STATE OF NEVADA

Advisory Council on

Science, Technology, Engineering and Mathematics – STEM

STRATEGIC PLAN
2017

A STEM Strategic Plan for Nevada

Executive Summary

Nevada is changing. Where once as a state we were known mainly for our gaming, tourism, and hospitality industries, we have now added to our portfolio many new and exciting industries such as clean energy, robotics, battery manufacturing, drones, and autonomous vehicles. Nevada's established industries are also changing as technology and entertainment collide. Together, these industries old and new are building the "New Nevada." The common element in the industries of the New Nevada is the requirement for specialized knowledge and skillsets in Science, Technology, Engineering, and Mathematics (STEM).

As Nevada changes, so too does the world around it. Technology affects all aspects of life and we are connected instantaneously to events around the world. As the world grows more interconnected, its challenges grow in complexity. Change brings opportunities to solve new challenges. Nevada's future depends on its students being prepared to meet a wide variety of challenges both at work and outside of it. Those who have a solid foundation in real-world problem solving and experimentation, the bedrock of a rigorous STEM education, become confident, critical thinkers with the creativity to find solutions to the challenges they face. No matter the career pathway they pursue after high school, all students benefit from the skills learned in STEM.

Many of the jobs Nevada's students will occupy when they graduate and many of the challenges they will encounter in daily life do not yet exist. But we can begin to prepare them today. This plan focuses on four priorities that will prepare students for life with the skills they need to be able workers and thoughtful citizens: **equity and access, quality and scope, interest and awareness, and alignment and engagement**. Underpinning these priorities are goals, strategies to accomplish the goals, and metrics to judge our progress. Nevada's future prosperity will depend on its ability to establish a pipeline of citizens with the skills a STEM education provides that reflects the diversity of the Nevada family.

The Need for STEM

The recession that started in 2008 hit Nevada harder than most states. Leading up to the recession, Nevada's economy had thrived on the strength of its tourism, gaming, and hospitality industries. These industries fueled a residential and commercial construction boom, particularly in Southern Nevada. As the rest of the nation struggled with a contracting economy during the recession, less discretionary income elsewhere meant fewer visitors to Nevada and less money spent by those that did come. The cratering of the tourism industry spread to other industries across the state, including construction, small businesses, and retail. As a result, the unemployment rate peaked at 13.7% in 2010 and Nevada

lost 186,400 jobs, mostly in construction and hospitality[1]. Nevada led the nation in unemployment, bankruptcies and foreclosures.

In 2011, Nevada embarked on an economic development strategy to diversify the economy and catalyze innovation, led by the newly reorganized Governor's Office of Economic Development (GOED). GOED unified economic development efforts in the state, led efforts to recruit, retain, and expand businesses in targeted industry sectors, and expanded global engagement to facilitate export growth. The success of this ongoing effort is evident in the number of innovative companies that have relocated to or expanded operations in Nevada, including Tesla, Faraday Future, Hyperloop One, Switch, and others.

Nevada's economic development efforts focused not just on diversifying its industry base but also on attracting, retaining, and growing industries that bring high-skill, knowledge-based jobs. From 2011 to 2016, Nevada gained 35,132 jobs requiring skills in science, technology, engineering, and mathematics, collectively known as STEM. The job growth rate of 16.7% in STEM fields far outpaced the national rate of 9.2%. And, at $31.84 per hour, the median wage of a STEM job is significantly higher than the Nevada median wage of $20.58 per hour. Growth in STEM occupations occurred statewide, with Clark County leading the way. In the coming years, Tesla, Faraday Future, and Switch collectively will hire approximately 10,000 new workers. Nevada's advanced manufacturing, healthcare, IT, aerospace and other STEM industry sectors will continue to grow. As Nevada's STEM economy continues to grow, so too will its need for skilled workers.

