Increase the numbers and proportion of students prepared for post-secondary study and careers in STEM fields.
• Board Member of The STEM Academy
• VP and GM at SMSC, a semiconductor company
• Engineering and Marketing roles, Hewlett Packard
• B.S. Electrical Engineering
• MIT Sloan School of Management, MBA
PREPARE 37,840 STEM WORKERS BY 2018

- Represents a 12% increase in STEM jobs
- 90% of those jobs will require postsecondary education and training.
- Economic development requires increased student STEM participation and advancement.
Gap is Getting Worse

**FIGURE 1: ASSESSMENT OF ELEMENTS OF THE U.S. BUSINESS ENVIRONMENT IN 2011**

- **Weakness but Improving**
  - Universities
  - Entrepreneurship
  - Firm Management
  - Property Rights
  - Innovation
  - Clusters
  - Capital Markets

- **Strength and Improving**
  - Entrepreneurship
  - Firm Management
  - Property Rights
  - Innovation
  - Clusters
  - Capital Markets

- **Weakness and Deteriorating**
  - Legal Framework
  - Regulation
  - Macroeconomy
  - Tax Code
  - K-12 Education System
  - Political System

- **Strength but Deteriorating**
  - Communications Infrastructure
  - Hiring and Firing
  - Skilled Labor
  - Logistics Infrastructure

Note: Scored as percentage with positive views minus percentage with negative views.

• 75% of manufacturers are experiencing a moderate to severe shortage of talent

• 600,000 manufacturing sector jobs remaining open consistently

• 76M baby boomers will age, driving work participation from 80% to 40% by 2022 (a loss of ~30M workers).
Key Recommendations:

- **Employers:** Invest in Talent Supply Chains
- **Educators:** Build Effective Partnerships with Employers
- **Policymakers:** Facilitate Communications and Data Sharing
Employer Specifics:

- Invest in **partnerships to develop and vet curriculum**, share metrics, and hire qualified candidates.
- Provide educators and other resources with **clear statements of skills** profiles and anticipated staffing requirements.
- Cultivate talent pipelines to meet specific needs and **spark interest in middle-skills careers through a blend of in-depth internship** and apprenticeship programs, internal training programs, and community partnerships.
- Identify opportunities to **work in conjunction with other regional and/or industry employers** to standardize job descriptions and build the talent pool.
Complete Solution

**LMS**
- Student Portfolio
- Branded Projects

**PBL Curriculum**
- Stem Schools Certification
- Corporate Connections

**Services**
- PBL K-12 Math/Science Integration
- Curriculum Integration
- ATC/College Connection

**Pathways**
- Certification

**Inspire**
- Customization
- Standard Correlation

**Instruct**
- Evaluation
- Competency verification
- Instructor Certification/College Credit

**Certify**
- Branded Projects
- Math/Science Integration
Key Components for Success

- Mainstream classrooms
  - Course Approved by USOE and implemented per district
  - Middle School course/company introductions for 100% of students

- Stackable Roadmap for all Students
  - Stackable certifications (basic, specialty, ATC focus)
  - Stackable for college/university credit and associates/masters degree

- Interface for Credential Storage and Job Matching
  - Student portfolio and interview training
  - Student matching to corporate/educational opportunities
  - “Big data” analysis to predict performance/job match
Corporate/Student Interface

"App Store"

Certification/Corporate Project Interface

Student Portfolio/Communication Media

"Career Network"
What Works?

• After School Programs?
• Technology Fairs?
• TV Advertising?
• More Math?
THE STEM ACADEMY®
A National Non-Profit Status K-16 Education Program
WWW.STEM101.ORG

STEM PROJECT OBJECTIVES:

→ AUTHENTIC: Correlation to local companies that change the world.

→ INCLUSIVE: Team dynamics and Broad spectrum of skills.

→ ATTAINABLE: Roadmap to Certification, College, Careers.

8TH GRADE CONNECTION IS CRITICAL
AVERAGE MATH STUDENTS WITH VISION
FOUR TIMES MORE LIKELY
to Complete STEM degree


“Changing the Conversation,” NAE 2008; Davis & Finelli, 2007; Pintrich & Zusho,2002; Wigfield & Eccles, 2000; Winter, 2007;
Solution: Show Excitement
Skills/Perception Gap

THE STEM ACADEMY®
A National Non-Profit Status K-16 Education Program

Utah System of Higher Education Data Book, 2013
Utah College of Applied Technology Annual Report 2012
DWS-Utah Total Occupations 2010, 2020
Carnevale, Smith, Melton, October 2011, Georgetown University Center for Education and the Workforce
Company-Specific ROI

- **Image**: Brand and What’s Great About UMA Company
- **Awareness**: Facility Location and Skills to Succeed
- **Pipeline**: 15K Certified, Inspired Employees/yr
NEARLY 1,500 COMPANIES
You're at a dinner party with some people you want to impress. Tell a story about yourself as a teenager that is impressive.
Foundation Courses:
Introduction to Engineering
3D Solid Modeling
Design for Manufacturing
Principles of Engineering
Architecture + Construction featuring Green Methods

Optional:
Foundations of Technology
Engineering Technology
General Fabrication
Green Methods
Sustainable Choices
Introduction to Renewable Energy
Green Building Science
Engineering Problem Solving in Community Service (EPICS)
Materials Science
Foundations in Biotechnology

Course materials include: objectives, teacher preparation, content outlines, learning activities, case studies, resources, PowerPoints, and online assessments
Unique Opportunity for UMA

THE STEM ACADEMY®
A National Non-Profit Status K-16 Education Program

- Build statewide workforce pipeline. Investment in “STEM Skills” and “Corporate Connections.”

- Measurable/predictable outcomes

- Direct corporate connection to the classroom

- Every student on a pathway. First-in-the-nation state-wide solution tying every student to a career.

RESULT: 15K Utah graduating seniors will earn STEM certifications that tie to Utah corporations.
UTAH STEM CERTIFICATION

Certified students qualify for college credit through the National Coalition of Certification Centers. Improving economic development by advancing STEM literacy for all students.

ROAD MAP

→ Starts with 7th grade
→ Scaffolds to 8th grade
→ Leads to High School Courses
→ Utah Manufacturing Certified Associate
→ Additional NC³ Certifications
COMMUNICATION AND INFORMATION TECHNOLOGIES INTRODUCTION

In partnership with Cisco Networking Academy®

In partnership with Microsoft®

In partnership with Cybersecurity Alliance