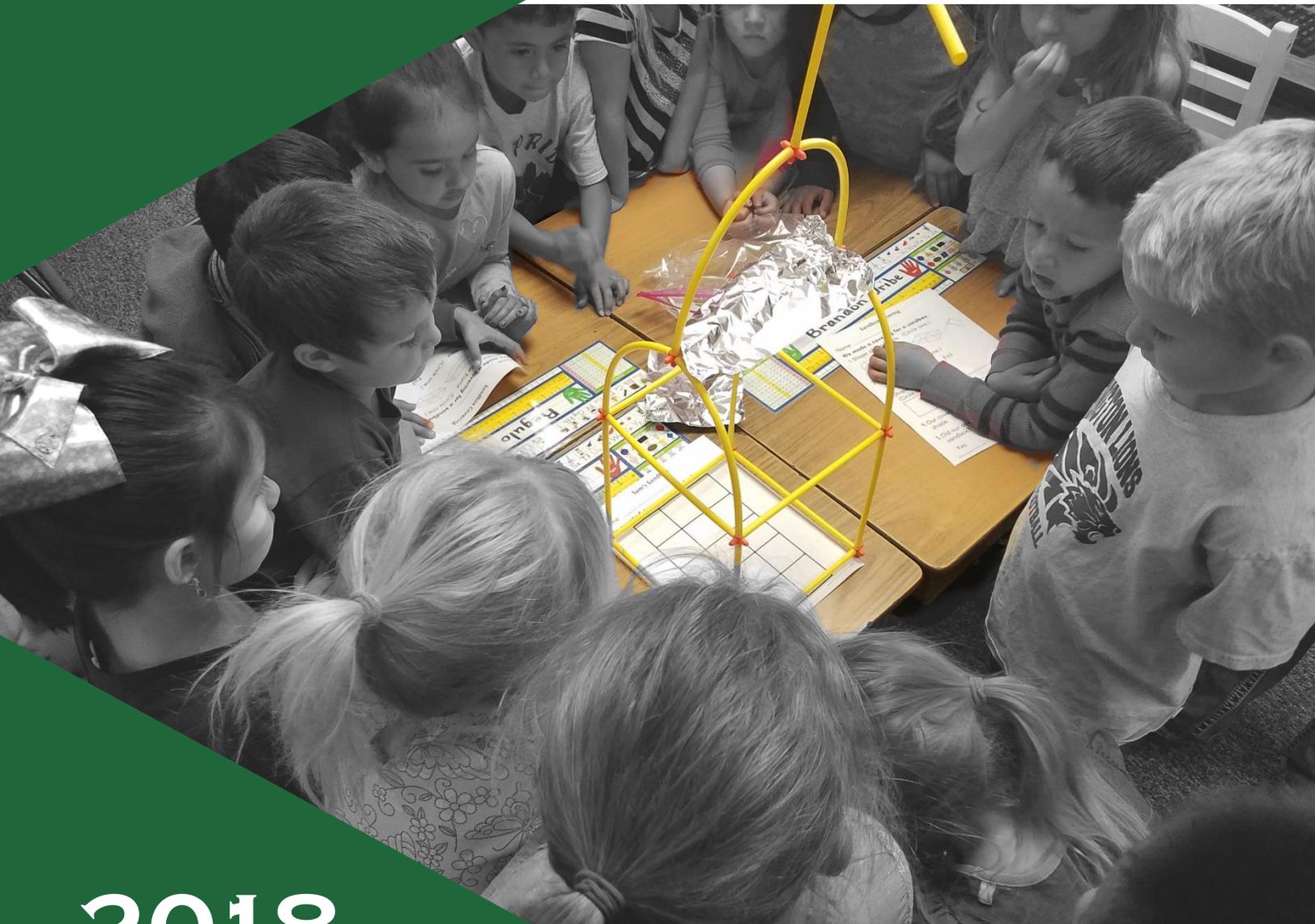OSIT

Nevada Governor's
Office of Science,
Innovation and
Technology

2018
Annual
Report

"ACCESS TO A HIGH-QUALITY EDUCATION HAS NEVER BEEN MORE IMPORTANT. IT IS THE TICKET TO THE PATHWAY TO SUCCESS." —BRIAN MITCHELL, DIRECTOR

OSIT Mission

STEM: To coordinate and align efforts by K-12 and higher education, workforce development, and employers to improve science, technology, engineering, and mathematics (STEM) education and STEM workforce development so that Nevada's workforce can meet the demands of its growing economy.