Yet, Nevada faces a serious skills shortage. Not enough Nevada students are prepared for the challenging STEM jobs of Nevada's economy. Only 26% of Nevada's students scored proficient or advanced on the National Assessment of Educational Progress (NAEP) for math in 2015, a reduction from 29% in both 2011 and 2013. Only 28% scored at or above proficient in reading. Meanwhile, 30% of students in 2014 did not graduate from high school and over 60% of students in higher education were placed into remedial math or English. After high school, Nevada ranks 50th in the US in the percent of adults aged 25-34 (30.1%) with an associate degree or higher. This shortage in skills is troubling since by 2025, nearly 60% of total jobs in Nevada and 94% of STEM jobs will require some form of postsecondary education. If Nevada is going to meet Governor Sandoval's goal of 60% of Nevadans aged 25-34 having attained some form of post-secondary degree, certificate, or credential, STEM education will have to be part of the solution.

[1] http://gov.nv.gov/News-and-Media/Press/2016/Nevada-Has-Recovered-All-Jobs,-Plus-More,-Lost-During-the-Recession/

Too few Nevadans consider STEM careers in large part because they are not exposed to STEM education as students or are not made aware of the many exciting career opportunities in STEM available to those with some postsecondary education. Many people mistakenly believe all STEM jobs require an advanced degree and many years of schooling. Yet, not all STEM careers require a four-year degree or higher. So called "middle-skills" STEM jobs require technical skills and postsecondary credentials at either the associate or certificate level. Middle-skills STEM jobs account for half of all STEM jobs and pay on average $53,000[2].

As Brookings rightly concluded in 2014, Nevada's successful economic development strategy demands that the state create a complimentary people strategy to increase the number of Nevadans with some postsecondary training in STEM. This strategy must strive to achieve a pipeline of STEM capable students that reflects the diversity of the Nevada family. Currently, 68% of STEM jobs in Nevada are held by males. 68% of STEM jobs are held by whites. We must endeavor to provide each student with the skills needed to become able employees and thoughtful citizens. These skills include critical thinking, problem solving, communication, team work, and creativity; skills that a robust STEM education provides.

The Nevada State Board of Education defines STEM education as "education that focuses on active teaching and learning, centered on relevant experiences, problem-solving, and critical thinking processes. STEM education emphasizes the natural interconnectedness of science, technology, engineering, and mathematics, and their connection to other disciplines, to produce informed citizens that possess and apply the necessary understandings to expand Nevada's STEM-capable workforce in order to compete in a global society."[3] STEM education encourages students to learn by solving real-world problems. It encourages creative thinking and leverages students' natural curiosity about the world around them. Yet, only 38% of schools in Nevada report offering STEM activities during the school day. As Nevada continues to change, the way it educates its children must change by integrating and scaling quality STEM education in every school.

Since 2011, Nevada has made significant investments in STEM education around the state and has established an infrastructure to carry the work forward.

- In 2013, the Nevada Legislature created the Advisory Council on STEM. The Council is charged with "… developing a strategic plan for the development of educational resources in the fields of science, technology, engineering, and mathematics to serve as a foundation for workforce

[2] Brookings Institution, *Cracking the Code on STEM. 2014 http://www.brookings.edu/~/media/Research/Files/Reports/2014/11/nevada-stem/BMPP_NevadaSTEM_full-report-web-final.pdf?la=en*

[3] As adopted by the Nevada State Board of Education in June 2012

development, college preparedness and economic development in Nevada."[4] The Council is also charged with recognizing students and schools, and conducting surveys regarding the state of STEM education in Nevada.

- In 2014, Nevada adopted the Next Generation Science Standards, which complement Nevada's college and career ready standards for math and language arts.
- The Office of Science, Innovation and Technology (OSIT) was reestablished in the 2015 by the Governor and funded by the Legislature[5]. The mission of OSIT is to coordinate and align efforts by K-12 and higher education, workforce development and employers to improve STEM education, STEM workforce development and STEM economic development so that Nevada's workforce can meet the demands of its growing economy. The office also supports the Advisory Council on STEM.
- In 2015, the Governor included $3 million in his executive budget for STEM Workforce Challenge Grants to be administered by OSIT. The grants focus on creating postsecondary STEM workforce training programs that meet the needs of employers.
- In 2015, the Governor included $8 million in his executive budget for college and career readiness grants targeting secondary education. STEM is among the eligible uses of this funding.
- The Governor's budget also significantly increased funding for Career and Technical Education (CTE) to $8 million. This funding was further increased by the Legislature.
- In 2015, the Governor's budget also included $9.8 million for professional development for teachers in the area of science.
- School districts around the state have also made significant investments in STEM education, from the Douglas High School STEM Center to Clark County School District's Magnet and CTE programs, to Washoe County's Signature Academies.
- Significant steps have been taken by the higher education community to grow more STEM teachers, from the NevadaTeach program at the University of Nevada, Reno to the establishment of Western Governors University Nevada.
- Finally, in September of 2016, Governor Sandoval proclaimed the 2016-2017 school year as the "Year of STEM" in Nevada and OSIT is leading several efforts to raise awareness of the benefits STEM education and the career opportunities available, reduce the skills gap STEM employers face, and increase equity and access to quality STEM education for all of Nevada's students.

