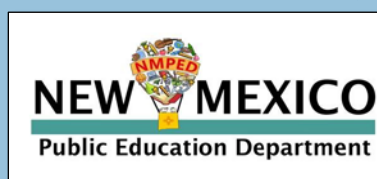# 2019 Math and Science Annual Report

## December 2019

**Ryan Stewart, Ed.L.D.**
**Secretary Designate of Education**

**Yanira Vazquez**
**Math and Science Bureau, Director**

**Math and Science Advisory Council**

**STATE OF NEW MEXICO**
**PUBLIC EDUCATION DEPARTMENT**
**300 DON GASPAR**
**SANTA FE, NEW MEXICO 87501-2786**
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RYAN STEWART, ED.L.D.                                                           MICHELLE LUJAN GRISHAM
SECRETARY DESIGNATE OF EDUCATION                                      GOVERNOR

December 2, 2019

Michelle Lujan Grisham
Governor
State of New Mexico

David Abbey
Director
New Mexico Legislative Finance Committee
325 Don Gaspar
Suite 101
Santa Fe, NM 87501

Rachel Gudgel
Director
New Mexico Legislative Education Study Committee
325 Don Gaspar
Suite 200
Santa Fe, NM 87501

Dear Governor Lujan Grisham, Director Abbey, and Director Gudgel:

The New Mexico Public Education Department (NMPED) is pleased to enclose the *2019 Math and Science Annual Report* from the Math and Science Advisory Council. This annual report fulfills the statutory requirement of the Mathematics and Science Education Act in relevant part as follows:

**Subsection E of 22-15E-5 NMSA 1978. Council duties.**
Produce an annual report on public elementary and secondary mathematics and science student achievement to be submitted to the department, the governor, and the legislature no later than November 30 of each year.

This report is a comprehensive compilation of data that describes the efficiency, the effectiveness, and the progress of math and science education.

We look forward to working with you and your colleagues to ensure that math and science education increases student achievement for all New Mexico students.

Sincerely,

Ryan Stewart, Ed.L.D.
Secretary Designate of Education

RS/GW/jc/yv

Enc: (1): *2019 Math and Science Annual Report*

 cc: Gwen Perea Warniment, PhD, Deputy Secretary, Teaching, Learning, and Assessment
    Jacqueline Costales, Division Director, Curriculum and Instruction
    Yanira Vazquez, Director, Math and Science Bureau
    Shafiq Chaudhary, Math and Science Specialist, Math and Science Bureau
    Christy Krenek, Science Specialist, Math and Science Bureau

The State of New Mexico

Math and Science Advisory Council
Public Elementary and Secondary Mathematics and Science Achievement
For School Year 2018–2019
Issued December 2019

Michelle Lujan Grisham
Governor

Ryan Stewart, Ed.L.D.
Secretary Designate of Education

**Notes**
- This report is available at http://webnew.ped.state.nm.us/. Locate it on the *Math and Science Bureau* webpage.
- All acronyms in this report are defined in Appendix B: Glossary and Acronyms

Cover photo: *Student participating in the* Drone Engineering Summer Camp *offered by the New Mexico State University (NMSU) College of Education and STEM Outreach Center.*

Photo*: Luisa Macias*

## Acknowledgements

# Table of Contents

**Executive Summary**

## Activities of the Pubic Education Department Math and Science Bureau (MSB), SY 18–19

Major accomplishments of the MSB included helping to facilitate the adoption, through rule, of the new computer science standards; collaborating with other states in the nation to field test high-quality, Next Generation Science Standards (NGSS)-aligned instructional materials through the OpenSciEd field test; and partnering with Albuquerque Public Schools, Roswell Independent Schools, and WestEd to offer to receive high-quality professional learning for teachers in the area of science. The MSB also provided collegial support for teachers in rural areas through a virtual professional learning community. Professional learning offered by the bureau included:

- **Building Capacity.** Facilitator training, MESA regional coaching support
- **Teacher Support.** Mathematics and science instructional materials review, Science DreamTeam, rural professional learning communities, webinars, NM STEM CONNECT newsletters, making sense of student work, making sense of science teacher institutes, multiplicative reasoning trainings, science readiness partnership
- **Leadership Support.** NextGen TIME, making sense of science multidimensional science education for administrators, science readiness partnership, NM STEM Ready! Science leadership support

## Activities of the Math and Science Advisory Council (MSAC)

The MSAC encouraged prioritizing the needs of the state in improving mathematics and science learning for New Mexico children and working with the Math and Science Bureau to take action on these priorities. The actions of MSAC were in alignment with the STEM Strategic Framework for New Mexico, which was revised by the council in the Spring of 2019.