BROADBAND: To coordinate the planning, mapping, and procurement of broadband to ensure connectivity across Nevada for schools, libraries, hospitals, clinics, and communities meet national standards.

Table of Contents

osit.nv.gov | @sciNVtech | stemhub.nv.gov

Executive Summary

The Office of Science, Innovation and Technology (OSIT) was created in 2015 as a people strategy to compliment Nevada's economic development strategy of economic diversification. OSIT seeks to meet the needs of employers for highly-skilled workers in two ways: 1) by growing and developing quality science, technology, engineering, and mathematics (STEM) education and workforce development programs, and 2) growing and developing broadband infrastructure in schools, libraries, and communities that facilitates greater access to digital learning for all students. Our vision is a pathway to success for every Nevadan.

In 2018, OSIT increased awareness and expanded opportunities to participate in high-quality STEM education programs in elementary, middle, high school, and college. 2018 saw the launch of two new STEM programs aimed at increasing teacher and school confidence and capacity in STEM. Thousands of students are impacted by these programs. On the broadband front, OSIT's team has canvassed the State, working with every school district through the Nevada Connect Kids Initiative to support advances in broadband infrastructure. Beyond schools and libraries, we're working with rural health clinics to grow capacity for telemedicine and with partners in the federal government to deliver more federal dollars to Nevada.

We've had many successes in 2018, but know more work is needed. This report provides a brief snapshot of our work over the past year and a roadmap for where we're going.

osit.nv.gov | @sciNVtech | stemhub.nv.gov

Objectives

1. Increase the number of schools at all levels in Nevada delivering high-quality STEM education leading to increases in student proficiency, enrollment, attainment rates in STEM-focused coursework and programs, and employment in STEM-related careers in Nevada.

2. Increase the number of Nevadans with some form of STEM-related post-secondary degree/credential/certificate in order to better meet the needs of employers.

3. Increase the number of individuals from underrepresented groups participating in STEM education and employed in STEM fields.

4. Increase awareness of opportunities in STEM amongst students, teachers, families, and businesses.

5. Increase the percent of cities, libraries and schools connected with broadband.

6. Increase the percent of Nevadans that have access to broadband at speeds that meet national benchmarks.

7. By 2025, connect all rural hospitals, health clinics, and state correctional facilities to a broadband connection sufficient to provide telehealth services.

2018 Accomplishments

STEM

1. Launched the STEM Leaders Academy- 11 schools, 78 teachers, over 9,000 students
2. Launched the Engineering Fellows Program- 25 teachers, 11 schools, 1,142 students
3. Designated 7 additional Governor's STEM Schools
4. Added 3 new programs to the STEM Advisory Council's List of Recommended STEM Programs
5. Awarded the first STEM Workforce Equity Grant to recruit, retain, and complete more underrepresented students in STEM postsecondary programs
6. Awarded 21 K-5 STEM Grants- 24 elementary schools, 5,136 students
7. Awarded 6 new STEM Workforce Challenge Grants to institutions of higher education- 183 new training slots/year
8. Awarded 3 new STEM Workforce Pathways Grants benefiting 8 high schools and 785 students
9. Recognized 6 STEM Teachers of the Year
10. Funded the creation of 12 new Graduate Medical Education Residency and Fellowship Programs

Broadband

1. Partnered with Renown Health to successfully apply for a $439,000 Federal Telemedicine and Opioid Treatment Grant benefiting 11 rural health clinics
2. Assisted 669 schools and libraries to apply for federal broadband infrastructure grants
3. Drew down $1,242,977 additional federal broadband dollars through the Nevada Connect Kids Initiative
4. Created 6 new regional Rural Broadband Development Committees

2018 Impact

STEM

18,154
K-12 Kids

2,665
Postsecondary Students

196
K-12 Teachers

62
K-12 Schools

"I have just finished up the unit with my class and I have to say that is was the single most effective science lesson that I have taught thus far in my first year of teaching. The students were engaged at a very high level and were very enthusiastic about the design process with the prototypes. Much more excitement in my classroom for science! I can definitely see the benefit to both students and teacher of this type of science lesson with the engineering component. It was easy to cross cut to writing, speaking/listening, research, and even art with this lesson! I'm very much looking forward to our next session. Hope what you have in store for us will be equally as interesting."