While these investments and initiatives are significant, more work needs to be done. Hence, in January of 2016, the STEM Advisory Council embarked on an effort to create this STEM strategic plan for Nevada. The Council surveyed schools across the state to identify current offerings, STEM resources, and barriers to teaching STEM. The Council also heard presentations from GOED, the Nevada System of Higher Education, the Nevada Department of Education, and the Nevada Department of Employment, Training and Rehabilitation regarding current programs and projected workforce needs. The Council also reached out to STEM stakeholders across the state including school districts, institutions of higher education, regional economic development authorities,

[4] NRS 385.705

[5] NRS 223.600, See also AB 485 (2015) https://www.leg.state.nv.us/Session/78th2015/Bills/AB/AB485_EN.pdf

employers, advocates, and non-profits. This document is intended to be the first of many iterations of a STEM strategic plan for Nevada.

Our **vision** is to ensure that all Nevadans, with a particular focus on engaging underrepresented demographic groups, will have access and opportunities to gain the requisite STEM education and skills necessary that foster the talent pipeline for Nevada employers to fuel the New Nevada economy.

To realize this vision, we have identified four priorities that will prepare students for life with the skills they need to be able workers and thoughtful citizens. Underpinning these priorities are goals, strategies to accomplish the goals, and metrics to judge our progress.

STEM Priorities for Nevada

1. **Equity and Access**
2. **Quality and Scope**
3. **Interest and Awareness**
4. **Alignment and Engagement**

Needs Assessment and Identified Barriers to Improving STEM Education in Nevada

The STEM Advisory Council's survey identified a number of needs and barriers to integrating STEM into the classroom. While this certainly does not represent an exhaustive list, it does cover many of the barriers this plan seeks to solve. The needs identified fall into three categories: classroom assistance, teacher development and support, and community engagement.

1. **Classroom Assistance:** Many teachers and schools report a lack of funding for STEM-related consumables or equipment necessary to teach STEM. Resources in the schools must be commensurate with expectations. With so many curriculum and lesson plans available, it is difficult and time consuming for teachers, schools and districts to determine which resources are quality and aligned to Nevada's academic standards. There is often a lack of time during the school day to integrate STEM into lesson plans, especially with requirements for testing and the focus on reading and math. When taught in the classroom, STEM must be integrated so that it supports other priorities.
2. **Teacher and School Development and Support:** Student interest in science and math, especially among members of underrepresented groups, begins to decline late in elementary school or early in middle school. Teachers need assistance learning best practices for engaging these students through STEM. There is a great need for more teachers with the qualifications to teach STEM subjects. Many teachers in Nevada lack opportunities and incentives to participate in STEM Professional Development. School and district leadership do not always support the teaching STEM. Nevada must ensure that NGSS implementation improves STEM education for all students. There is a need to identify leaders and best practices in Nevada to copy.
3. **Community Engagement:** Parental engagement is key and often lacking. There is a lack of engagement between the STEM business community and schools. STEM education must lead to the skills employers demand. There is no common vision and little coordination of STEM efforts and activities across the state leading to inefficient uses of funding, duplicative efforts, and gaps in coverage.

STEM and CTE

STEM and CTE are very congruent. Both provide an educational experience that is hands-on and real world; that encourages the development of critical thinking and communication skills; and that prepares students for high-demand careers. Indeed, CTE is an evidence-based, high-quality, proven educational strategy to increase STEM skills in young people.

