

Agenda

- PED's role and current STEM efforts
- Partnerships and STEM collaborations
- Recommendations

Our Role in STEM Education

- Setting academic standards
- Supporting school districts, schools and teachers by contributing to the implementation of high-quality curriculum
- Developing systems to train STEM educators for the purpose of improving their instructional practices. This includes addressing the needs of diverse student populations by focusing on equity, culturally and linguistically responsive instruction and inclusion.
- Leveraging federal funds to directly impact student opportunities in high school

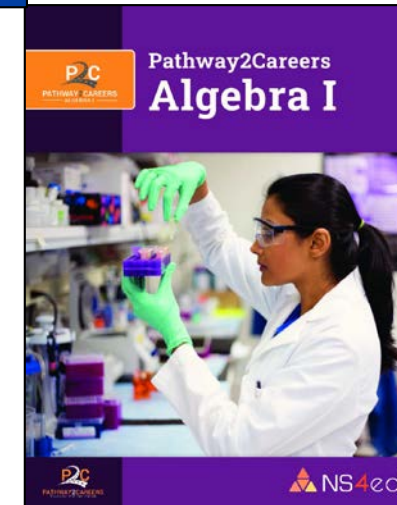
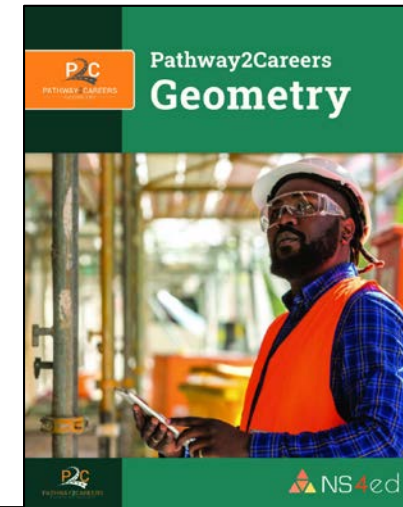
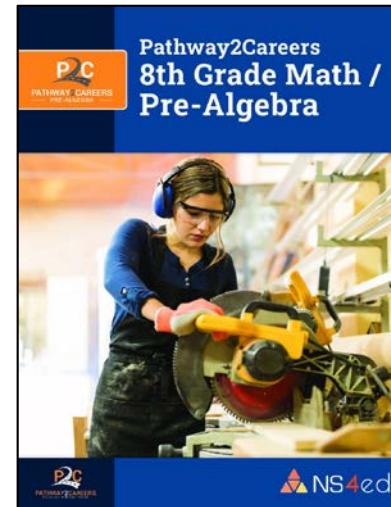
Current STEM Efforts from PED



Supporting Use of High-Quality Materials

Pathways2Communities (P2C)

