



STEM: The Future of Workforce Development



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Nevadans & Financial Stability

- **23%** of Nevada workers are underemployed.
- **25.1%** Percentage of households that have zero or negative net worth.
- **44%** of Nevada households live in asset poverty.
- **14%** of Nevada households live in income poverty.
- **68%** of Nevada consumers have subprime credit.

Note: The above statistics are excerpts from the Assets & Opportunity Scorecard produced by the Corporation for Enterprise Development



Housing Crises

- **42.2%** of Nevadans are spending more than 30% of their income on homeownership expenses such as mortgage payments, property taxes, utility costs and other fees.
- From 2008 to 2012 Nevada experience **161,639** foreclosures, of which **133,481** occurred in Clark County.



Education at a Glance

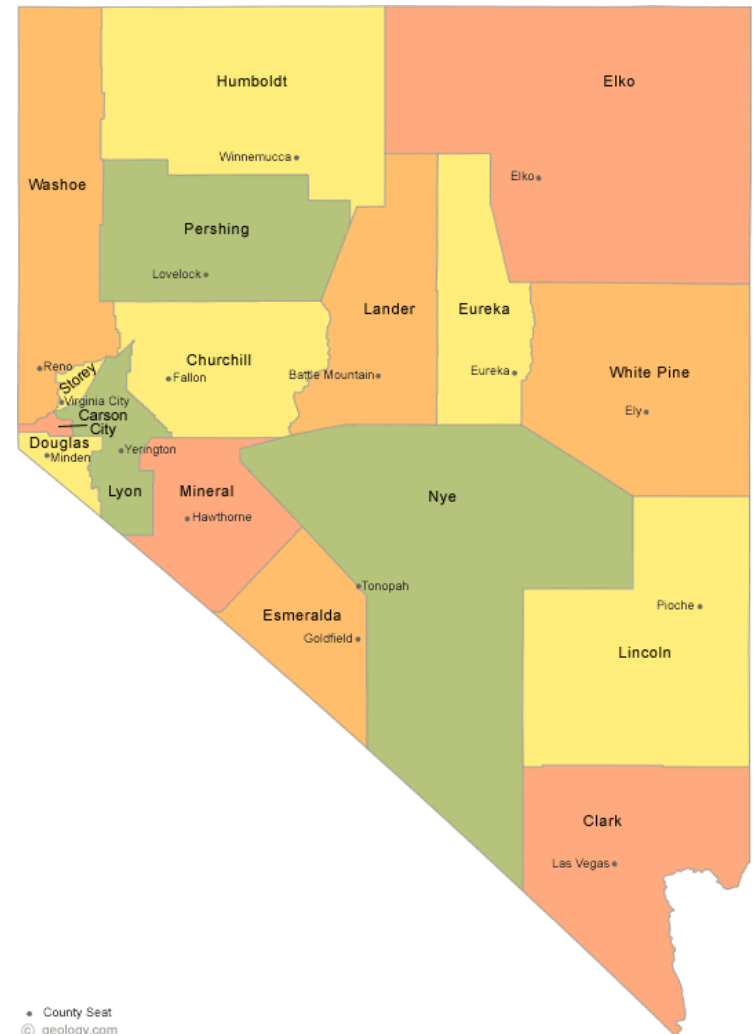
- Clark County has **308,237**, of which 43.4% are Hispanic.
- Limited English Proficiency is one of the main factors affecting Literacy Proficiency.
- The graduation rate in Clark County is **66.4%**.
- **23.2%** of students in 12th grade (2010-2011) were credit deficient.
- **999** students in Clark County failed the Proficiency Exam and obtained a Certificate of Attendance.

Note: The above statistics are excerpts from the reports produced by the Nevada State Board of Education.



Workforce Connections Service Delivery Area

- Clark County (2 Million)
 - City of Las Vegas (596,424)
 - City of Henderson (265,679)
 - City of North Las Vegas (233,491)
 - City of Boulder City (15,168)
- Nye County (42,963)
- Lincoln County (5,405)
- Esmeralda County (775)





Jaime Cruz

Workforce Connections

Chief of Sector Initiatives

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it's POSSIBLE!





