SOLVING THE EDUCATION EQUATION

A new model for improving STEM workforce outcomes through academic equity.

If there is no educational equity, then the STEM workforce shortage is absolute.

IF YOU DON'T SOLVE IT, THEN:

U.S. Economy
LOSES $14.7 TRILLION* [1]

− U.S. Government
TAX REVENUE DECREASES BY $5.3 TRILLION* [1]

− U.S. Mathematics Sector gross domestic product (GDP)
DECREASES BY $75 TRILLION** [2]

*OVER NEXT 35 YEARS **OVER NEXT 80 YEARS

= **$95 TRILLION LOST**

AND:

CRITICAL DEFENSE LAPSES [4]

ALTERED ECOSYSTEMS

DECLINING COMPETITIVENESS

IF YOU DO SOLVE IT, THEN:

State and Local Governments
GAIN $3.3 TRILLION IN TAX REVENUE* [3]

+ U.S. Government
TAX REVENUE INCREASES BY $4.1 TRILLION* [3]

+ U.S. GDP
INCREASES BY $20.4 TRILLION* [3]

*OVER NEXT 35 YEARS

= **$27.8 TRILLION GAINED**

AND:

A SECURE NATION

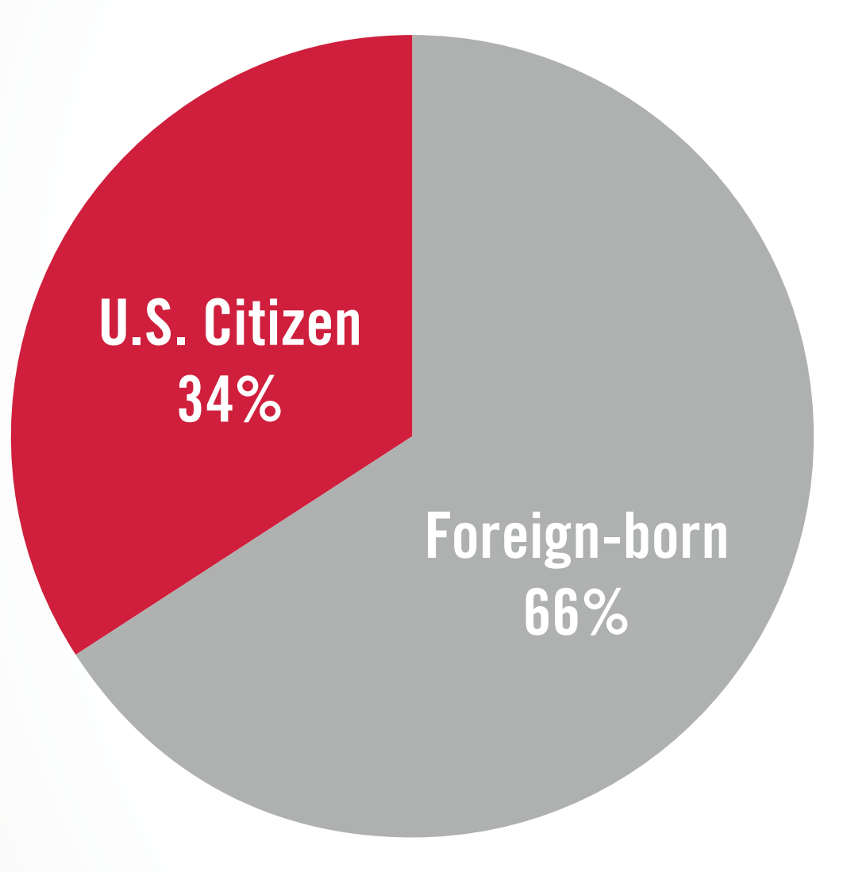
A SUSTAINABLE ENVIRONMENT

ECONOMIC PROSPERITY

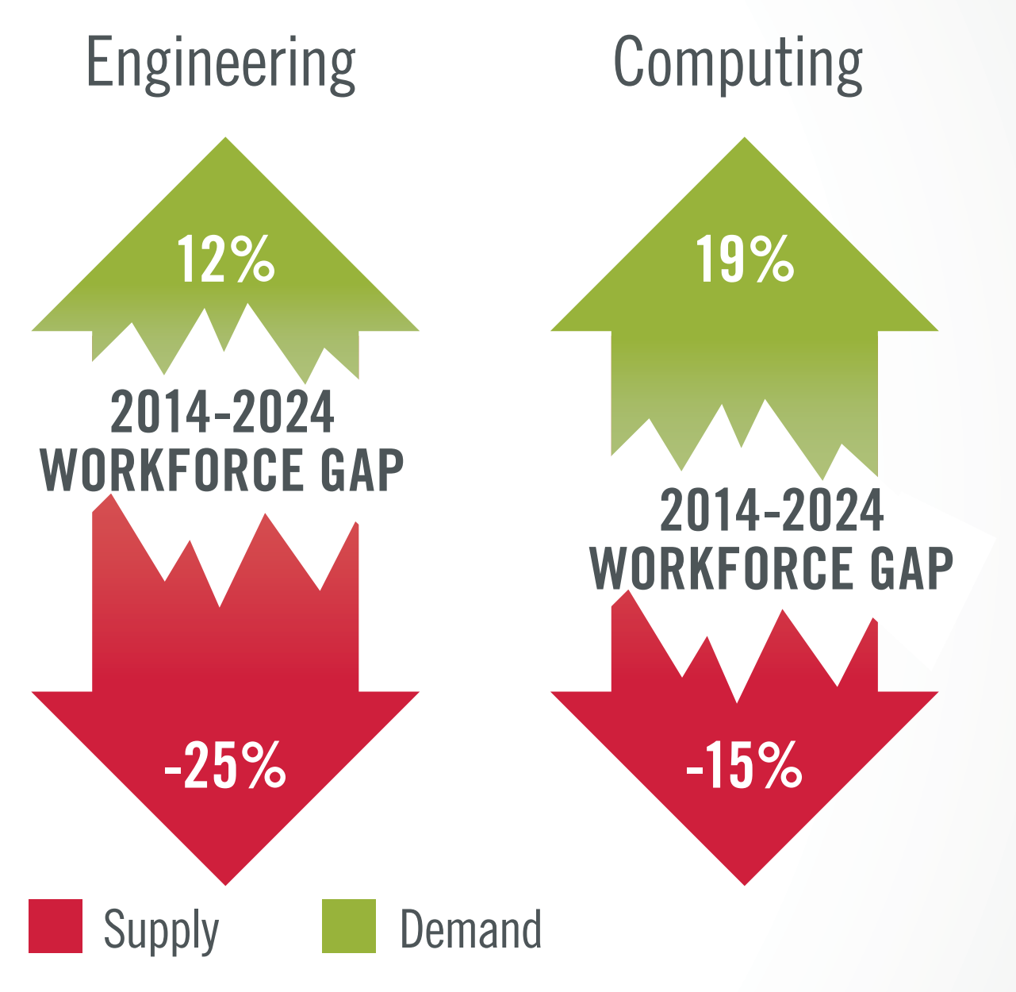
DEMAND FOR STEM WORKERS EXCEEDS SUPPLY

Science and engineering are the fastest growing occupations [5]

U.S. scientists and engineers with a PhD



Most cyber security and anti-terrorism jobs require U.S. citizenship and a PhD. In 2010, the number of U.S. scientists and engineers with a PhD was nearly half that of foreign-born. [6]