Broadband

451,075
K-12 Kids

669
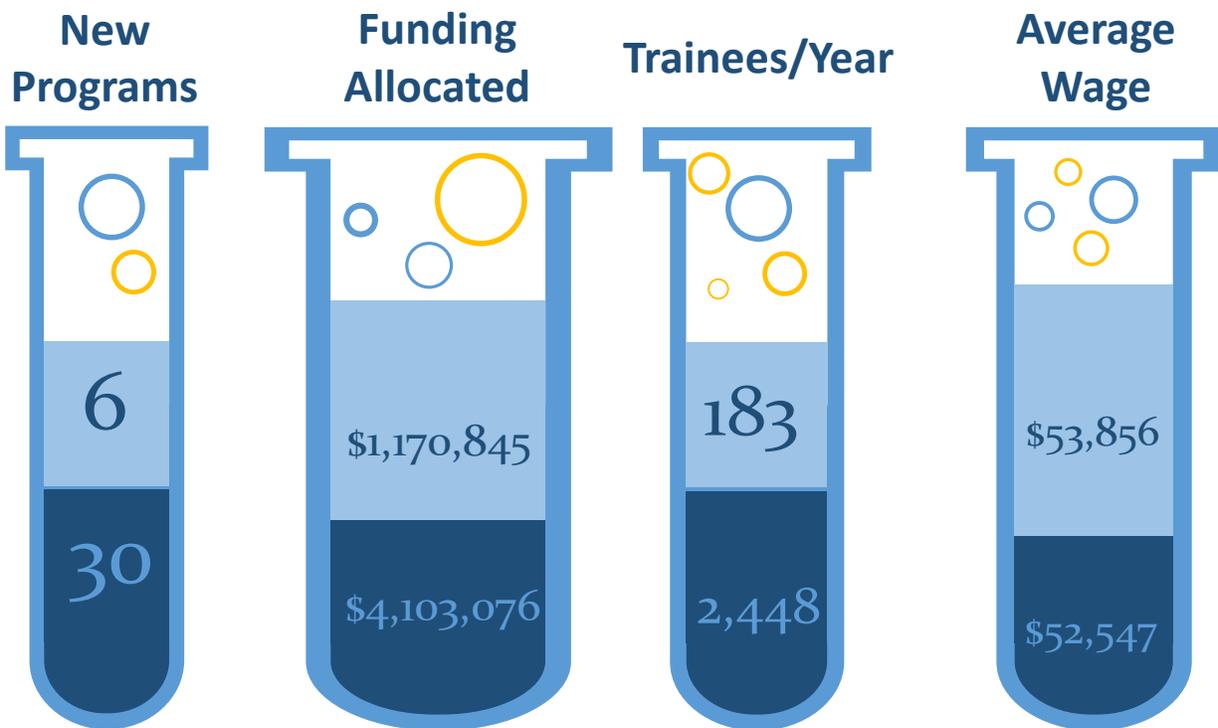K-12 Schools

67
Libraries

23
Rural Health Clinics

"I am writing to express our most sincere gratitude for the efforts of OSIT in assisting Lyon County School District (LCSD) to become "the connected school district it needs to be." By offering a 10% match in funding to the E-Rate funds recently obtained by LCSD, there will be an additional 10% from the Federal Communications Commission (FCC), improving the overall funding to connect all 6 schools in Fernley as well as 2 remaining schools in Dayton with fiber. This project, with a price tag of more than $1 Million, will complete the connection of all Lyon County Schools to the needed fiber, allowing the district to achieve a goal of 10Gbps of bandwidth connectivity and bring LCSD into the 21st century. Combined with the districts efforts to establish a co-use model of technology integration in every classroom, OSIT has been instrumental in making Lyon County School District achieve the goals that they established in the past 2 years."

osit.nv.gov | @sciNVtech | stemhub.nv.gov

**S
T
E
M**

STEM Workforce Challenge Grants

- ✓ Industry-recognized Credentials or Degrees
- ✓ In-Demand Postsecondary STEM Skills
- ✓ Employer Partnerships
- ✓ Sustainable

