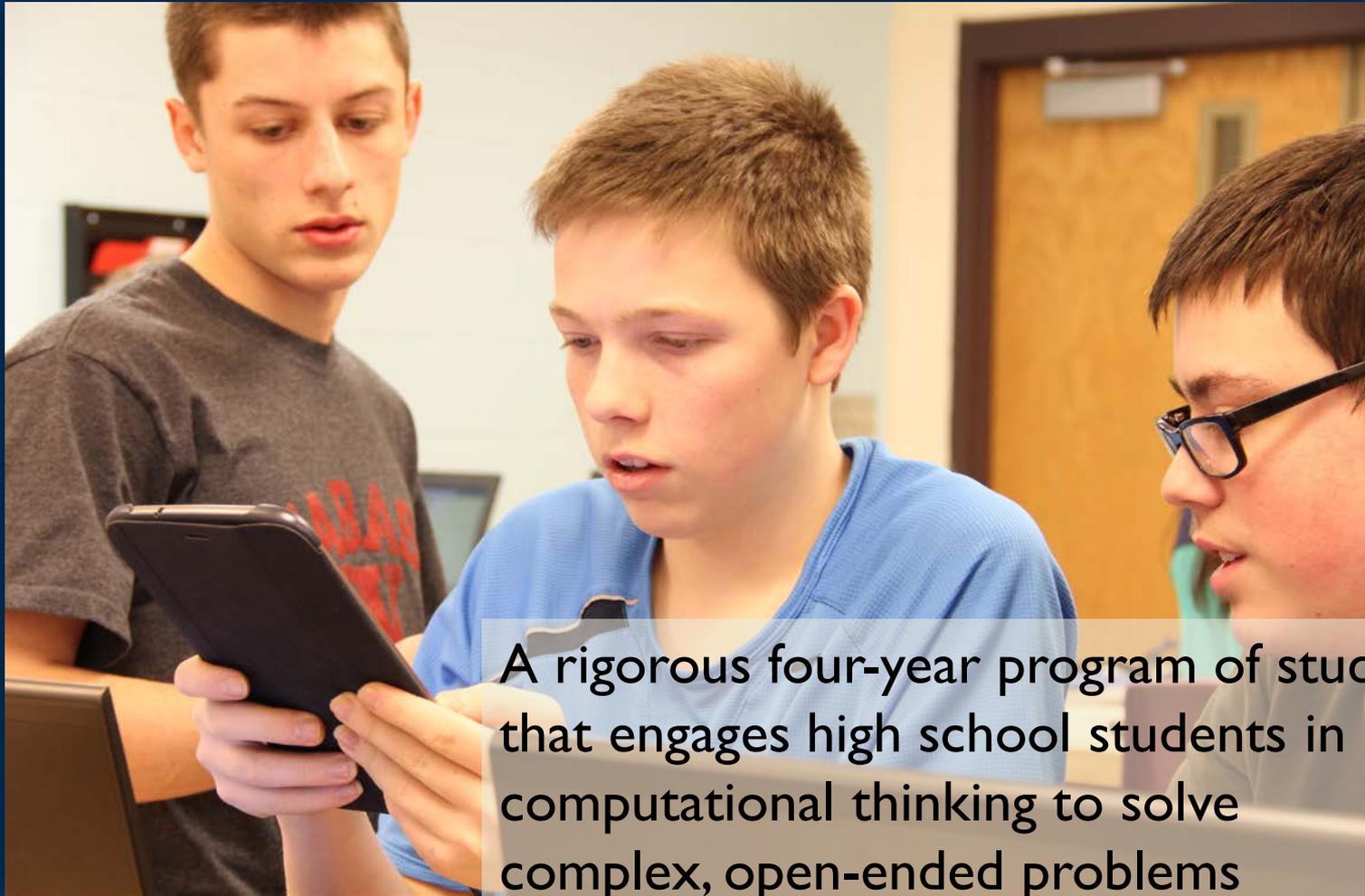
PLTW COMPUTER SCIENCE

50 percent of STEM jobs will involve computing by 2020

I STEM field has seen a reduction in student participation over last 20 years

98 percent of college Computer Science majors report being exposed to CS prior to college

PLTW Computer Science



A rigorous four-year program of study that engages high school students in computational thinking to solve complex, open-ended problems

Course Overview

Introductory Course

- Introduction to Computer Science (ICS, 0.5 year)

Foundation Courses

- Computer Science and Software Engineering (CSE, 1 year)
- Computer Science Applications (CSA, 1 year)

Specialization Courses

- Simulation and Modeling (SAM, 0.5 year)
- Artificial Intelligence (AI, 0.5 year)
- Cybersecurity (SEC, 0.5 year)