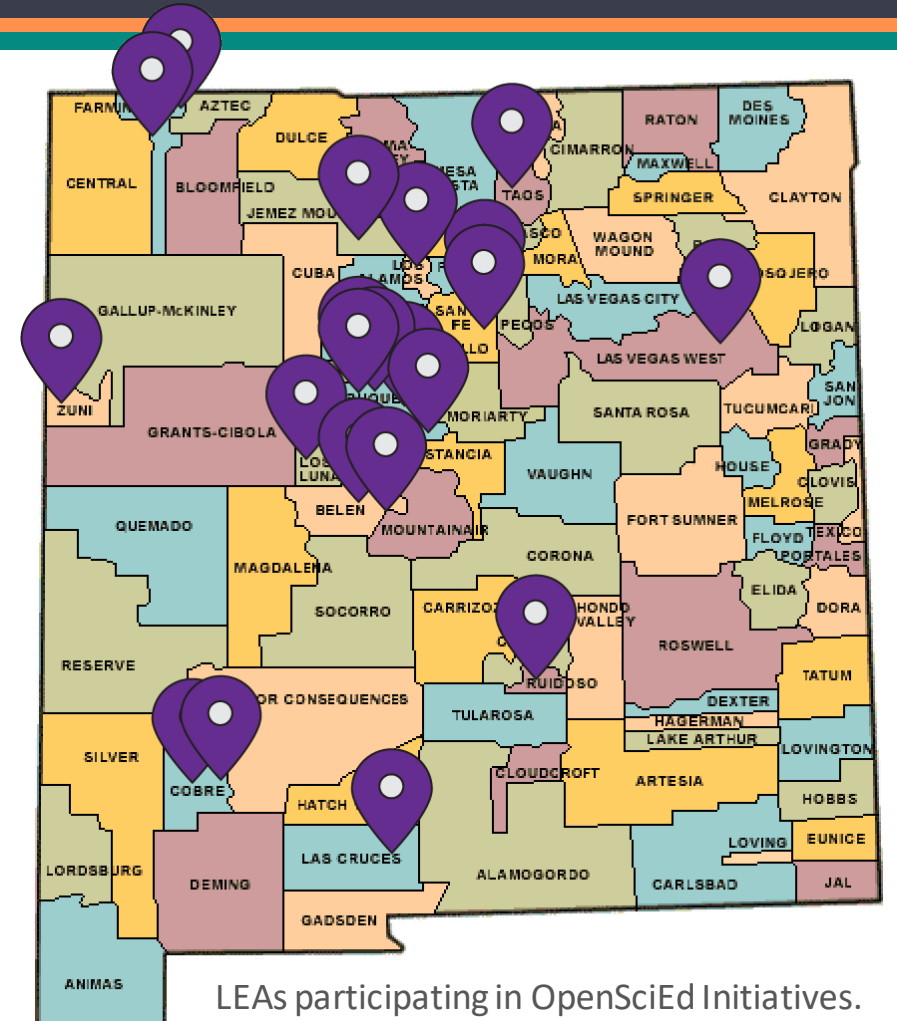
- Career-focused curriculum that places mathematics in the context of high-value career opportunities
- Grade 8, Algebra 1 and Geometry and Algebra 2a and Algebra 2b (when students complete both years, they satisfy their Algebra 2 graduation requirement)
- Partnership with NS4ed, NM school districts, NMSU MC²



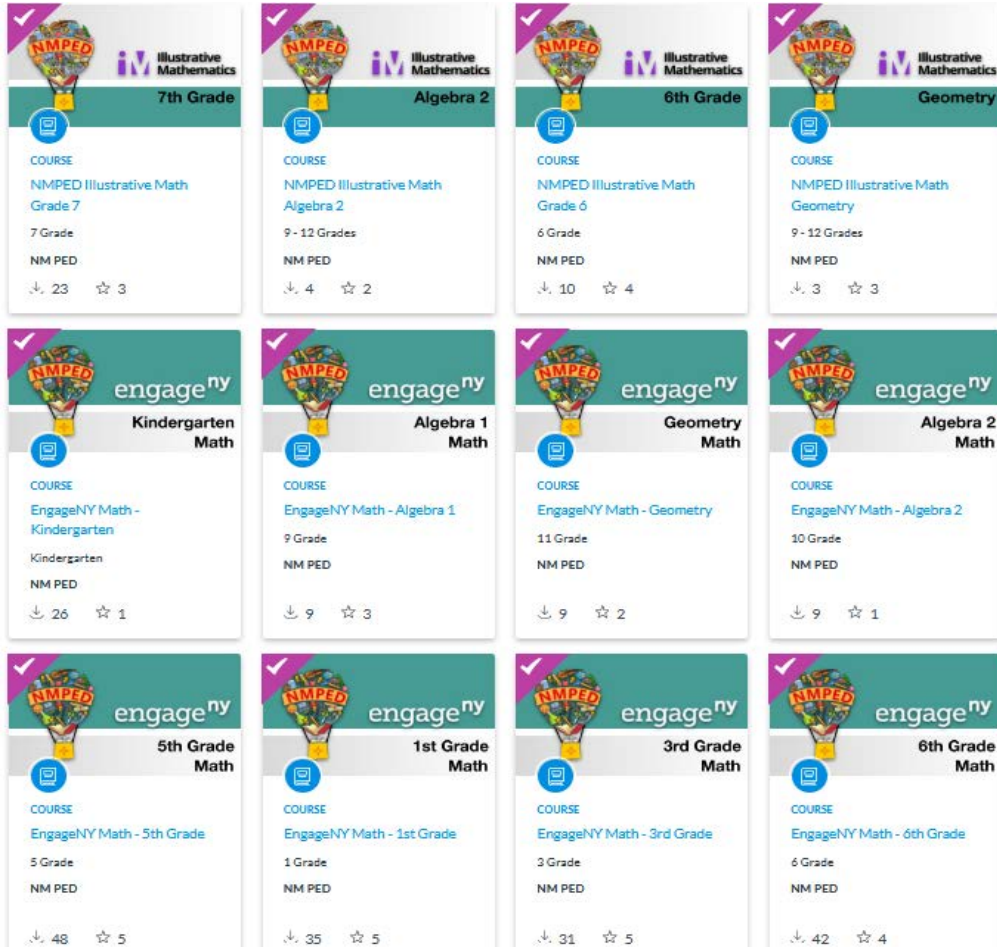
Supporting Use of High-Quality Materials