New Programs
- 6
- 30

Funding Allocated
- $1,170,845
- $4,103,076

Trainees/Year
- 183
- 2,448

Average Wage
- $53,856
- $52,547

Legend:
- 2018
- Total: 2015-2018

Additional information:
osit.nv.gov/reports/reports/

STEM Workforce Challenge Grants- Selected Examples

Great Basin College — Created Southern Nevada's First Manufacturing Machining and Technology (MMT) program in Pahrump

UMC University Medical Center — Initiative will provide new nurses with needed certifications and training

DRI Desert Research Institute — Created a cybersecurity training program that includes a paid internship

STEM Workforce Challenge Grants Outcomes

30

FUNDED PROGRAMS

2,570

NUMBER OF ENROLLED STUDENTS

1,323

NUMBER OF COMPLETED DEGREES OR CERTIFICATES

1,248

NUMBER EMPLOYED IN A RELATED FIELD

Totals from 2015-2018
Additional information:
osit.nv.gov/reports/reports/

Graduate Medical Education (GME) Grants

Nevada consistently ranks among the most underserved states in most areas of healthcare delivery, both in urban and rural settings, due in large part to shortages of physicians. According to the State Board of Medical Examiners, there are 175 licensed physicians per 100,000 residents in Nevada, compared to 261.8 per 100,000 nationwide. The purpose of the State's investment in Graduate Medical Education (GME) is to grow Nevada's physician workforce in order to increase access to high-quality healthcare.

	2018	2015-2018
Awards	12	22
Training Slots	37	132
Funds Awarded	$8,324,520	$18,324,520
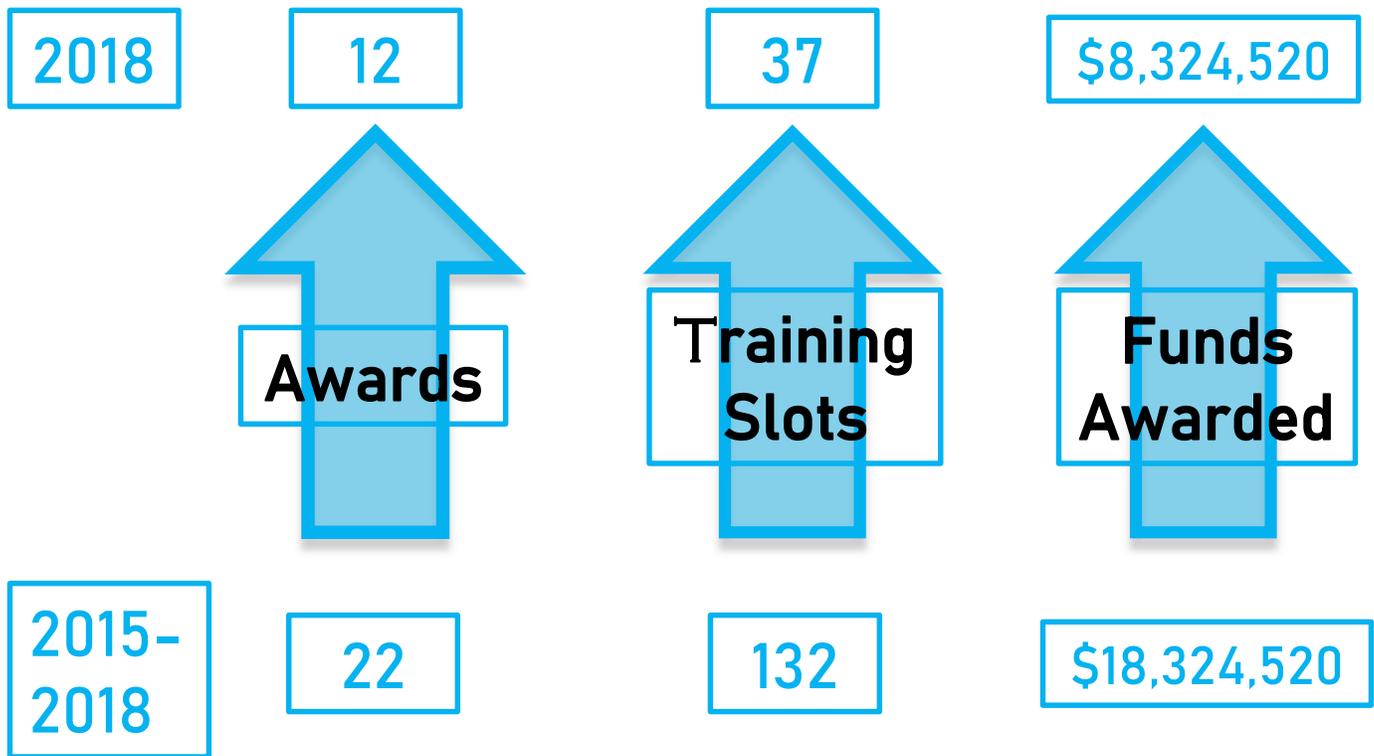
Funded Programs