The actions of the council include the following:

- The MSAC members met with newly appointed secretaries of Public Education and Higher Education departments in February 2019 to garner support for establishing an endorsement for elementary mathematics and science.
- Current and past MSAC members began regular meetings in May 2019 with representatives from the University of New Mexico (UNM), New Mexico State University (NMSU), Western New Mexico University (WNMU), and NM Highlands to draft competencies for an elementary mathematics endorsement.
- The MSAC encouraged NMPED to seek a waiver year for the NM Assessment of Science Readiness to give districts an opportunity to implement NM STEM Ready! Science Standards.
- The MSAC released an updated Math and Science Advisory Council STEM Strategic Framework for New Mexico in May 2019.
- MSAC members presented on STEM related topics at the NM Inspire Conference to educate teachers on NM STEM Ready! Science Standards and effective mathematics instruction that supports learning for all students at the elementary level.

## Statement about Student Data

- Student achievement data for math and science from the New Mexico Statewide Assessments indicate that the majority of New Mexico students are not proficient in math and science.
- The data listed in this annual report reveal a clear disparity in achievement between ethnic groups in both mathematics and science. For example:
  - The data on math performance indicates a significant disparity between the achievement of the majority of the student population (Hispanic and Native American) in relation to the performance of the highest-performing (minority) demographic groups (Caucasian and Asian students).
  - The achievement gap between Hispanic & Native American and Caucasian & Asian students in high school math ranges from 25 to 50 percentage points. In science, close to 60 percent of Caucasian and Asian students are assessed as proficient, while only about 40 percent of Hispanic, and 25 percent of Native American students, are assessed at that same level of proficiency.

# 1. Introduction

The MSAC is representative of New Mexico's diverse demographics, including geographic distribution, gender, and ethnic diversity. The members come from public schools; public, post-secondary educational institutions; the private sector, including the national laboratories, museums, and science- and engineering-based businesses; and one member represents the New Mexico Partnership for Mathematics and Science Education. The MSAC was created to support and advise the MSB of the New Mexico Public Education Department (NMPED), as we seek to implement smart policy and programs, pursuant to the Mathematics and Science Education Act. As part of its charge, MSAC produces an annual report on public elementary and secondary mathematics and science student achievement.

This school year's 2018–19 report serves as a document to provide guidance for STEM education in New Mexico. It highlights the following components: (1) providing priority recommendations for improving math and science education in New Mexico, based on the STEM strategic framework, (2) describing the activities of the MSB, (3) sharing MSAC's annual activities, and (4) summarizing student math and science achievement data. The NMPED's MSB and the MSAC strive to work collaboratively and cohesively keeping student equity at the forefront.

## 1.1 Critical Issues in STEM Education and Associated Action Recommendations of the Math and Science Advisory Council for SY 2019–2020

Priority recommendations for the 2020 fiscal year focus on six critical issues that, when addressed, will support the next generation of learners. The MSAC believes that these critical issues require immediate action to ensure continued progress in closing the achievement gaps between genders and students of varying ethnic and linguistic backgrounds.

Critical Issue—Create and communicate a unified, statewide vision for STEM education that aligns with the Common Core State Standards (CCSS) for Mathematics and the New Mexico STEM Ready! Science Standards, providing direction and collaboration opportunities for New Mexico STEM stakeholders.

Action Recommendations:

a) Formulate and publish the statewide vision for STEM education in NM.
b) Increase funding to offer an annual statewide STEM symposium and partner with other annual meetings to communicate the unified, statewide vision for STEM education.
c) Widely communicate the vision with all relevant educational networks and partners to create a sense of coherence and shared commitment and action.
d) Use diverse platforms for communication, including social media, webinars, and email networks to increase awareness and promote meaningful commitment to the statewide STEM education vision.

Critical Issue—Achieve high educational performance in math and science subjects for **all** New Mexico students, using culturally relevant, evidence-based practices to increase student proficiency and close the achievement gaps for economic, ethnic, race, and language sub-groups.