Stakeholder Abbreviation Key	
OSIT	Office of Science, Innovation and Technology
SAC	STEM Advisory Council
SBE	State Board of Education
NDE	Nevada Department of Education
K-12	Nevada's 17 School Districts and Charter Schools
NSHE	Nevada System of Higher Education
GOED	Governor's Office of Economic Development
DETR	Department of Employment, Training and Rehabilitation
OWINN	Office of Workforce Innovation
RPDP	Regional Professional Development Programs

PRIORITY 1: EQUITY AND ACCESS

By focusing on equitable access first, we ensure all children have the same opportunities to learn science, technology, engineering, and math. Without equity, we will not have changed anything for Nevada's students and future.

PRIORITY 1 OUTCOMES:

1. By 2020, double the number of students from underrepresented demographic groups or regions who score proficient on the ACT.
2. By 2020, double the number of students from underrepresented demographic groups or regions completing calculus, physics, and other STEM courses; STEM-focused AP and IB exams; and CTE pathways in STEM fields.
3. By 2020, double the number of students from underrepresented demographic groups or regions participating in informal STEM learning opportunities.
4. By 2022, at least 50 percent of the schools that have received a Governor's STEM School Designation, or are progressing toward a Governor's STEM School Designation, primarily serve students from underrepresented demographic groups or regions.
5. By 2025, double the number of students from underrepresented demographic groups or regions completing postsecondary STEM degrees and/or industry-recognized certificates.

GOAL 1: PROMOTE EQUITABLE OPPORTUNITY FOR STEM EDUCATION ACROSS NEVADA

Key Strategies

1. Identify schools and programs with a proven track record of engaging underrepresented demographic groups in STEM, identify best practices involved, and disseminate information across the STEM community.
   Implementing Stakeholders: OSIT, SAC

2. Develop a coalition to identify and apply for federal grants that fund the development and increase the scale of STEM programs that seek to increase equity.
   Implementing Stakeholders: OSIT, SAC

3. Increase the number of high-quality informal/after school STEM programs. Identify and scale existing programs with positive results.
   Implementing Stakeholders: Non-profit Community, K-12, NDE, Legislature, OSIT

4. Increase the opportunities for applied learning, internships and apprenticeships in STEM disciplines develop outreach plans to underrepresented demographic groups.
   Implementing Stakeholders: NDE, K-12, Business & Industry, OWINN

5. Increase the availability of dual enrollment and distance learning programs within STEM disciplines to reduce inequities in access. Provide students with detailed information.
   Implementing Stakeholders: NDE, SBE, Legislature

6. Increase STEM mentorship and provide increased access to role models, professional networks, and successful alumni.
   Implementing Stakeholders: OSIT, Business & Industry, K-12

PRIORITY 2: QUALITY AND SCOPE

Wide variation exists around Nevada with regard to the quality and quantity of STEM education children receive. As a State, we must provide the high-quality support that our teachers and students require. Additionally, we must expand the scope of what we currently teach as STEM to include new and emerging fields like computer science, or new industry-demanded approaches that incorporate design, creativity, and art.

PRIORITY 2 OUTCOMES:

1. By 2025, increase the number of teachers completing initial licensure in STEM fields by 10 percent.
2. By 2020, 25 percent of Nevada's STEM teachers have participated in STEM-related, evidenced-based professional development.
3. By 2020, proficiency on state assessments and the ACT will improve.
4. By 2020, at least 50 schools have received a Governor's STEM School Designation, or are progressing toward a Governor's STEM School Designation.

5. By 2020, double the number of schools that require 3 years of science/4 years of math, double the number of elementary schools meeting national averages for time spent on science.
6. By 2020, adopt standards in computer science.

GOAL 1: IMPROVE THE QUALITY AND QUANTITY OF STEM EDUCATION IN NEVADA SCHOOLS

Key Strategies

1. Make science scores count more heavily in administrator and principal evaluations, once the state science test and state adopted science standards are in alignment.
   Implementing Stakeholders: K-12, NDE, SBE
   Equity Focus: Add the performance of underrepresented students to these evaluations.

2. Increase the use of hands-on, experiential STEM learning in all grades, with particular emphasis in grades 1-5.
   Implementing Stakeholders: K-12, NDE, OSIT, Non-profits, RPDP
   Equity Focus: Use data to identify groups of students that are "at-risk" or "special needs" and differentiate instruction to meet these needs.