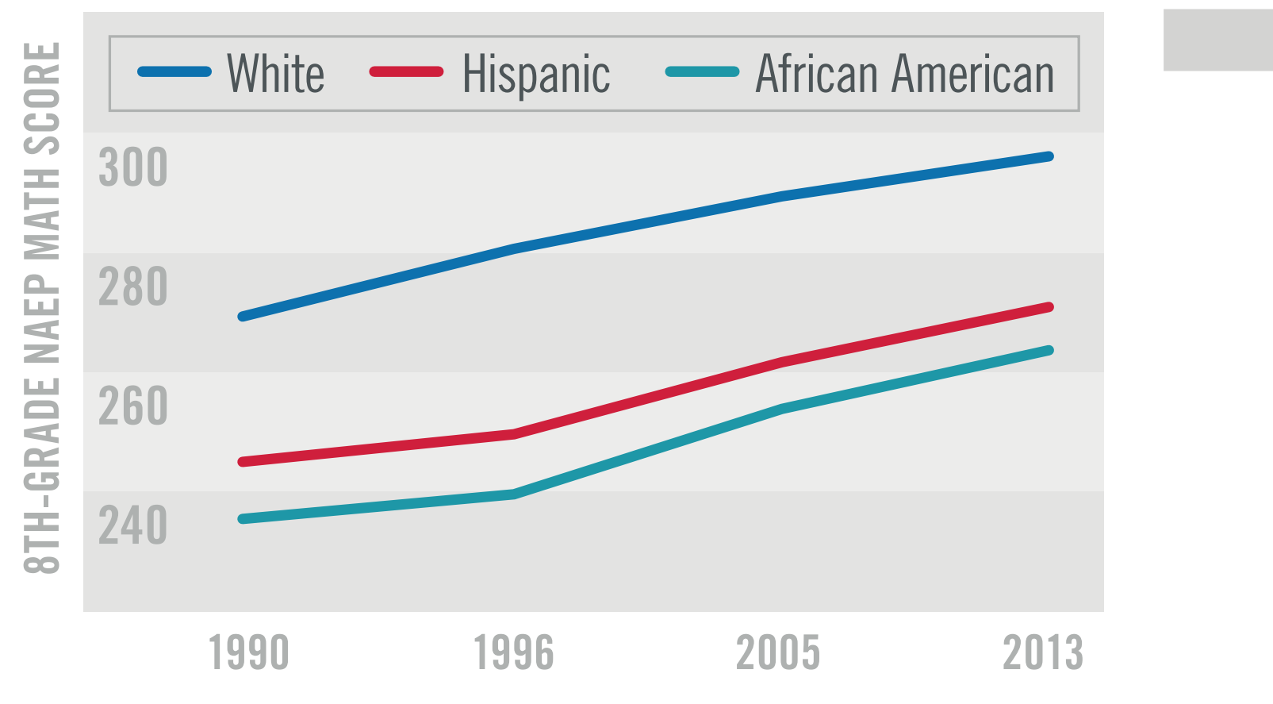


The existing STEM workforce is aging; 46 percent of STEM jobs are held by those older than 45. When they retire, they take their knowledge with them. [7]

Workforce shortages begin in education

ACHIEVEMENT GAP

Although achievement scores in math have improved, gaps by race remain. [8]



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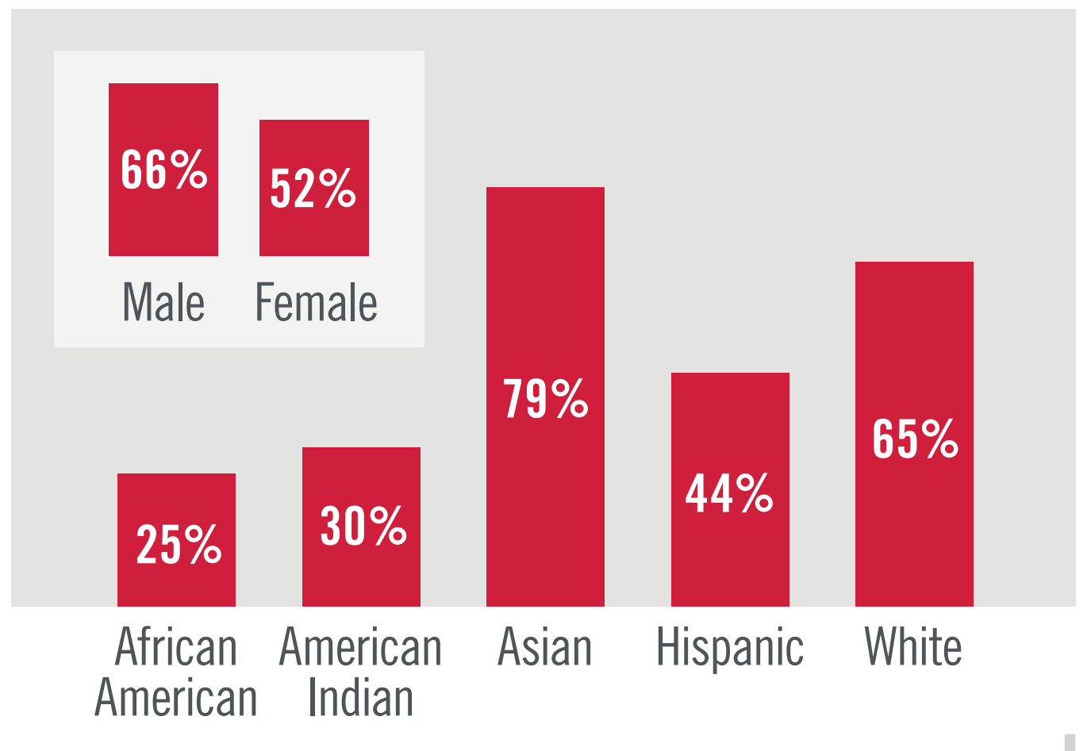
INTEREST GAP

12th-grade students interested in STEM and college and career ready in math [9]