OpenSciEd Field Tests

- NM Commitments
 - Middle School: Three-year field test (2018–2021) for integrated science courses for Grades 6–8.
 - ✓ Thirteen units are publicly available and are determined to be a high-quality by NextGenScience, a WestEd division working to design coherent programs that align science standards, instructional materials, professional learning, and assessments
 - High school: Two-year field test (2021–2023) for Biology, Chemistry, and Physics with the Earth and Space science standards integrated fully into the courses.



Supporting Use of High-Quality Materials



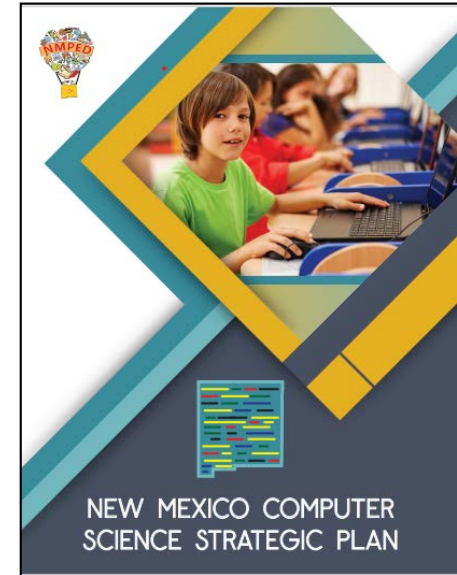
- NMPED's Learning Management System
 - The system includes full access to highly rated mathematics materials for educators to use in the Canvas platform
 - Available in August 2020, in time for online instruction due to Covid-19
 - Materials include:
 - ✓ Zearn Math, K–5
 - ✓ Illustrative Mathematics, 7–Algebra 2
 - ✓ EngageNY Math, K–Algebra 2

STEM Guidance

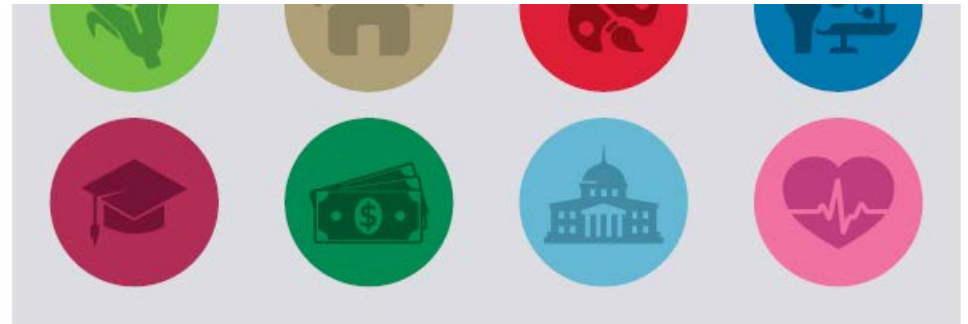
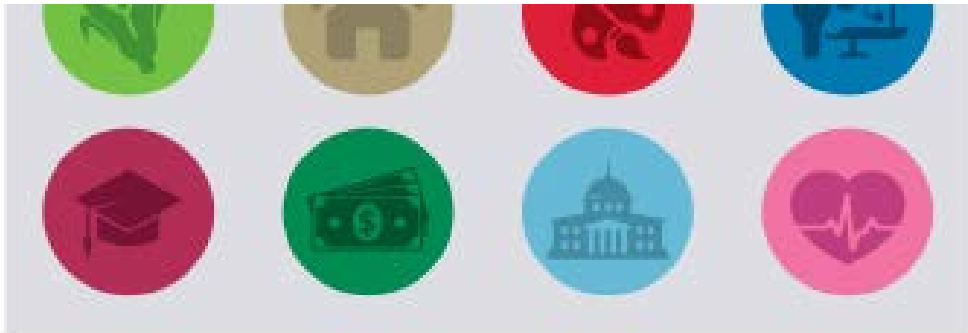


