

STEM Outreach Center

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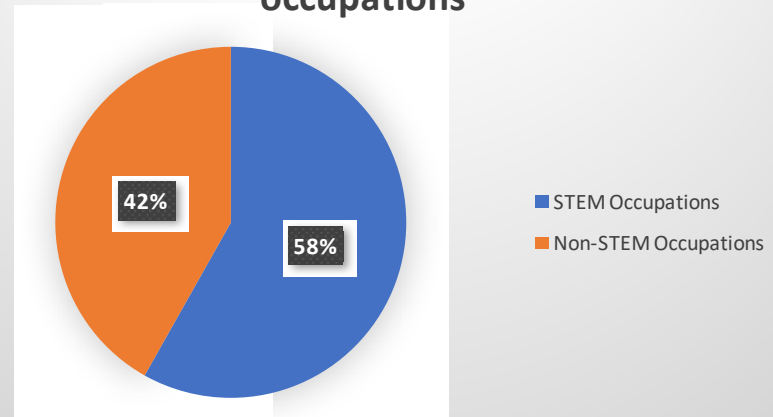


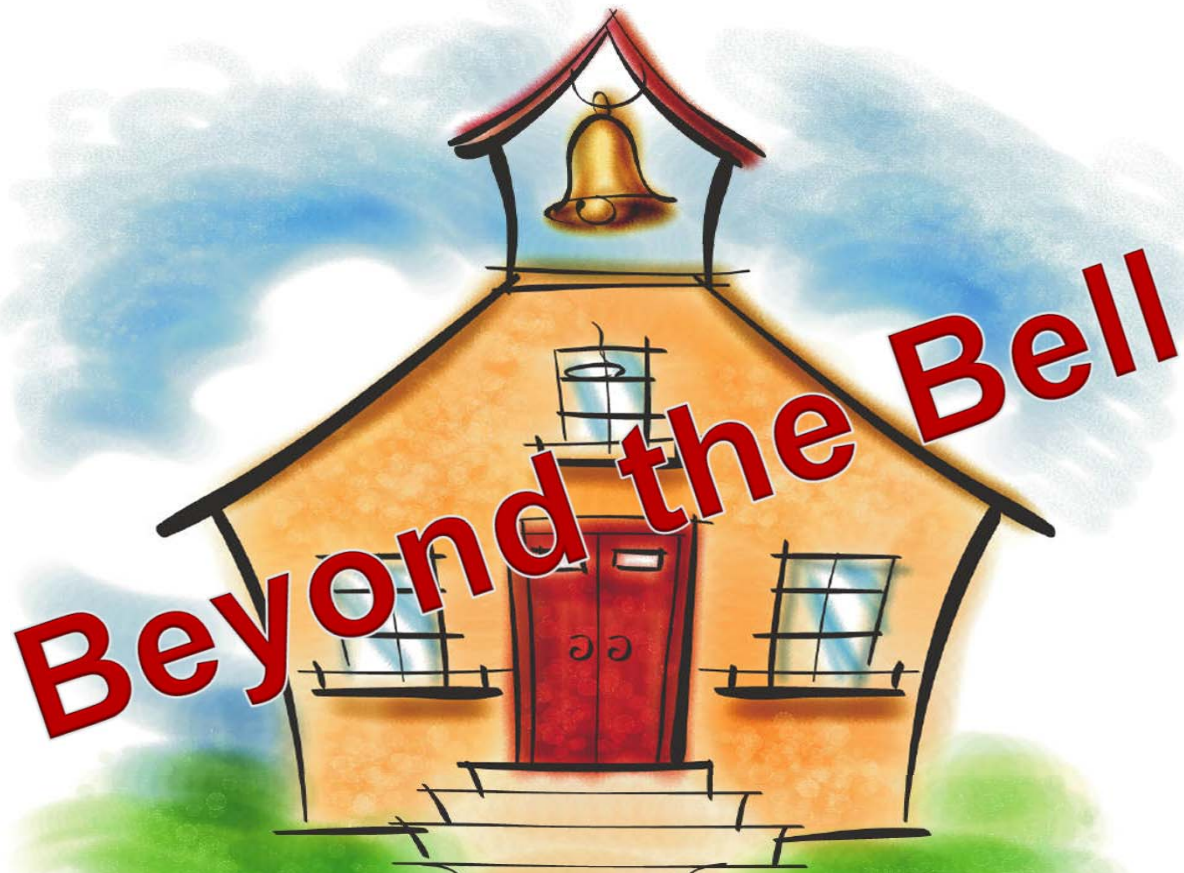
U.S. STEM Workforce

STEM jobs comprise 20% of all U.S. jobs

Blacks and Hispanics are the most underrepresented groups in the STEM Workforce

According to the U.S. Department of Commerce STEM Occupations will grow at a faster pace compared to non-STEM occupations





Out-of-School Time Programs

“Afterschool programs serve students in so many ways! We as educators have an opportunity to continue encouraging academic success.