Action Recommendations:

a) Implement evidence-based, culturally relevant practices, such as those outlined by the National Research Council of the National Academy of Sciences and National Council of Teachers of Mathematics, to ensure NM's under-represented, minority population of students receive relevant and effective science and mathematics learning opportunities.
b) Assess resource needs in underserved communities and formulate a Strategic Gap-Closure Plan to address/remediate the critical issues that are identified.
c) Establish goals for 3-year and 5-year STEM performance improvements for prioritized student populations of heightened concern. Track the implementation of the Strategic Gap-Closure Plan and report results to relevant stakeholders.
d) Effectively partner with the Language and Culture Bureau of the NMPED to articulate a unified vision and allocate the resources needed to implement the strategies aimed at providing a culturally relevant STEM education and reduce STEM performance gaps, with an emphasis on English Language Learners (ELLs).

**Critical Issue**—Align state-required assessments with the CCSS for Mathematics, the New Mexico STEM Ready! Science Standards, and New Mexico Computer Science Standards, with a focus on problem solving and critical thinking. Ensure teacher professional learning provides both adult-level content knowledge and the specialized content knowledge for teaching to align classroom instruction to the expectations of the standards.

Action Recommendations:

a) Provide teacher professional learning opportunities that increase teachers' content knowledge in math and science and that develops specialized content knowledge for teaching at their grade band, while providing monetary support during non-contracted time.

b) Encourage and support school district leadership to provide teachers the collaborative time, structure, and resources necessary to implement effective instruction for the NM STEM Ready! Science Standards, NM Computer Science Standards, and Common Core State Standards for Mathematics.

c) Support districts with in-depth review and adoption of high-quality instructional materials that align with the rigor and conceptual development of mathematics, science, and computer science topics and ensure that the resources promote the habits of mind outlined in the Standards for Mathematical Practice, the Science and Engineering Practices, and State Computer Science Practices.

**Critical Issue**—Improve the learning continuum from teacher preparation programs to in-service teacher professional learning, in order to ensure highly effective STEM teachers for all students in New Mexico classrooms. Innovative and robust teacher preparation, induction/mentorship, and continuous professional learning are needed to increase teacher knowledge, retention, and morale throughout the state.

Action Recommendations:

a) Support the Higher Education Department (HED) in redesigning teacher preparation course work to encourage early exposure to teaching experiences.

b) Promote the creation of partnerships to build meaningful mentor/mentee relationships to support teachers early in their careers. For example, fund three-year teacher mentorships that promote STEM relevant content grades K–12.

c) Establish elementary math specialist and elementary science specialist certificates focused on the learning needs of elementary children.

d) Encourage HED-PED partnerships to apply for multi-year, professional learning (PL), statewide, research grants to strengthen the learning continuum from teacher preparation through continued professional development.

**Critical Issue**—STEM learning opportunities for students at all grade levels are provided in order to support the college and career readiness of our children and contribute to the long-term economic well-being of the state.

Action Recommendations:

a) Support implementation of effective practices in the classroom through professional development (PD) and mentorship/coaching, leading to adoption of high-quality, standards-based, math and science resources.

b) Educate families and community members about the meaning and relevance of the standards and practices and how to support children's interest in STEM outside of school through STEM literacy nights and other similar activities.

c) Connect STEM learning experiences—both out of school and through dual-enrollment course work and high school internships—to careers and programs of study available within the state. Provide teacher learning opportunities to foster STEM career awareness and provide opportunity in NM.

**Critical Issue**—Provide equitable access to out-of-school STEM learning opportunities. These are provided: during after-school and summer programs; at schools, science centers, museums, and natural environments; and through media, competitions, and informal experiences at home, regardless of geographic area and economic barriers.

Action Recommendations:

a) Identify obstacles interfering with students' access to out-of-school STEM learning opportunities. Encourage schools and communities to develop plans to overcome these obstacles.

b) Fund sustainable programs with opportunities for all students to participate equitably. Programs must address relevant factors such as socioeconomic status (SES) and the geographic nature of the communities.

c) Identity and promote district/school adoption of after-school programs that are aligned with CCSS for Mathematics, NM Computer Science Standards, and NM STEM Ready! Science Standards. Promote the adoption of these programs in the communities where they are most needed.

## 1.2 STEM Strategic Framework for New Mexico

The STEM strategic framework that the MSAC works within was developed in 2015 and updated in 2019, and that framework provides a conceptual identity for the state. It was built to be adaptive and flexible in representing the on-going needs of the state.