3. Increase the percentage of elementary schools that teach science three plus hours per week.
   Implementing Stakeholders: SBE, K-12, NDE

4. Increase the percentage of high schools that require three years of science and four years of mathematics.
   Implementing Stakeholders: SBE, K-12, NDE

5. Increase the percentage of students taking and passing pre-calculus and calculus in high school.
   Implementing Stakeholders: SBE, K-12, NDE

6. Increase the number of STEM-focused CTE pathways in schools throughout Nevada.
   Implementing Stakeholders: NDE, K-12
   Equity Focus: Continue and scale successful outreach initiatives to middle school students to encourage enrollment in these CTE pathways.

7. Increase the number of internships, job shadowing, and summer research programs, and expand partnerships with local industry.
   Implementing Stakeholders: NDE, K-12, OSIT, DETR, Business, Regional Development Authorities
   Equity Focus: Partner with community organizations and businesses to provide wrap-around services to students from underrepresented backgrounds.

8. Restrict State K-12 STEM funding (College and Career Readiness Grant) to evidence-based, high-quality formal and informal STEM practices and programs. Create a stable, dedicated funding source for STEM and use State STEM funding to scale these programs.
   Implementing Stakeholders: NDE, SAC, Legislature, OSIT

9. Develop and promote the creativity in STEM via STEAM and design.
   Implementing Stakeholders: SAC, OSIT, Business, Non-profit

GOAL 2: INCREASE THE QUALITY AND QUANTITY OF STEM PROFESSIONAL DEVELOPMENT OPPORTUNITIES FOR TEACHERS AND ADMINISTRATORS

1. Create and advertise a certificate or endorsement for STEM for teachers.
   Implementing Stakeholders: Commission on Professional Standards, RPDP, NSHE

2. Restrict the use of state funds (Great Teaching and Leading Fund) to evidence-based, proven professional development programs and curriculum.
   Implementing Stakeholders: SBE, K-12, Legislature, OSIT

3. Increase the number of teachers receiving STEM high-quality and researched-based professional development.
   Implementing Stakeholders: K-12, NDE, RPDP
   Equity Focus: Include evidence-based practices for increasing interest in and creating a supportive classroom environment for traditionally underrepresented demographic groups.

4. Develop STEM professional development for administrators, school board members, and other community leaders.
   Implementing Stakeholders: K-12, NDE, SBE, RPDP
   Equity Focus: Prioritize STEM professional development dollars for teachers and students working with underserved populations.

5. Identify teachers, classrooms, and schools that can serve as models for demonstrating exemplary STEM teaching and learning.
   Implementing Stakeholders: K-12, RPDP, OSIT
   Equity Focus: Prioritize and support the expansion of best practices to schools that primarily serve underrepresented students in STEM.

6. Provide greater support to pre-service teachers and administrators studying STEM.
   Implementing Stakeholders: Higher education, SBE, K-12
   Equity Focus: Develop programs to improve the recruitment, pedagogy, and retention of teachers and administrators from underrepresented backgrounds.

7. Grow the number of STEM teachers trained by Nevada colleges and universities by starting or expanding innovative programs that market the teaching profession to students pursuing STEM majors.
   Implementing Stakeholders: **Higher education**
   Equity Focus: Offer incentives to students from underrepresented backgrounds to participate.

8. Scale existing programs that provide alternative routes to licensure for STEM professionals.
   Implementing Stakeholders: NDE, K-12, RPDP

9. Provide externship opportunities for teachers at STEM businesses that give real-world context to teachers and count towards requirements for professional development.
   Implementing Stakeholders: NDE, RPDP, K-12, Business Community

GOAL 3: IDENTIFY AND SCALE BEST PRACTICES

Strategies

1. Increase the number of schools that receive the Governor's STEM School Designation each year
   Implementing Stakeholders: SAC, OSIT, K-12

   Equity Focus: Provide technical assistance and school-level mentorship to schools that serve primarily students that are traditionally underrepresented in STEM.