“Aha” Moments

“Aha” moments: moments of insight, where new understanding or a new solution spontaneously emerges without a conscious or *active* search.





Left: students work with robotics during a summer camp. Below: students and parents create topographic maps of the lunar surface during a Math and Science night at Sunrise ES in GISD





SNM SEMAA – Science, Engineering, Mathematics, and Aerospace Academy

Engage students in inquiry-based learning and project-based learning environments.

Encourage normally underrepresented students in grades K-12 into the fields of science, engineering, mathematics, aerospace and technology **(STEM)**.

Teach STEM-based academically enriching curriculum to K – 8th grade students.

Facilitate fieldtrips for elementary and secondary students to the NMSU campus.

Develop partnerships with parents through workshops, award ceremonies, and Math and Science nights.

SEMAA will have 2,820 participating students and 188 individual classes in the 2016-17 school year.



Aerospace Education and STEM Learning Laboratory

The SEMAA AEL engages students in real world challenges relative to both aeronautics and space exploration. The AEL simulates both a lab and a science classroom equipped with real aerospace hardware and software and:

- Oculus Rift – virtual reality gear
- A laboratory-grade research wind tunnel
- A short-wave radio receiver
- AR Drones
- GPS's
- littleBits circuits
- Green screen technology, and
- LEGO Robotics



Readers Theater

Readers Theater provides opportunities for **K – 3rd** grade students in GISD to participate in afterschool programs.

22 elementary schools will have a program running throughout the 2016-17 year with **2,640** students participating.

The major goal of Readers Theater is to engage more authentically with literature by providing the means to make stories come alive through

- Multisensory approaches to reading
- Storytelling
- Productions
- Costume/prop making





Digital Media Academy – DiMA

DiMA uses technology to enhance learning opportunities in STEM for local students. The goal is to prepare students for the 21st century classroom and workforce by teaching them technical and research skills. Students have access to:

- Camera equipment
 - Digital devices such as microscopes, tablets, and GPS units
 - 3D printers and printing pens for 3D modeling
- **1,220 students** will participate in **48 individual DiMA classes** this year.



COUNT

COUNT – Creating Opportunities Using Numerical Thinking is a brand new program that began in the Spring of 2015. Students explore math through various content areas such as art and origami. Students learn mathematical concepts in innovative ways that make math fun and engaging. 1,326 **students** will participate in **48 individual COUNT classes** this year.

Future units will include:

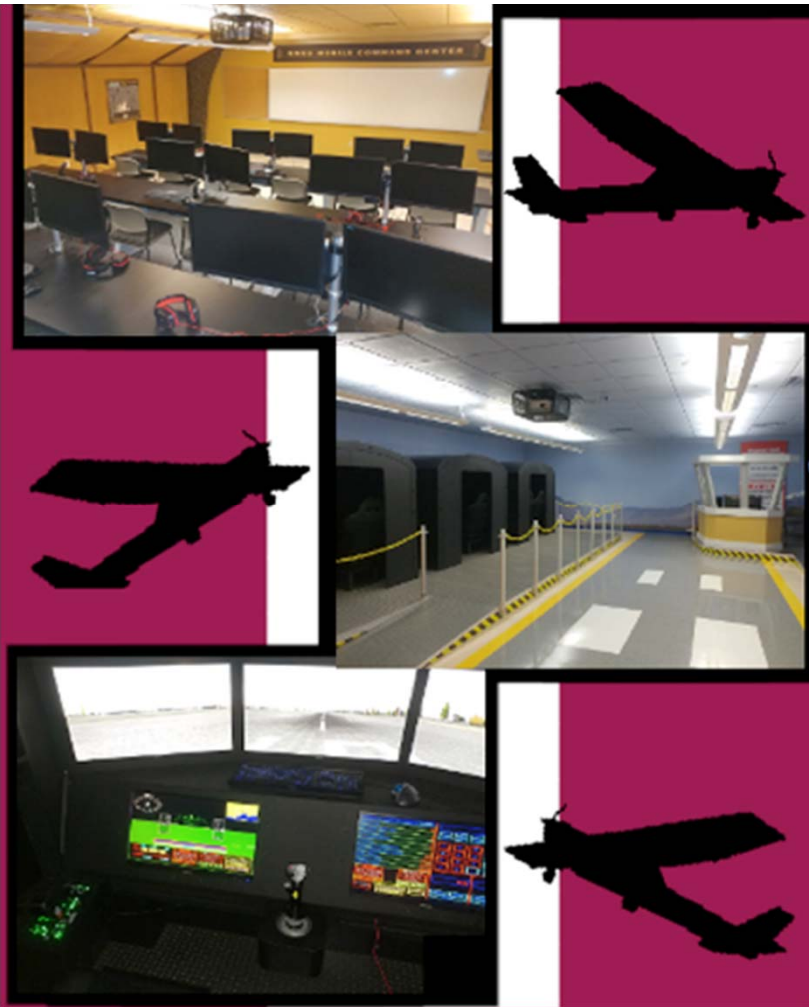
- Music
- Gardening
- Nutrition
- Cooking
- Fine Arts
- Sewing
- Engineering
- Social studies
- Architecture
- Literature
- Manufacturing