Figure 1.  MSAC STEM Strategic Framework for New Mexico
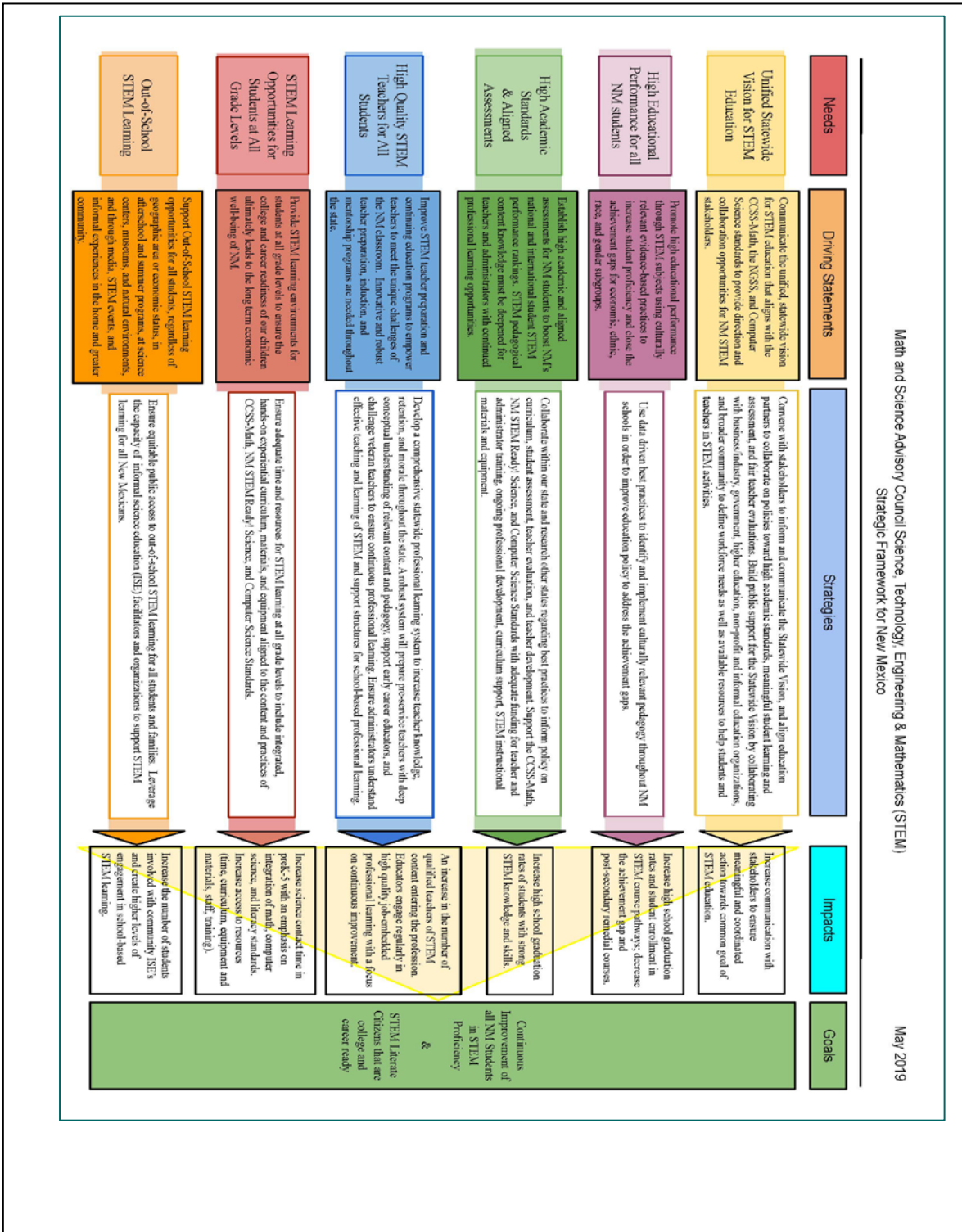
## 2. New Mexico Student Demographics

New Mexico has a large percentage of underrepresented minority student groups—specifically Hispanic students, comprising 61.3 percent, and American Indian/Alaska Native students, comprising 10.2 percent of the state's students. These numbers are in contrast to the US student ethnic demographics, where 26.4 percent of students are Hispanic and 1.0 percent of students are of American Indian/Alaska Native descent.

The MSAC recommends that policy and fiscal decision makers use a lens of student equity when considering math and science needs in New Mexico.