Capstone Course

- Computational Problem Solving (CPS, 1 year)

Computer Science and Software Engineering (CSE)



Aligned to the Computer Science Teachers Association (CSTA) 3B standards

Course Development Timeline

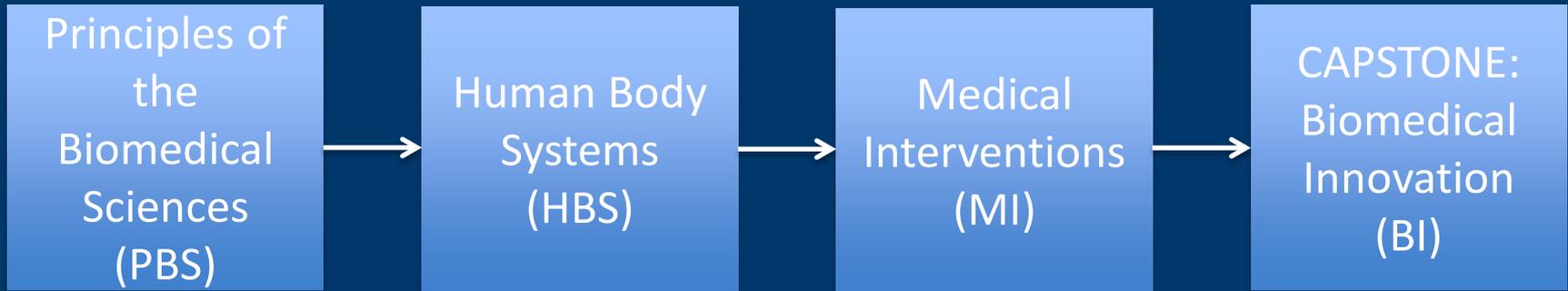
Course	Development	Pilot	Full Release
ICS	2014-2015	2015-2016	2016-2017
CSE	2013-2014	2013-2014	2014-2015
CSA	2014-2015	2015-2016	2016-2017
SAM	2015-2016	2016-2017	2017-2018
AI	2015-2016	2016-2017	2017-2018
SEC	2016-2017	2017-2018	2018-2019
CPS	2016-2017	2017-2018	2018-2019

PLTW Biomedical Sciences

Students play the roles of biomedical professionals as they investigate and study the concepts of human medicine, physiology, genetics, microbiology, and public health.



Biomedical Sciences Course Sequence



Principles of the Biomedical Sciences (PBS)

Units

1. The Mystery
2. Diabetes
3. Sickle Cell Disease
4. Heart Disease
5. Infectious Disease
6. Post Mortem



PBS

HBS

MI

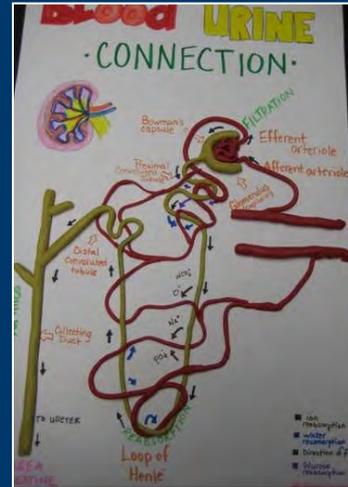
BI

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Human Body Systems (HBS)

Units

1. Identity
2. Communication
3. Power
4. Movement
5. Protection
6. Homeostasis



Medical Interventions (MI)

Units

1. How to Fight Infection
2. How to Screen What is in Your Genes
3. How to Conquer Cancer
4. How to Prevail When Organs Fail



Biomedical Innovation (BI) Capstone

Sample problems include

Designing an effective ER - *24 days*

Design of a medical innovation - *16 days*

Combat a public health issue - *18 days*

Forensic Autopsy - *12 days*

Independent project - *23+ days*



PBS

HBS

MI

BI

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High-quality professional development prepares teachers to get students engaged in STEM.



High-quality professional development for teachers

- Three phases:
 - Readiness training
 - Core training
 - Ongoing training
- Conducted in partnership with more than 51 colleges and universities across the country.
- More than 3,500 teachers trained in summer 2013.

PLTW partners with a number of leading corporation, philanthropic organizations, and educational institutions.



So, does it work?

YES.

PLTW students achieve **significantly higher scores** in reading, mathematics, and science, and in some cases, have the opportunity to **receive college credit.**

So, does it work?

PLTW alumni study engineering and technology in **greater numbers than the national average**, with a **higher retention rate** in college engineering, science, and related programs than non-PLTW students.



Let's continue the conversation.

For more information visit: pltw.org or pltwwi.org

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