





Understanding STEM

Mike Rentz PLTW Gateway Master Teacher Lady's Island Middle School



Credentials

- 7 year STEM Teacher at Lady's Island Middle School
- 5 year Master Teacher for PLTW
- Teach
 - Engineering Design
 - Robotics
 - Architecture
 - Computer Science
- 4 year Competitive Robotics Coach
 - 5 Teams
 - VEX World Championship Qualification last year





What is STEM?

- Who's responsible for the learning?
- Teaching vs. facilitating
- "APB" learning
- Authentic projects that tie together disciplines
- Standard problem solving strategy used across the curriculum
- Collaborative learning
- Where is the "A" in STEAM?





Why STEM?

- Today's student trained to receive answers from teachers
- Testing environment has minimized problem solving
- Teachers afraid to turn control of the learning environment over to students
- Technology used to be taught at home, not school (Council of 12)
- Preparing students for jobs that currently don't exist to solve problems with technologies yet to be invented





What is PLTW (Project Lead the Way)

- K-12 National STEM curriculum
- Three tracks
 - Engineering
 - Biomedical Science
 - Computer Science
- Schools must register and pay a fee to have access to the curriculum
- Teachers must attend intensive week long trainings to be certified
- Computer Science courses are AP courses, Engineering courses offer college credit



PLTW in Elementary Schools - Launch

Grade	Engineering [ENG]	Biomedical Science [BMS]	Computer Science [CS]
К	Structure and Function: Exploring Design	Structure and Function: Human Body	Animals and Algorithms
	Pushes and Pulls		
1	Light and Sound	Animal Adaptations	Animated Storytelling
	Light: Observing Sun, Moon, and Stars		
2	Materials Science: Form and Function	- The Changing Earth	Grids and Games
	Materials Science: Properties of Matter		



PLTW in Elementary Schools - Launch

Grade	Engineering	Biomedical Science	Computer Science
3	Stability and Motion: Science of Flight	Variation of Traits	Programming Patterns
	Stability and Motion: Forces and Interactions		
4	Energy: Collisions	Input/Output: Human Brain	Input/Output: Computer Systems
	Energy: Conversion		
5	Robotics and Automation	Infection: Detection	Infection: Modeling and Simulation
	Robotics and Automation: Challenge		



PLTW in Middle Schools - Gateway

Engineering [ENG]	Biomedical Science [BMS]	Computer Science [CS]
Design and	d Modeling	
Automation and Robotics	App Creators	
		CS for Innovators and Makers
Energy and the Environment	Medical Detectives	
Flight and Space		
Science of Technology		
Magic of Electrons		
Green Architecture		



PLTW in High Schools

Engineering [ENG]	Biomedical Science [BMS]	Computer Science [CS]
Introduction to Engineering Design	Principles of Biomedical Science	Computer Science Essentials
Principles of Engineering	Human Body Systems	Computer Science Principles
Aerospace Engineering	Medical Interventions	Computer Science A
Civil Engineering and Architecture	Biomedical Innovation	
Computer Integrated Manufacturing		
Digital Electronics		
Environmental Sustainability		
Engineering Design and Development		



PLTW in Beaufort County

- 1 Launch school (St. Helena Elementary
- Gateway schools
 - LIMS
 - RSIA
 - WBMS
 - BIMS
 - RRA
 - HEMMS
- High Schools
 - BHS
 - BC
 - WBHS
 - Bluffton
 - May River



What STEM looks like in other areas

- Career and Tech Centers
- STEM Magnet Schools
- STEM schools with Capstone Projects
- Deeper PLTW relationships from K 12







MISSION STATEMENT

The mission of Anderson Districts I & II Career and Technology Center is to prepare students for successful careers and post-secondary education through quality instruction.

Why Should You Care About STEM?

- Real world employability skills
- Employees who can solve problems
- Better workforce for a technology based economy



What can you do?

- Be engaged with the school district about what you need students to look like
- Partner with STEM programs in schools
- Seek local students for internships





Questions?