Figure 2. NM Student Demographics
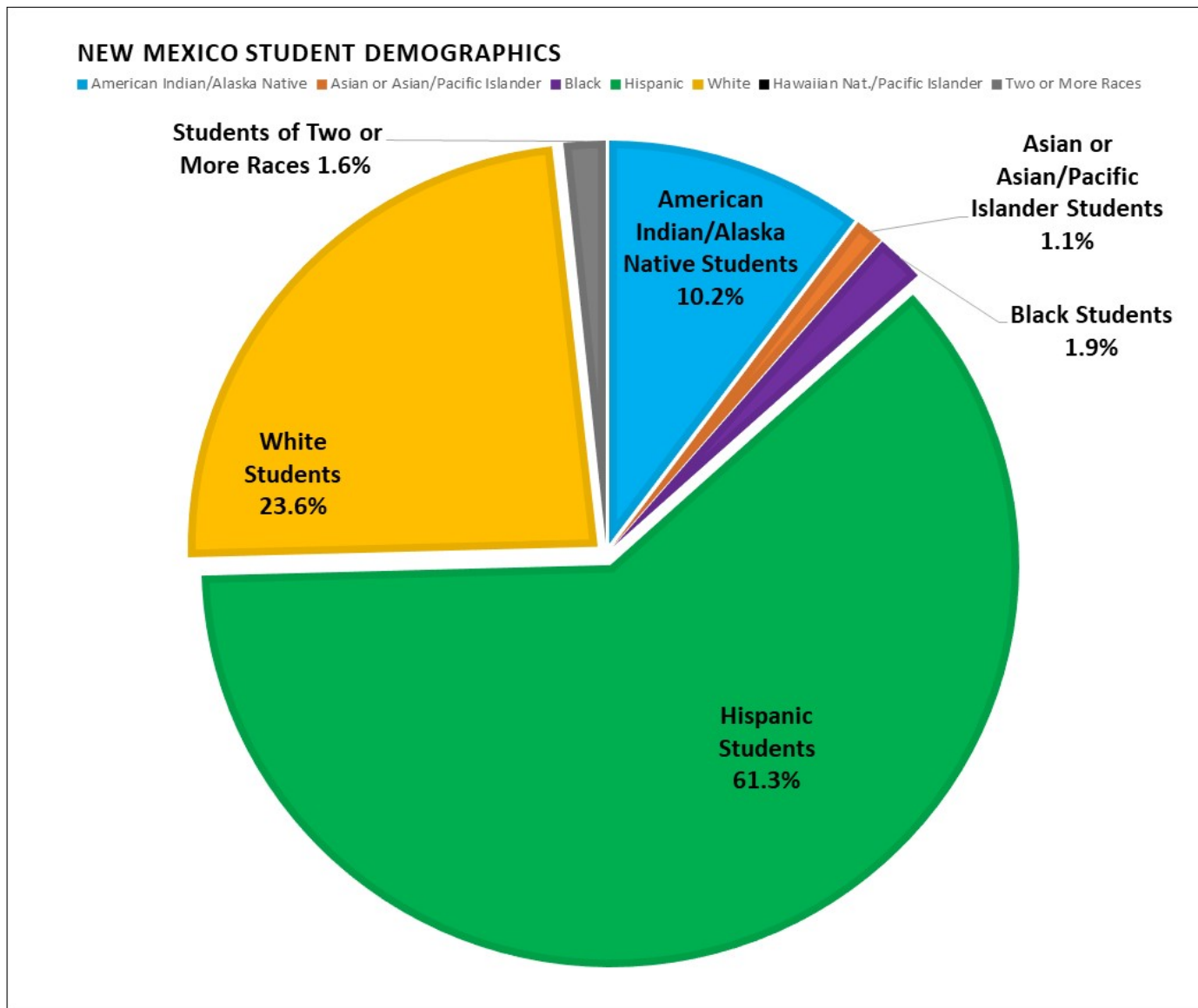
# 3. Student Achievement Data

## 3.1 Trends in Student Achievement Data

This report includes student achievement data, as measured by the New Mexico Standards-Based Transition Assessment in Math and English , the science SBA, the National Assessment of Educational Progress (NAEP), the American College Testing (ACT), and the Scholastic Aptitude Test (SAT).