PED STEM Guidance

- Computer Science Taskforce
 - First met in October of 2019
 - Included members from PED, HED, higher education institutions, teachers, superintendents, state organizations, students and Code.org
 - Developed recommendations and a vision for computer science in NM
- Computer Science Strategic Plan
 - Five-year plan released in July 2021, based on taskforce recommendations
 - Includes the creation of computer science teacher competencies and a secondary computer science teacher endorsement



Career Guidance



New Mexico
**Career
Clusters
Guide**



**Guía de los Grupos
de las Carreras en
Nuevo México**



Details about New Mexico careers



Information Technology

Selected Careers

For the most up-to-date information, visit careerpathways-nm.com, and watch career videos: mynextmove.org or careeronestop.org

Occupation ¹	Career Pathway	Job Description	Annual Average Openings	NM Entry Annual Wage ²	NM Median Annual Wage ²	Minimum Education ³	Interest ⁴
Computer and Information Systems Managers	<ul style="list-style-type: none"> Information Support & Services Network Systems Programming & Software Development 	Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming.	103	\$76,680	\$118,020	High	E, C and I
Computer Network Support Specialists	<ul style="list-style-type: none"> Network Systems 	Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption.	133	\$40,200	\$57,600	Middle	R, E and C
Computer Systems Analysts	<ul style="list-style-type: none"> Information Support & Services Programming & Software Development 	Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations.	156	\$49,280	\$79,900	Middle	I, C and R
Computer User Support Specialists	<ul style="list-style-type: none"> Information Support & Services 	Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically.	224	\$28,450	\$42,360	Middle	R, I and C
Information Security Analysts	<ul style="list-style-type: none"> Network Systems Programming & Software Development 	Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure.	109	\$74,110	\$109,550	High	C, I and R
Network and Computer Systems Administrators	<ul style="list-style-type: none"> Information Support & Services Network Systems Programming & Software Development 	Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability.	163	\$53,340	\$75,590	Middle	I, R and C

Wind Turbine Technology

Corona, Carrizozo, Hondo,
Cloudcroft, Mescalero
Apache, and Mesalands
Community College



PED STEM Guidance (Released July 2021)

- NM Instructional Scopes for Mathematics 2.0 and Science 1.0
 - Provides guidance and support to assure that all students in NM have access to content at their grade level combined with the use of impactful instructional strategies
 - Math 2.0 included a discourse guide to support classroom discussions
 - Science 1.0 focused on phenomena, highlights engineering opportunities within the standards
- Mathematics Framework
 - Provides guidance to districts and schools on the critical components that are the foundation to build, implement and strengthen math instruction



Math and Science Advisory Council (MSAC)

- The MSAC was established in 2007 and includes members from K–12, post secondary institutions, private sector, and the NM Partnership for Mathematics and Science Education
- MSAC developed and published the STEM Strategic Framework in 2016. The council updated the document in 2019
 - Areas of focus:
 - ✓ Statewide Vision for STEM Education
 - ✓ Educational Performance
 - ✓ Academic Standards and Assessment
 - ✓ STEM Educators
 - ✓ STEM Learning Opportunities
 - ✓ Out-of-School STEM Learning



