National Science Foundation
STEM Forum
2015

Steven Zipkes
Founder: President

Advanced Reasoning in Education
Global Project Based Learning Academy

Former Founding Principal

MATHS
Fixed Mind Set

- Rigid Schedule
  Built around Buses, Athletics, Band, Seat Time, Carnegie Units
- Silos/Departments
- Top Down Leadership
- Controlled Curriculum
- Content Specific
- Traditional Pedagogy
- Higher Ed
  AP/IB

Growth Mind Set

- Creative Schedule
  Built for Academic Achievement/Trimester
- Integration of Contents
  Team Teaching/Integrated Standards
- Distributive Leadership
  Agency
- Effective Curriculum
  Teacher Autonomy Using Data
- College/Career Readiness
  Essential 21st Century Skills
- Engaging Pedagogy
  Project Based Learning
- High Ed/Industry
  Partnerships for Certifications, Innovative College Credit
  Dual Credit
Whole School
T-STEM:
Science
Technology
Engineering
Mathematics

Expectations
Trimester Schedule
6 yrs. Math
7 yrs. Science
7.5 yrs. Engineering
Digital Portfolio
Capstone Internship
50 Hours Community Service

New Tech
Project Based Learning
“1:1”
Seamless Integration of Technology
Integrated Courses
Student Learning Outcomes

Essential Skills

Project Based Learning
**Student Learning Outcomes**

**Written Communication:** The ability to effectively communicate knowledge and thinking through writing by organizing and structuring ideas and using discipline appropriate language and conventions

**Oral Communication:** The ability to communicate knowledge and thinking through effective oral presentation

**Collaboration:** The ability to be a productive member of diverse teams through strong interpersonal communication, a commitment to shared success, leadership, and initiative.

**Knowledge & Thinking:** The ability to reason, problem-solve, develop sound arguments or decisions, and create new ideas by using appropriate sources and applying the knowledge and skills of a discipline.

**Agency:** **Develop Growth Mindset:** I can grow my intelligence and skill through effort, practice and challenge. **Take Ownership Over One's Learning:** I can learn how to learn and monitor progress to be successful on tasks, school, and life.
Validity with a National Impact
STEM shouldn't just be about more Science, Technology, Engineering, and Math continuously taught in isolated programs or specialized classes.

It's about:
- **S**ocial justice
- **T**eacher quality
- **E**ngaging curriculum
- **M**aking a difference

*Where Innovation Is A Prerequisite*