## 3.2. New Mexico Assessments

New Mexico public schools measure student achievement using several assessments.

| NEW MEXICO ASSESSMENTS | |
|---|---|
| Transition Assessment of Mathematics and English Language Arts | English Language Arts 3–11<br>Math 3–8<br>Algebra I (may be given in grade 8*)<br>Algebra II<br>Geometry (may be given in grade 8*)<br>Integrated Math I (may be given in grade 8*)<br>Integrated Math II<br>Integrated Math III |
| I Station | Math K–2<br>Language Arts K–2 |
| NMSBA<br>(aligned to 2003 NM State Science Standards) | Science (grades 4, 7, and 11)<br>Spanish Language Arts |
| NMAPA | Reading for students with disabilities<br>Math for students with disabilities<br>Science for students with disabilities |

\* If student is taking the course

During school year 2018–2019, students in grades K–11 were tested as indicated in the table above. Students with learning disabilities were assessed using the New Mexico Alternate Performance Assessment (NMAPA), based on alternate achievement standards. The graphs in this report show the statewide percentage of students who are at or above proficiency as measured by the New Mexico assessments.

The transition assessment shares linking items with the same item bank as the previously used PARCC (Partnership for Assessment of Readiness for College and Career) in order to have comparability of test results. It was administered only in Spring 2019. In June 2019 the PED issued a Request for Proposals for a new summative assessment of math and ELA. The new math and ELA assessments, which will be administered beginning in Spring 2020, are: the New Mexico Measures of Student Success and Achievement (NM-MSSA) (grades 3-8), the PSAT (grades 9–10), and the SAT (grade 11).