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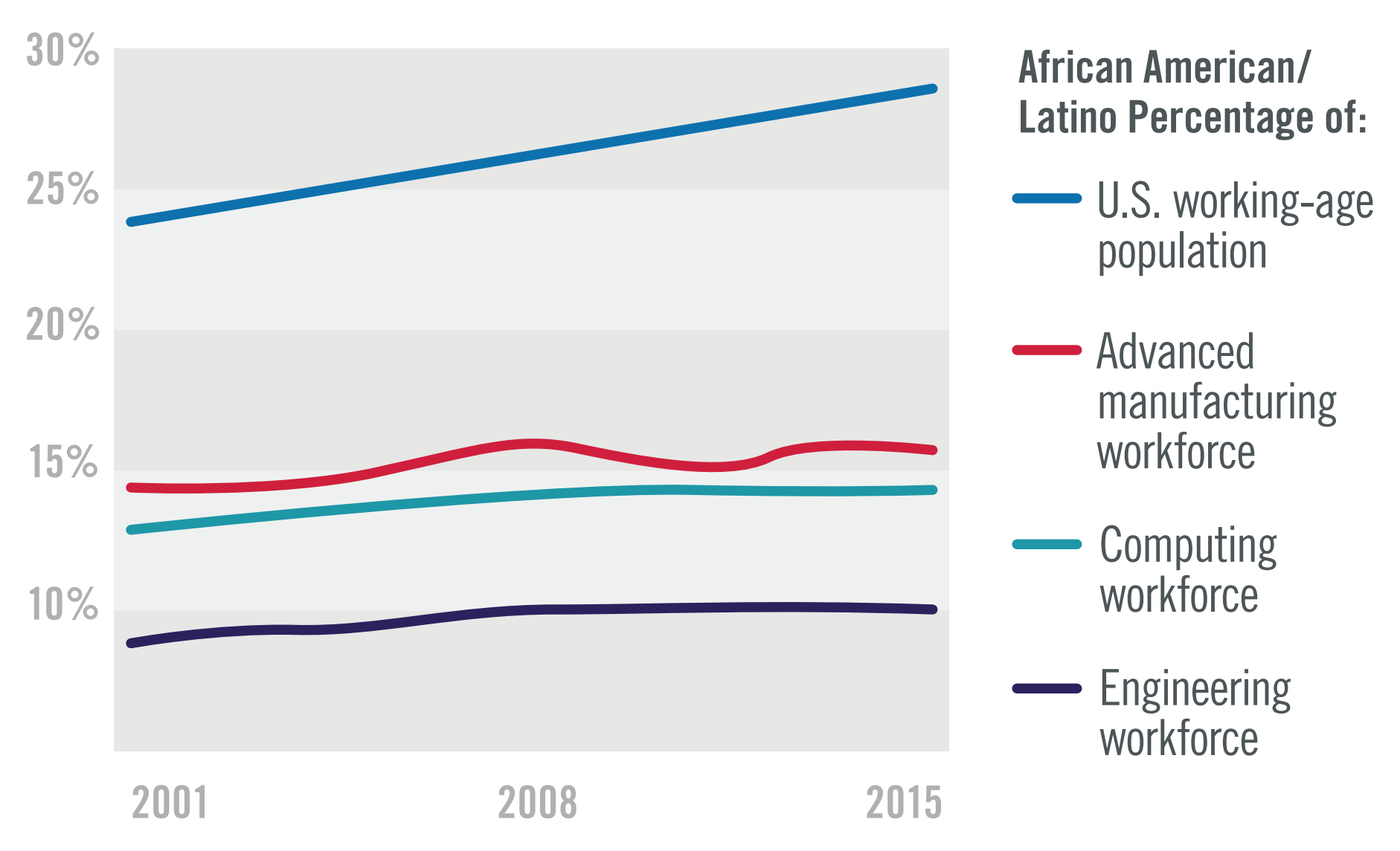
WORKFORCE GAP

Women's participation in STEM jobs has plateaued since 2001 [7]

2001	VS.	2014
13%	Engineering	12%
27%	Computing	26%
10%	Advanced Manufacturing	10%

African Americans and Latinos are grossly underrepresented in U.S. STEM jobs [7]



Factors that equate to inequity

- Disproportionate student resources
- School and teacher attitudes
- Student motivation
- School environment
- Family experience with education
- Cultural norms
- Racism, prejudice, and segregation
- Poverty [10]

= **INEQUITY**

The equation for change

SOLVE FOR X:

Teacher content knowledge and pedagogical skills

\+ Accessibility to quality resources

\+ Meaningful student assessments

\+ X

= **HIGH-QUALITY EDUCATION**

X = an equitable learning environment
An environment that includes multiple student perspectives, values, experiences, and beliefs.

Create an equitable learning environment by:

1. Increasing the number and percentage of women and underrepresented minorities who pursue STEM careers
2. Focusing on the interests and needs of underrepresented students to increase STEM literacy and strengthen college and career readiness for every student

Download the full report to read and share at napequity.org/solving-education-equation

DEVELOPED BY:

**The Multi-stakeholder Coalition for
Building a Diverse U.S. STEM Workforce**

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