- **Mountain View-** Physical Medicine and Rehabilitation
- **Southern Hills Hospital-** Psychiatry
- **Southern Nevada Health District-** Preventive Medicine
- **UNLV-** Critical Care Fellowship
- **UNLV-** Critical Care Surgery
- **UNLV-** Critical Care Addendum
- **UNLV-** Geriatrics
- **UNLV-** Pediatric Emergency Medicine
- **UNR-** Family Medicine
- **Valley Health-** Family Medicine
- **Valley Health-** Infrastructure- Henderson Hospital
- **Valley Health-** Surgery

Additional information: osit.nv.gov/reports/reports/

K-5 STEM Grants

Student Impact: 5,136 students attending 24 elementary schools will benefit annually from greater access to STEM curriculum and materials.

2,046 students will benefit each year from new and innovative STEM equipment and lessons plans.
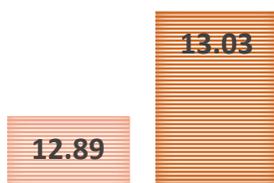
3,090 students each year will have access to high-quality STEM curriculum from programs that increase interest in STEM careers and academic achievement.

82 teachers are benefiting from high-quality STEM teaching materials and equipment.
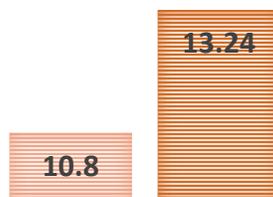
Total Funding: $134,129

STUDENT INTEREST IN STEM (K-2)
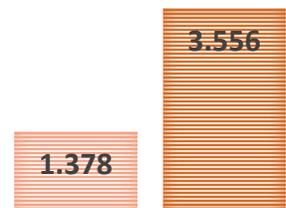
■ Pretest ■ Posttest

12.89   13.03

STUDENT INTEREST IN STEM (3-5)

■ Pre-Survey ■ Post-Survey

10.8   13.24

STUDENT CONTENT KNOWLEDGE

■ Pretest ■ Posttest

1.378   3.556

K-5 STEM Classroom Grant

- ❑ Targeted at individual classrooms
- ❑ Funds innovative, creative approaches to teaching STEM concepts
- ❑ Funded with private dollars
- ❑ 12 Classroom Grants were awarded

K-5 STEM Program Grant

- ❑ Targeted at the grade-level or school-level
- ❑ Funds purchase of high quality, vetted programs on the STEM Advisory Council's List of Recommended STEM Programs
- ❑ Funded with private dollars
- ❑ 6 Program Grants were awarded

STEM Advisory Council

The mission of the Nevada STEM Advisory Council is to increase student interest and achievement in the fields of science, engineering, technology, and mathematics, leading students to fulfilling careers in the New Nevada economy. OSIT provides staffing and administrative support to the Council in carrying out its duties.

Governor Designated STEM Schools

7

Seven schools enrolling thousands of students were awarded the Governor STEM School Designation. Designation as a Governor's STEM School denotes that the school meets the highest standards of STEM instruction and is a model for schools around the state.

STEM Student and Teacher Recognition

Governor Sandoval challenged students to apply STEM concepts to solve some of Nevada's biggest challenges related to energy and transportation. Over 200 students participated in 2 recognition events at CSN and TMCC. Additionally, six STEM Teachers of the Year were recognized and awarded $1000 to spend on their classrooms.