# All NM Student Math Proficiency
## by Grade Level
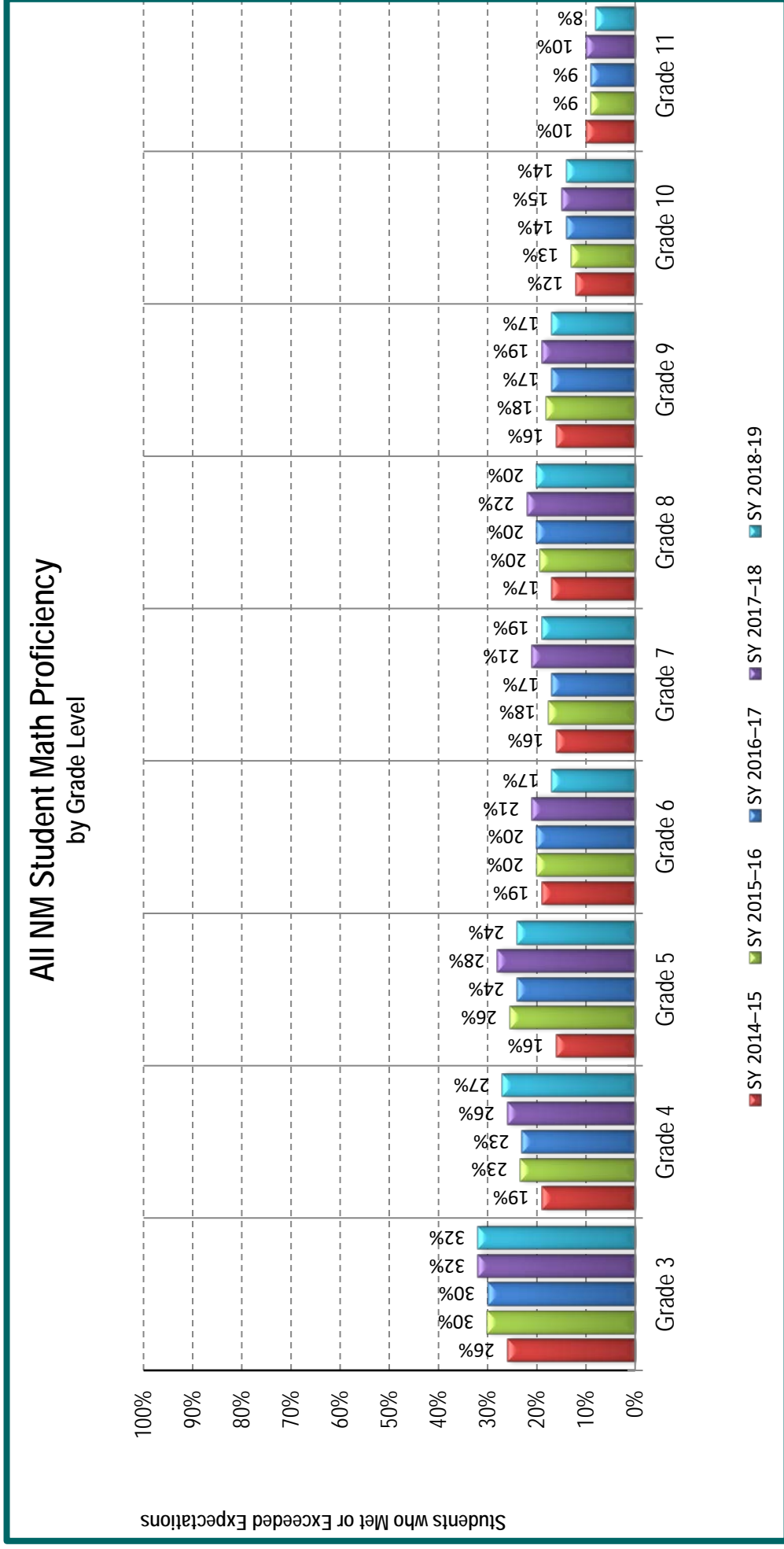


**Figure 3.** All New Mexico students who met or exceeded expectations on the mathematics statewide summative assessment from SY2014–15 to SY2018–19.

## All NM Students Math Procficieny
### by High School Course



**Students who Met or Exceeded Expectations**

Legend: ■ SY 2014–15  ■ SY 2015–16  ■ SY 2016–17  ■ SY 2017–18  ■ SY 2018–19

**Algebra I:** 18%, 19%, 19%, 20%, 18%
**Geometry:** 18%, 15%, 16%, 17%, 15%
**Algebra II:** 13%, 16%, 15%, 15%, 15%
**Integrated Math 1:** 8%, 9%, 12%, 17%, 19%
**Integrated Math 2:** 4%, 7%, 16%, 9%, 8%
**Integrated Math 3:** 11%, 12%, 7%, 3%, 8%
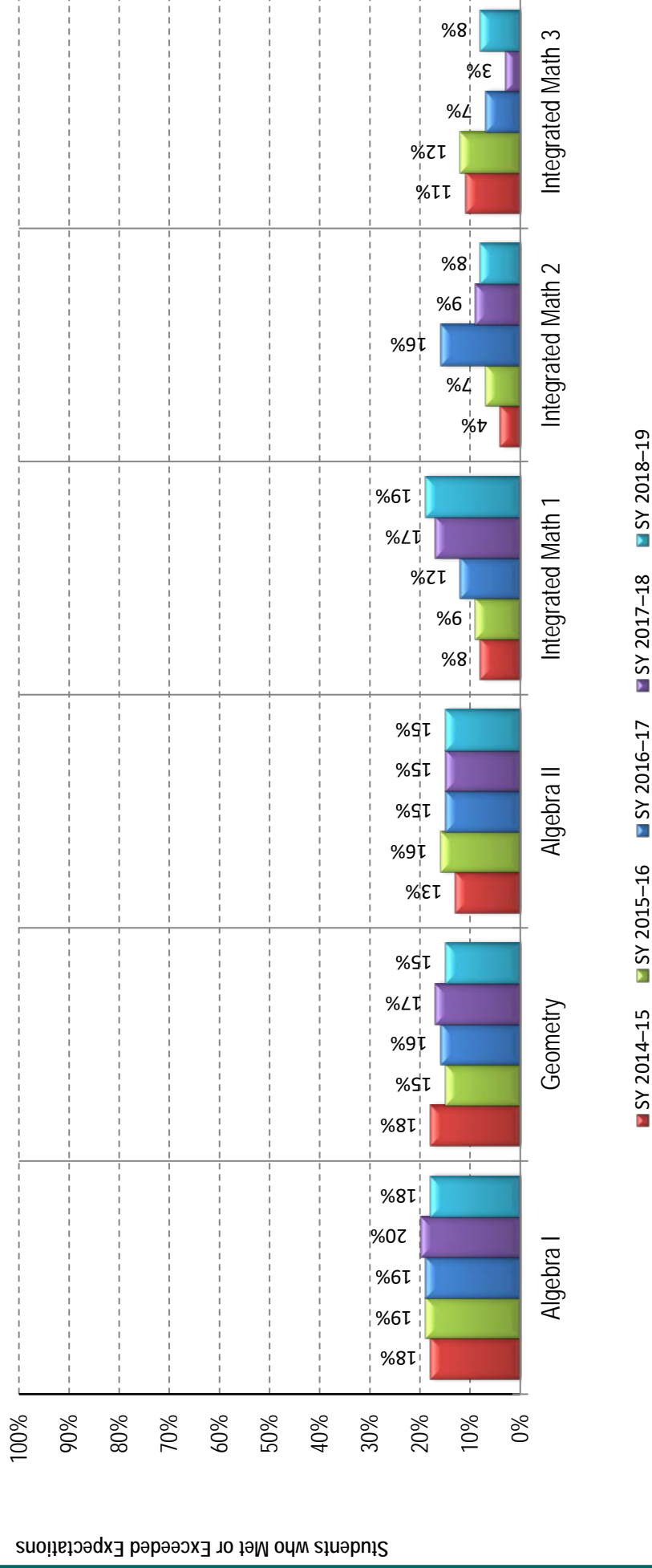
**Figure 4.** All New Mexico students who met or exceeded expectations on the statewide mathematics summative assessment by high school course from SY2014–15 to SY2018–19.