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Our STEM Vision

Access to STEM skills for all

Southern Nevadans



Our STEM Mission

*Develop effective paths of engagement to
STEM opportunities*



S = Science

T = Technology

E = Engineering

M = Math

Why is it important?



STEM fields are the foundation of both the current economy and the global economy that is expected to provide the great majority of jobs in the future.

Future workers must have a solid foundation in STEM to be productive.

What about STEM and the economy?



Since WWII, 50% of U.S. economic growth has been due to scientific and technological innovation.

In the immediate future employment in STEM based occupations will grow 70% faster than employment in other occupations.

Occupations in STEM fields generally provide good salaries, benefits and advancement.



However, the U.S. is losing its status as a preeminent scientific and technological innovator.

In 1970, 50% of the people who held science and engineering doctorates in the world were Americans. By 2010, it had dwindled to 15%.

U.S. youth score substantially lower than their international peers in science and math.



The international competitiveness ranking of the U.S. fell from 1st to 7th.

Foreign-owned companies and foreign-owned investors now account for nearly half of all patents granted in the U.S.

Businesses in the growing sectors of the U.S. economy are encountering a shortage of qualified workers with STEM skills.



Four trends affecting the U.S. STEM workforce:

1. Increasing numbers of HS graduates lack the academic background to pursue a STEM degree in college.
2. Enrollment in STEM studies is down in postsecondary education, including 2 and 4 year colleges, graduate schools and post-graduate science and engineering.



Four trends affecting the U.S. STEM workforce:

3. More than 50% of the current science and engineering workforce is nearing retirement age.

4. Fewer foreign-born STEM professionals are staying in the U.S. after they complete their education here.



STEM knowledge has become essential whether workers are on the factory floor or in the executive suite. Employers want both entry-level and managerial workers to have the types of critical thinking, problem-solving and teamwork skills that study of STEM can develop.

Furthermore, all youth (and adults) need these skills in everyday life to solve problems and make decisions.



- (S) Science

Knowledge of the scientific process in the fields of physics, chemistry, biological sciences, and earth and space sciences in order to understand the natural world and participate in decisions that affect life and health, earth and environment, and technology.



(T) Technology

Ability to use , manage, understand, and assess technology to satisfy perceived human needs and wants through innovation, change, or modification of the natural environment.



(E) Engineering

Understanding of the design process that systematically and creatively applies science and math to develop practical outcomes such as the design, manufacture, and operation of efficient and economical structures, machines, processes and systems.



(M) Math

Ability to pose, formulate, solve, interpret, and communicate solutions to mathematical problems in a variety of applications.



The U.S. Department of Labor identifies 14 sectors that nationally are projected to add substantial numbers of new jobs to the economy or affect the growth of other industries or are being transformed by technology and innovation requiring new sets of skills for workers:

1. Advanced Manufacturing
2. Automotive



3. Construction
4. Financial Services
5. Geospatial Technology
6. Homeland Security
7. Information Technology
8. Transportation
9. Aerospace



10. Biotechnology

11. Energy

12. Healthcare

13. Hospitality

14. Retail

What about locally?



Nevada has identified 9 industry sectors as economic growth opportunities and Workforce Connections has aligned its resources to support these sectors:

1. Agriculture
2. Aerospace & Defense
3. Clean Energy
4. Health & Medical Services



5. Information Technology

6. Manufacturing

7. Mining & Materials

8. Logistics & Operations

9. Tourism, Gaming & Entertainment

So, how do we connect people to STEM?



The Role of the Public Workforce System in the STEM workforce challenge.

Strengthening the STEM pipeline in 3 areas:

1. Building the gateways to STEM careers.
2. Enhancing the capacity of talent development institutions.
3. Catalyzing and supporting innovation, entrepreneurship and economic growth.



Today's feature presentation...

"What's It Mean To Be Green?"