Needs	Driving Statements	Strategies	Impacts	Goals
Unified Statewide Vision for STEM Education	Communicate the unified, statewide vision for STEM education that aligns with the CCSS-Math, the NGSS, and Computer Science standards to provide direction and collaboration opportunities for NM STEM stakeholders.	Convene with stakeholders to inform and communicate the Statewide Vision, and align education partners to collaborate on policies toward high academic standards, meaningful student learning and assessment, and fair teacher evaluations. Build public support for the Statewide Vision by collaborating with business/industry, government, higher education, non-profit and informal education organizations, and broader community to define workforce needs as well as available resources to help students and teachers in STEM activities.	Increase communication with stakeholders to ensure meaningful and coordinated action towards common goal of STEM education.	Continuous Improvement of all NM Students in STEM Proficiency & STEM Literate Citizens that are college and career ready
High Educational Performance for all NM students	Promote high educational performance through STEM subjects using culturally relevant evidence-based practices to increase student proficiency and close the achievement gaps for economic, ethnic, race, and gender subgroups.	Use data driven best practices to identify and implement culturally relevant pedagogy throughout NM schools in order to improve education policy to address the achievement gaps.	Increase high school graduation rates and student enrollment in STEM course pathways; decrease the achievement gap and post-secondary remedial courses.	
High Academic Standards & Aligned Assessments	Establish high academic and aligned assessments for NM students to boost NM's national and international student STEM performance rankings. STEM pedagogical content knowledge must be deepened for teachers and administrators with continued professional learning opportunities.	Collaborate within our state and research other states regarding best practices to inform policy on curriculum, student assessment, teacher evaluation, and teacher development. Support the CCSS-Math, NM STEM Ready! Science, and Computer Science Standards with adequate funding for teacher and administrator training, ongoing professional development, curriculum support, STEM instructional materials and equipment.	Increase high school graduation rates of students with strong STEM knowledge and skills.	
High Quality STEM Teachers for All Students	Improve STEM teacher preparation and continuing education programs to empower teachers to meet the unique challenges of the NM classroom. Innovative and robust teacher preparation, induction, and mentorship programs are needed throughout the state.	Develop a comprehensive statewide professional learning system to increase teacher knowledge, retention, and morale throughout the state. A robust system will prepare pre-service teachers with deep conceptual understanding of relevant content and pedagogy, support early career educators, and challenge veteran teachers to ensure continuous professional learning. Ensure administrators understand effective teaching and learning of STEM and support structures for school-based professional learning.	An increase in the number of qualified teachers of STEM content entering the profession. Educators engage regularly in high quality job-embedded professional learning with a focus on continuous improvement.	
STEM Learning Opportunities for Students at All Grade Levels	Provide STEM learning environments for students at all grade levels to ensure the college and career readiness of our children ultimately leads to the long term economic well-being of NM.	Ensure adequate time and resources for STEM learning at all grade levels to include integrated, hands-on experiential curriculum, materials, and equipment aligned to the content and practices of CCSS-Math, NM STEM Ready! Science, and Computer Science Standards.	Increase science contact time in preK-5 with an emphasis on integration of math, computer science, and literacy standards. Increase access to resources (time, curriculum, equipment and materials, staff, training).	
Out-of-School STEM Learning	Support Out-of-School STEM learning opportunities for all students, regardless of geographic area or economic status, in afterschool and summer programs, at science centers, museums, and natural environments, and through media, STEM events, and	Ensure equitable public access to out-of-school STEM learning for all students and families. Leverage the capacity of informal science education (ISE) facilitators and organizations to support STEM learning for all New Mexicans.	Increase the number of students involved with community ISE's and create higher levels of engagement in school-based STEM learning.	

Professional Learning and STEM Opportunities



Professional Learning Opportunities

- Math Foundations – An Early Numeracy Initiative (Grades 4–5)
- Enhancing Math Formative Assessment (Grades 9–12)
- Fostering Positive Math Identities (Grades 6–12)
 - Leverages Education Reform Fund Allocation
- Focus on Algebra (Grades 6–12)
 - Leverages ESSER Funds – Two-year project
- Science Storylines Series
- Science Task Development Series

Professional Learning Opportunities

- Computer Science

- The **Strategic CSforALL Resource & Implementation Planning Tool (SCRIPT)** — Sessions will assist districts to develop a plan for implementing and expanding computer science education in their district or school
- **Computer Science Fundamentals (Grades K–5)** - An introductory course to computer science for educators interested in incorporating computational thinking into elementary classrooms
- **Computer Science Fundamentals Deep Dive (Grades K–5)** - This workshop offers more in-depth, hands-on learning with Code.org's cohesive curriculum
- **Computer Science Discoveries (Grades 6–8)** - Participants will leave with a cohesive set of resources, experience teaching and learning in context, and strategies to support collaborative student learning opportunities around computer science and computational thinking

Additional Professional Learning

- Advanced Placement (AP) Workshops
 - Fall one-day workshops
 - Spring convening
 - Summer week-long training
- STEM focused CTE Summer trainings
 - OSHA Safety Standards
 - Code.org & CSTA trainings – programming, cybersecurity, databases
 - PLTW Engineering, Computer Science, BioScience
 - SREB Project Based Learning