#CSForNV

The Computer Science subcommittee has been busy since the passage of SB200:
- ❑ Led the development of K-12 Computer Science Standards
- ❑ Held the first statewide Computer Science Summit
- ❑ Developed new recommendations on licensure, endorsement, and professional development.

Council Subcommittees

The STEM Advisory Council has created permanent subcommittees to focus on developing specific-issue strategies that align to the statewide strategic plan.

- ❑ Community Partnerships
- ❑ Computer Science
- ❑ Informal STEM Learning Environments
- ❑ STEAM
- ❑ SB 241

Growing STEM Schools and STEM Teachers

STEM Leaders Academy

Nevada Engineering Fellows Program

Program Overview
- Purpose: Increase the quality of STEM instruction; Grow the number of Designated STEM Schools
- Goals:
    - Increase equity
    - Increase student interest in STEM
    - Grow teacher capacity and confidence in STEM
    - Prepare to apply for the Governor's STEM School Designation
- 5 days of STEM professional development and strategic planning, personalized supports, and one site visit

Program Results
- 1st cohort September 2018-May 2019
- 11 schools (8 South, 3 North) selected
- Over 9,000 students will benefit

Additional information:
http://osit.nv.gov/STEM/Leadership_Academy/

Program Overview
- Purpose: Increase the quality of STEM instruction in 5th grade
- Goals:
    - Grow teacher capacity and confidence in engineering
    - Integrate engineering and real-world design into daily classroom instruction
- 3 workshops and an in-classroom visit
- Fellows learn to design own challenges with help of university engineering students
- Fellows receive equipment and supplies for five challenges

Program Results
- 1st cohort September 2018-May 2019
- 25 teachers (12 South, 13 North)
- 1,142 students will benefit

Additional information:
http://osit.nv.gov/STEM/Engineering_Fellows_Program/

osit.nv.gov | @sciNVtech | stemhub.nv.gov

Broadening Participation in STEM

Highlights of 3 STEM equity-related projects

1

STEM Workforce Equity Grant: $1,000,000- OSIT has partnered with the College of Southern Nevada on a four-year project that funds the development of new programs and the integration of existing programs **to increase the recruitment, retention, and graduation rates of underrepresented students** in in-demand STEM degree and certificate programs.

Intermountain STEM Network/NSF Includes Grant- OSIT joined a consortium of 6 western states to successfully apply for a grant from the National Science Foundation to increase equity and **broaden participation in STEM by underrepresented groups**. The six states are working with NAPE to develop and scale best practices throughout the region. OSIT will work with NAPE to identify and develop pilot sites in Nevada that can later be scaled throughout the State.

2

3

Descubre la educación STEM.
#YOSOYNVSTEM

OSIT launched a **Spanish-language** STEM outreach campaign to **inspire young Latinos to study STEM** and educate their families about the opportunities a STEM education provides. The campaign focuses on understanding what STEM is and highlighting the careers of successful Latinos in STEM.
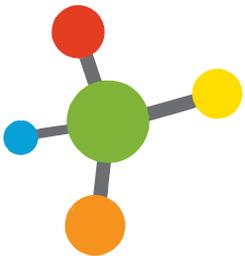
Descubre la educación STEM.
#YOSOYNVSTEM

STEMHub Messaging and Awareness
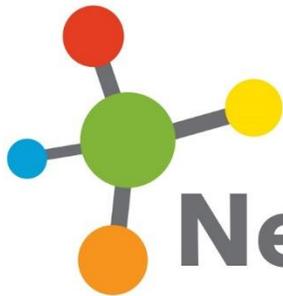
Nevada STEM Hub
www.stemhub.nv.gov

Information & resources to develop a vibrant Nevada STEM Workforce

11,366 Unique Visitors
⬆ 80.2%

715,551 Impressions
⬆ 3,595.3%

153,287 Impressions
⬆ 346.1%

osit.nv.gov | @sciNVtech | stemhub.nv.gov

BROADBAND

Nevada Connect Kids Initiative

GOALS:
✓ Increase the amount of E-rate funding the State applies for
✓ Increase the percentage of E-rate requests the State receives
✓ Every student attends a school that meets the FCC Connectivity Standard

What is E-rate?