2. Create a teachers' forum that would serve as a statewide STEM professional learning community for educators to collaborate on best practices in teaching STEM.
   Implementing Stakeholders: OSIT

3. Identify and support the best informal and out-of-school STEM learning opportunities that challenge students to develop critical thinking, problem solving, collaboration, and teamwork skills.
   Implementing Stakeholders: OSIT

GOAL 4: INCREASE SCOPE

Strategies

1. Integrate Arts, Culture, and Computer Science programs, activities and curricula into STEM, both during the school day and after school.
   Implementing Stakeholders: SBE, SAC NDE, K-12, Business Community, Non-profit Community

2. Develop and adopt computer science standards for K-12. Provide necessary professional development to teachers and adopt course requirements for pre-service teachers.
   Implementing Stakeholders: NDE, SBE, SAC, K-12, RPDP, Higher Education

3. Allow advanced/rigorous Computer Science courses (Advanced Placement CS A, a dual enrollment computer science class, and CS III in CTE) to fulfill a requirement for graduation, NSHE admission and Millennium Scholarship.
   Implementing Stakeholders: NDE, SBE, SAC, NSHE

PRIORITY 3: INTEREST AND AWARENESS

After achieving equity for all students and a quality STEM education, we will be able to create the interest and awareness in STEM fields that will attract students.

PRIORITY 3 OUTCOMES:

1. By 2025, double the number of students completing postsecondary degrees and/or credentials in STEM disciplines.
2. By 2020, proficiency on state assessments and the ACT will improve.
3. Increased number of students participating in high-quality STEM programs P-12
4. Increased number of students taking calculus, physics, and other STEM-related AP exams, IB math and science exams or college-level courses via dual enrollment
5. Increased number of students completing CTE pathways in STEM-related fields
6. Increased number of students enrolling in and completing postsecondary STEM degrees and industry-recognized certificates
7. Increased interest in STEM as reported on the ACT questionnaire

GOAL 1: INCREASE STUDENT, PARENT, AND TEACHER INTEREST IN AND AWARENESS OF STEM

Strategies:

1. Develop an ongoing, robust STEM marketing campaign targeting students, parents, teachers, business, and other community leaders disseminating information about pathways to STEM careers.
   Implementing Stakeholders: OSIT, SAC, NDE, OWINN, Non-profit Community
   Equity Focus: Collaborate with family engagement coordinators at the state and district levels to develop a family engagement plan targeting students from underrepresented populations.

2. Develop and promote a dedicated STEM website with career pathways, STEM teaching, and corporate engagement resources targeting students, parents, job seekers and employers.
   Implementing Stakeholders: OSIT, GOED, DETR, NSHE, K-12
   Equity Focus: Strengthen student career counseling by providing students with accurate information about in-demand STEM jobs, workforce supply and demand projections, wage information, and postsecondary education requirements and costs.

3. Scale and coordinate existing STEM outreach efforts to students, parents, teachers, counselors, and other stakeholders under a common message regarding formal and informal opportunities to learn about STEM and for STEM careers.
   Implementing Stakeholders: Higher education, K-12, OSIT, NDE, Non-profit Community, Business Community
   Equity Focus: Improve and coordinate mentoring opportunities, academic and informal interventions, and other outreach programs with a proven track record of recruiting and retaining students from underrepresented backgrounds in STEM.

4. Develop and administer a survey to STEM stakeholders such as students, parents, teachers, and employers.
   Implementing Stakeholders: OSIT

   Equity Focus: Break information down by subgroups where possible.

GOAL 2: THE CREATION OF A SOCIETY THAT RECOGNIZES THE IMPORTANCE OF STEM EDUCATION IN CREATING A VIBRANT ECONOMY

Strategies:

1. Educate stakeholders about the STEM strategic plan.
   Implementing Stakeholders: OSIT, SAC

2. Work with local governments to incorporate STEM into urban and regional plans.
   Implementing Stakeholders: OSIT, SAC, Higher Education, K-12

3. Increase corporate philanthropy in STEM to scale evidence-based, effective and coordinated programs.
   Implementing Stakeholders: **Business community**

PRIORITY 4: ENGAGEMENT AND ALIGNMENT

No one entity alone can provide the equitable, high-quality STEM education Nevada needs. There is a high demand in Nevada for people that have postsecondary STEM skills. Many outstanding individual efforts exist but these efforts lack coordination to efficiently leverage scarce resources leading to duplication and gaps. Other necessary players are disengaged. This priority makes the case for a unified state strategy that receives contributions across the P-20 spectrum.