Other programs include:

Family and Parent Workshops
Human Exploration Rover Challenge
Science Brain Battle
Project GUTS
School Selected Electives –Mariachi,
Ballet Folklorico,
Guitar and Choir, Racket Sports,
Technology, Robotics
Teacher P.D.



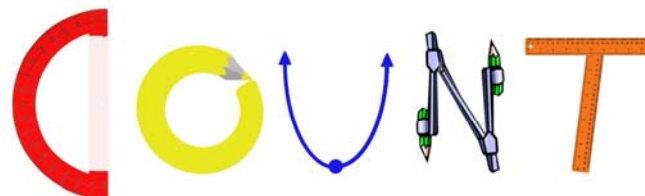


The Department of Defense is making it possible for NMSU College of Education to turn ordinary classrooms into a novel learning environment that engages students in a complex Science, Technology, Engineering, and Math (STEM) curriculum.

The TECH Center is configured with computer-based aviation platforms and simulators that engage students in a variety of missions that require critical thinking in applying core math and science competencies ranging from time-speed-distance calculations to advanced physics.



DIMA • Digital Media Academy



Creating Opportunities Using Numerical Thinking



U.S. STEM Education

- 45% of high school seniors are not ready for college level courses in math and 30% are not ready for the science courses.
- U.S. elementary schools devote an average of 2.3 hours per week to science, a decline of 43 minutes from 1994.
- According to the U.S. Department of Education, the U.S. ranks 29th in math and 22nd in science among industrialized nations.
- 31% of STEM degrees are awarded to women

New Mexico STEM Workforce

- We can stimulate the economy in NM by preparing students to develop the skills required for the STEM workforce
- STEM jobs grew 24.4% between 2005 and 2015 and is projected to grow 12% between 2014-2024

NM high tech employment
has declined 30%

From 25,000
to 18,000
workers

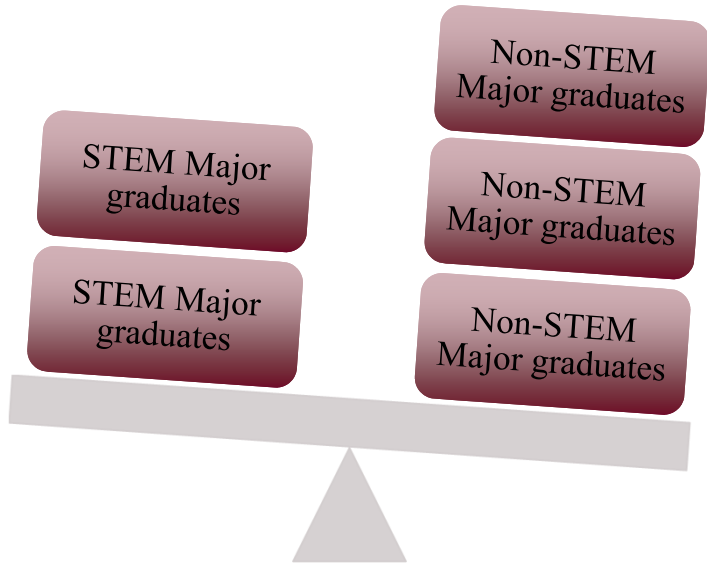
23% points
lower than any
other state

Science Education in NM

STEM Major graduates--- slight increase

Non-STEM Major graduates--
- remains higher

NM ranks below the national average in female students' interested in pursuing a degree in STEM



50% of all science teachers in U.S. have degree in science

38% of all science teachers in NM have a degree in science

Math Education in NM



30% of all Math teachers in U.S. have degree in Math

23% of all Math teachers in NM have a degree in Math

Math scores for 8th grade students have continued to drop