Current STEM Efforts from NMPED

- NM Governor's STEM Challenge

- Partnership between PED, Department of Workforce Solutions, NMSU, LANL Foundation and NM industry employers
- Student teams are invited to imagine, design and develop a project model to address a question formulated by a state partner



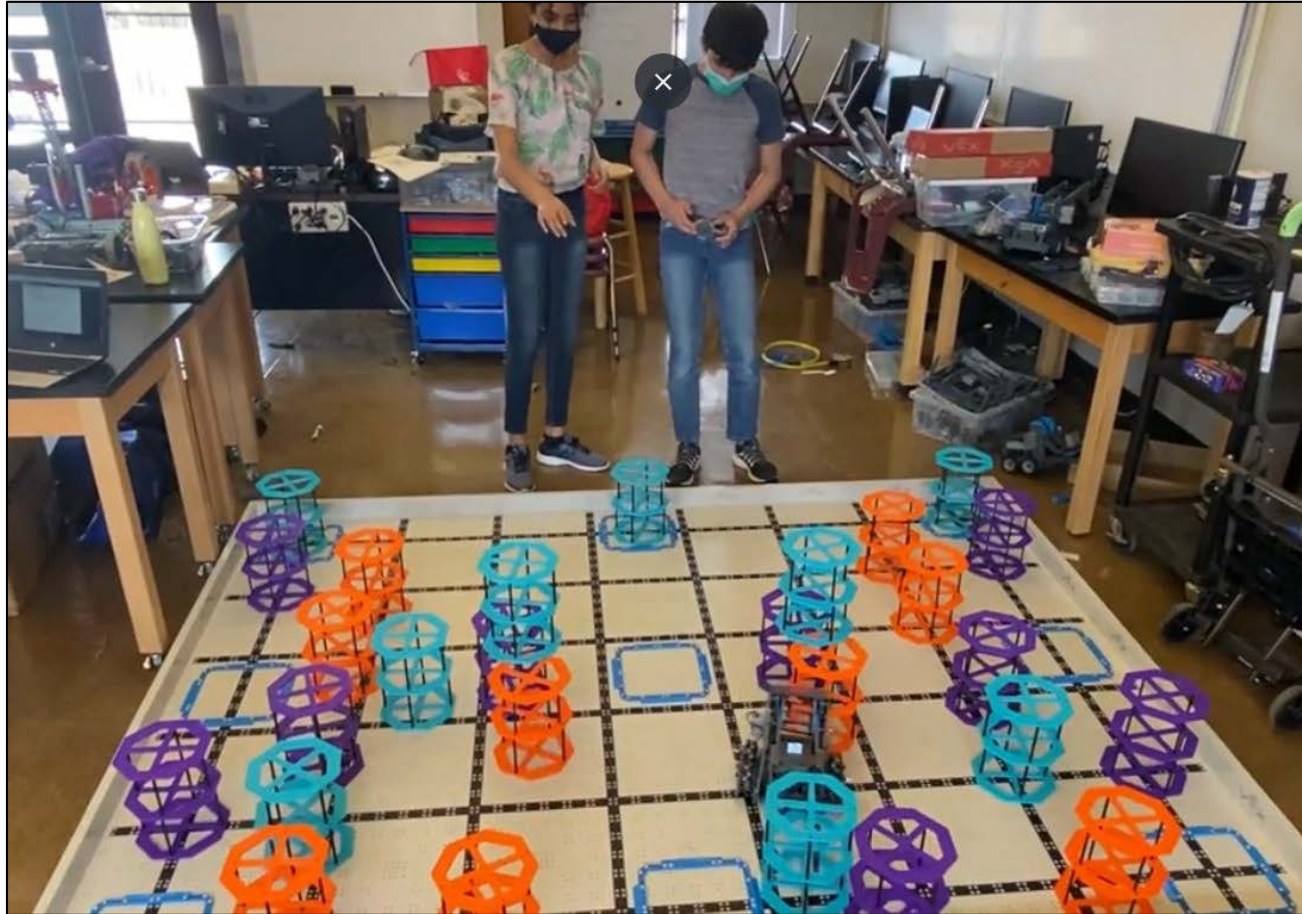
New Mexico
Governor's STEM Challenge

- Support of STEM career technical student organizations

- NM HOSA – Future Health Professionals. Its mission is to promote career opportunities in the health care industry and to enhance the delivery of quality health care
- NM TSA – Technology Student Association. It is devoted exclusively to the needs of students engaged in science, technology, engineering and mathematics (STEM)
- SkillsUSA - Partnership of students, teachers and industry representatives working together to ensure America has a skilled workforce