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Solar PV



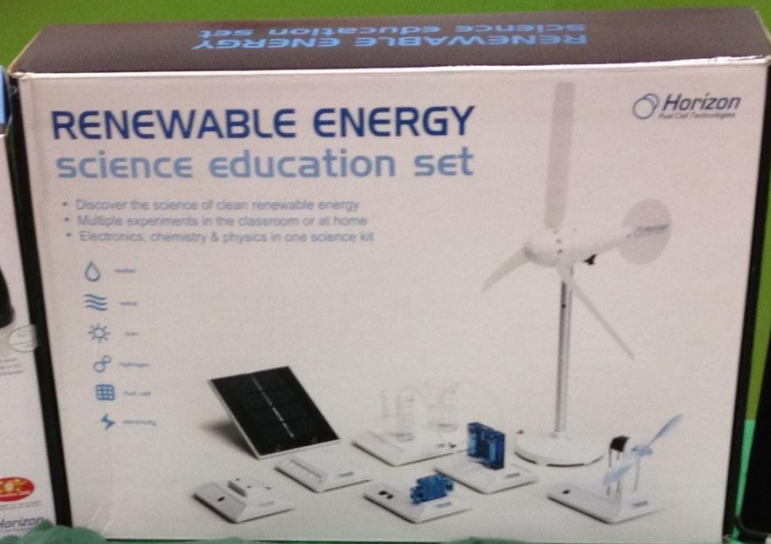
LAS VEGAS
Bowl II

passive energy
efficient
rainwater
reuse









WHAT'S
IT MEAN
TO BE
GREEN?



eco-friendly
rainwater harvesting
use
water reusing
conservation
being resourceful
passive on
using
reliably
with



Ricardo Villalobos

Workforce Connections

Youth Department Director



WIA Youth Programs

As part of the workforce development system, WIA youth programs are well positioned to work with secondary and postsecondary education systems, community and faith-based organizations, employers, and other governmental agencies to expand the STEM pipeline beyond the traditional STEM employee base (largely Caucasian or Asian males).



Supporting the education of youth in STEM

- Offer high-quality tutoring in math & science
- Provide mentors from STEM fields
- Recruit mentors from minority professional organizations
- Encourage participation in summer or out-of-school enrichment activities



Supporting the education of youth in STEM

- Become knowledgeable about alternative educational pathways that can lead to competence in STEM, such as apprenticeships, on-the-job training, online or part-time educational options, and nonacademic training courses
- Offer support and guidance as youth transition beyond high school



Supporting youth's career aspirations in STEM

- Encouraging youth to see themselves in STEM jobs, exposure to STEM professionals they can relate to
- Counter stereotypes and assumptions about STEM workers such as “You have to be really smart or nerdy or have a doctorate to work in a STEM job”



Supporting youth's career aspirations in STEM

- Develop strategies that encourage women, underrepresented minorities, and youth with disabilities to be exposed to and consider STEM careers
- Organize job shadowing, work experiences, summer employment opportunities, and internships in STEM industries and companies
- Provide work readiness activities to youth



Supporting youth's career aspirations in STEM

- Use career pathways and career lattice models that provide intermediate educational and professional steps to a STEM career when developing Individual Service Strategies (ISS) for youth.



Supporting regional economic development and employment in STEM

- Aligning local and regional business needs and workforce preparation
- Gathering data on growth and expansion of local and regional STEM-related companies and industry sectors



Supporting regional economic development and employment in STEM

- Analyzing the skill needs of industry and the availability of the necessary skills and education within the community
- Collaborating with business, educational institutions and community organizations to provide STEM opportunities to all youth



What are some well known theorems and formulas?



$$E = mc^2$$

$$a^2 + b^2 = c^2$$

$$\pi = \frac{c}{d}$$



What is Workforce Connections' STEM Theorem?



First we must...

engage

...interest



interesting
innovative
and.....fun!



Then we must...

ignite

...imagination



interactive
imaginative
and.....fun!



Then we must...

inspire

...potential



useful
relevant
and.....fun!



engage.....*e*

ignite.....*i*

inspire.....*i*



eiï



*ei*²



STEM = ?

STEM = ei^2



STEM = ?

STEM = ei^2

STEM = fun!





Our Theorem

$$\text{STEM} = ei^2$$

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