PRIORITY 4 OUTCOMES:

1. Increased investment in programs that provide training for occupations that are aligned with the state's economic development plan.
2. Reduction in workforce shortages in targeted occupations.
3. Increase in the number of schools reporting a collaboration with a business.
4. Increase in the number of interactions students have with STEM professionals, such as classroom visits or field trips to STEM related sites.
5. Increase in the number of internships/apprenticeships/externships for students and teachers.
6. Increase in the commitment and support from the business community to STEM schools and programs.

GOAL 1: ALIGN CURRICULUM AND PROGRAMS WITH THE SKILLS REQUIRED BY STEM EMPLOYERS

Strategies

1. Promote the delivery and quantity of STEM education that aligns with Nevada's industry and workforce needs, including Career and Technical Education.
   Implementing Stakeholders: OSIT, GOED, OWINN, Sector Councils, DETR, Governor's Workforce Development Board, NDE, K-12

2. Align secondary and postsecondary STEM content and programs with workforce and economic needs.
   Implementing Stakeholders: NDE, K-12, Higher Education, GOED, DETR, OSIT, SBE

3. Use NPWR and/or GOED data, and employer feedback to identify STEM workforce needs and gaps in the educational pipeline, and reallocate resources to effective, proven programs in K-12/higher education that lead to skills in targeted industry sectors and away from programs that do not.
   Implementing Stakeholders: OWINN, DETR, GOED, NSHE, NDE, K-12, Business Community, OSIT

4. Invest in workforce training programs that provide education and training for in-demand, targeted STEM occupations.
   Implementing Stakeholders: Legislature, OSIT, DETR, Governor, NDE, K-12
   Equity Focus: Prioritize programs with data-driven plans to recruit and retain a diverse student population.

5. Align STEM degree and certificate attainment with industry needs.
   Implementing Stakeholders: Higher education, NDE, K-12, Governor

6. Increase training and educational opportunities at the worksite, including internships and apprenticeships. Allocate credit toward a degree or credential for relevant work-based-learning.
   Implementing Stakeholders: Business Community, K-12, NDE, DETR, Higher education
   Equity Focus: Opportunities address barriers faced by underrepresented groups, such as transportation and mentorship.

GOAL 2: INCREASE STEM EDUCATION, WORKFORCE DEVELOPMENT AND ECONOMIC DEVELOPMENT COORDINATION AND COOPERATION AMONGST STATE AND LOCAL GOVERNMENT, HIGHER AND K-12 EDUCATION, BUSINESSES, AND OTHER STAKEHOLDERS

Strategies

1. Increase communication and cooperation among government, business, and non-profit STEM actors and advocates in order to align efforts and avoid duplication and waste, using the STEM Advisory Council as a central hub for communication and coordination.
   Implementing Stakeholders: Everyone

2. Encourage the establishment of university presidents'/K-12 superintendents' presences in the business community and encourage the establishment of *educational liaisons* from business to formalize relationships with schools.
   Implementing Stakeholders: SAC, OSIT, Business, Higher education, K-12

3. Incentivize and provide time for faculty teachers to engage in business and community STEM partnerships. Teachers should receive professional development in developing partnerships, including partnerships outside the geographic region. Efforts to establish partnerships with STEM businesses and community organizations should be tracked and reported on as a part of school leaders' evaluations.
   Implementing Stakeholders: SAC, OSIT, K-12, RPDP

4. Promote local chambers' and regional economic development organizations' engagement by assisting with brokering and maintaining industry-school/university partnerships. Develop a list of partnerships between businesses and schools.
   Implementing Stakeholders: **SAC, OSIT, GOED**

5. Develop and promote teacher summer externships at STEM businesses.
   Implementing Stakeholders: **SBE, NDE, Legislature, Business, K-12, OSIT**

GOAL 3: PROMOTE THE EFFECTIVE LEVERAGING OF STATE AND FEDERAL FUNDING SUCH AS FUNDING FOUND IN THE EVERY STUDENT SUCCEED ACT (ESSA)

Strategies

1. Include STEM as a main component of the Nevada's Every Student Succeed Act (ESSA) plan.
   Implementing Stakeholders: **NDE, Governor**

MEMBERS OF THE STEM ADVISORY COUNCIL

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