E-rate is the nation's largest education technology funding program for K-12 schools and libraries ensuring affordable access to Telecommunications and Internet. Funding is provided in the form of "discounts" for eligible services based on the income level of students, which is derived from the number of students who qualify for free or reduced price lunches through the National School Lunch Program (NSLP).

OSIT Services

- Community needs assessment
- Pre-application internal and external network design, and solutions architecture
- Customized E-rate application design and filing assistance, competitive bidding compliance, technical evaluation of bids, and agreement negotiations
- Post-award construction and implementation consultation
- Whole community connectivity consultation to maximize federal programs

Results- Schools

10,754 miles driven in Nevada

+

217 meetings with stakeholders

=

602 schools helped

$7.9 million E-rate funding requested

330,557 feet of new fiber-optic cable funded

Results- Libraries

40% increase in library district participation in E-rate

860% increase in bandwidth speeds

75% reduction in price per mbps

16

Telemedicine Grants

Telehealth is emerging as a critical component of healthcare solutions in Nevada. Telehealth can aid to deliver better healthcare by connecting rural providers and the patient to services at distant sites and promote patient-centered healthcare.

Telehealth Increases Access to Healthcare

- Remote patients and facilities can more easily obtain clinical services
- Remote hospitals can provide emergency and intensive care services

OSIT Telehealth Goals

- Work with Native American Tribes/Colonies to obtain Telemedicine, including Telepharmacy by connecting them with technology and healthcare solutions
- Work with remote and rural hospitals and clinics to expand their telehealth programs
- Work with NV Dept of Corrections to obtain the necessary bandwidth and telecommunications technologies to have a robust telemedicine program by 2025.

Results

- ❑ **23 clinics assisted that serve 45,539 rural Nevadans**

- ❑ **Partnered with Renown Health to apply for and receive $439,000 federal telemedicine grant.**

- ❑ **Grant will equip 11 rural clinics with new carts, opioid management equipment**

- ❑ **Created a Rural Healthcare Consortium and submitted 5 applications for funding reductions.**

- ❑ **Working with 9 Native American Tribes to improve access to telemedicine in tribal clinics.**

WHOLE COMMUNITY CONNECTIVITY

65%

Of rural Nevadans are without internet access that meets the standard set by the Federal Communications Commission (FCC), compared to 39% nationally.

Challenges
- ✓ **Broadband for Business**
- ✓ **Broadband for Home**
- ✓ **Mobile Broadband**

WHOLE COMMUNITY CONNECTIVITY PROGRAM
OSIT is working with communities across the State to design and implement a phased Whole Community Connectivity Strategy to attract and provide better broadband options.

Whole Community Connectivity Program Partners:
- ❑ **Elko County**
- ❑ **White Pine County**
- ❑ **Pershing County**
- ❑ **Humboldt County**
- ❑ **Mesquite**
- ❑ **Austin**

Additional information here:
http://osit.nv.gov/Reports/Broadband_Reports/

2018 Legislative Performance Measures

Measure	Goal	Actual
Conduct a survey of 600+ schools to identify broadband speeds, limits, costs per megabit and availability of solutions; Inventory surrounding fiber infrastructure and available providers to identify deficiencies.	90% Schools Surveyed	100% Schools Surveyed
Conduct broadband strategic planning meetings every year with stakeholders throughout the northern, southern and eastern areas of Nevada.	4	4
Identify and recognize schools offering rigorous, evidence-based, STEM-focused coursework and programs, meeting the requirements of the Governor's STEM School Designation.	30	17
Grow the number of visitors to the STEMhub website, providing students, parents, teachers, and leaders in business and community with up-to-date, accurate information about STEM career pathways including the top occupations in Nevada's STEM industry sectors and the secondary and postsecondary requirements of those occupations.	3,000	11,366
Develop STEM-focused workforce training programs that meet the needs of employers.	21	30
Plan, coordinate, and facilitate the submission of applications for federal telemedicine grants leading to the connection of all rural hospitals, health clinics, and state correctional facilities to a broadband connection sufficient to provide telehealth services.	1	2

OSIT Staff

Brian Mitchell

Debbie Petrelli

Jojo Myers Campos

Tracey Gaffney

775-687-0987 | OSIT.NV.GOV | @SCINVTECH

Nevada Governor's Office of Science, Innovation and Technology