STEM Career Student Organizations



Current STEM Efforts from NMPED

- Counties and Tribes (Leveraging ESSER funds)
 - PED is creating partnerships to support Summer Enrichment Internships in over 20 communities in summer of 2021
- Near-peer tutoring (Leveraging ESSER funds)
 - PED is providing high school students with opportunity to be paid as reading and math tutors for middle and/or elementary school students
- Career Technical Education (CTE) Concentrators
 - Two aligned courses in a single program of study
- Review of high school requirements
 - PED internal team is working on updated recommendations for high school graduation requirements

Summer Enrichment Internship Project



“This internship has shown me that not every job is going to be a piece of cake. There’s going to be something that throws a knot into the rope and you think to yourself, ‘I can’t get out of this.’ But having the resilience to figure it out is what will help me in the future.”

-Alexander Wood, Farmington High School Student and San Juan County Fire Operations Intern

PED Recommendations

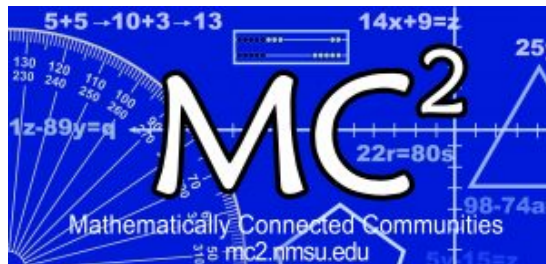
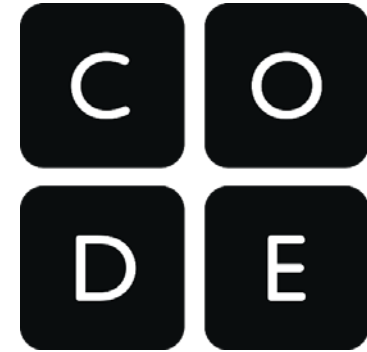
- Increase the investment in career technical education from \$5 million to \$10 million to support work-based learning and provide students with real-world experiences in preparation for choosing a career path
- Provide funding to support STEM programs, wrap around supports and scholarships in tribal communities
- Invest in teacher recruitment by providing scholarships that directly impact specific sub-groups, specifically Native American and other educators of color

STEM Partners

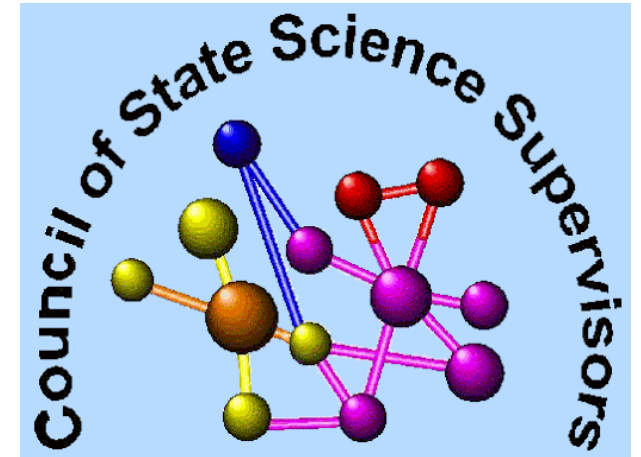


SREB

Southern Regional
Education Board



Teaching Lab



STEM Partners



UNM
STEM-H
Center



New Mexico Partnership for
Mathematics & Science Education



Investing for tomorrow, delivering today.

STEM Partners



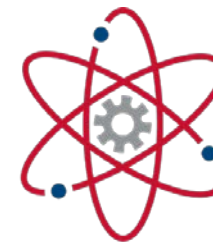
The University of Texas at Austin
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ASSOCIATION OF STATE SUPERVISORS OF
MATHEMATICS



PROJECT LEAD THE WAY
PLTW