**Figure 3 and Figure 4** illustrates that in elementary grades there is little change in scores from year to year, with most scores ranging from the mid-20 to low 30 percentages, meeting/exceeding expectations. If the same group of students is followed across grade years (red bar in grade 3 to green bar in grade 4, and so on), scores remain relatively flat until middle school. In alignment with national trends, there is a dip seen in math scores as students transition to middle school and again as they move into and through high school.

13
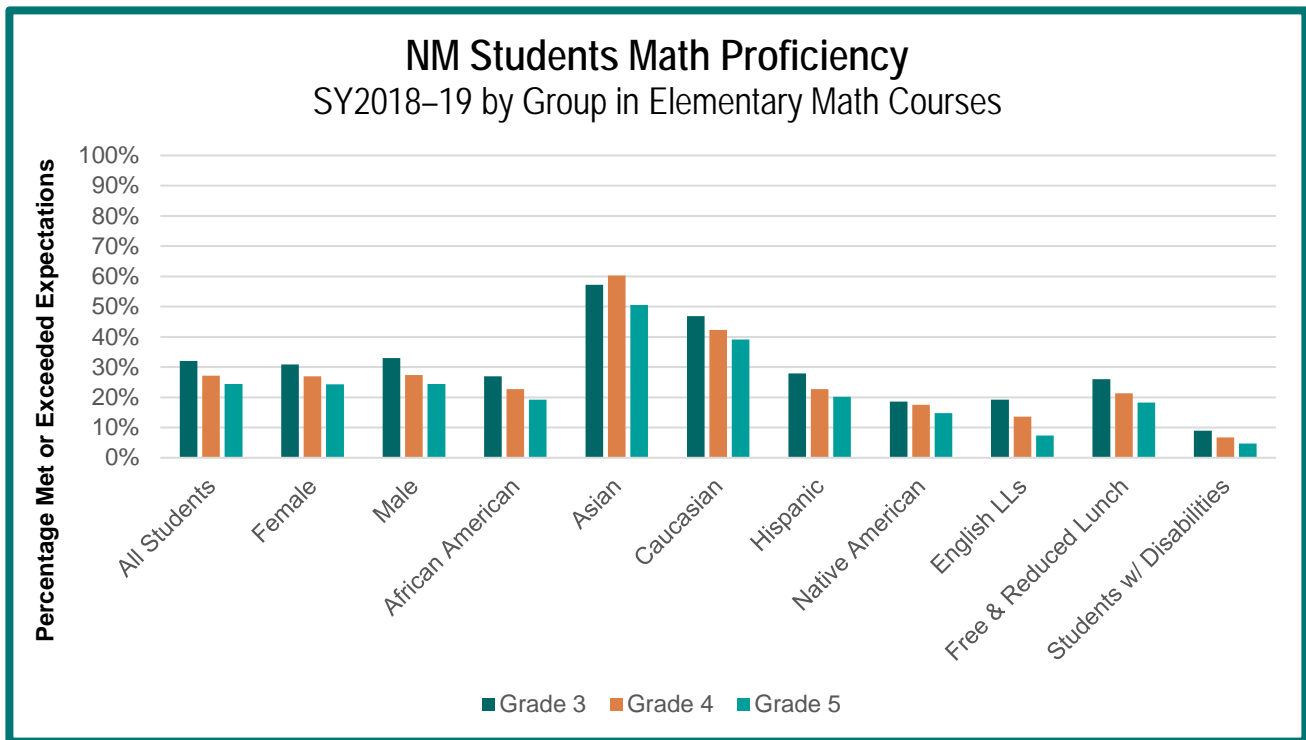
**Figure 5.** All New Mexico students in Grade 3–5 who met or exceed expectations on the statewide mathematics assessment by subgroup for SY2018–19.
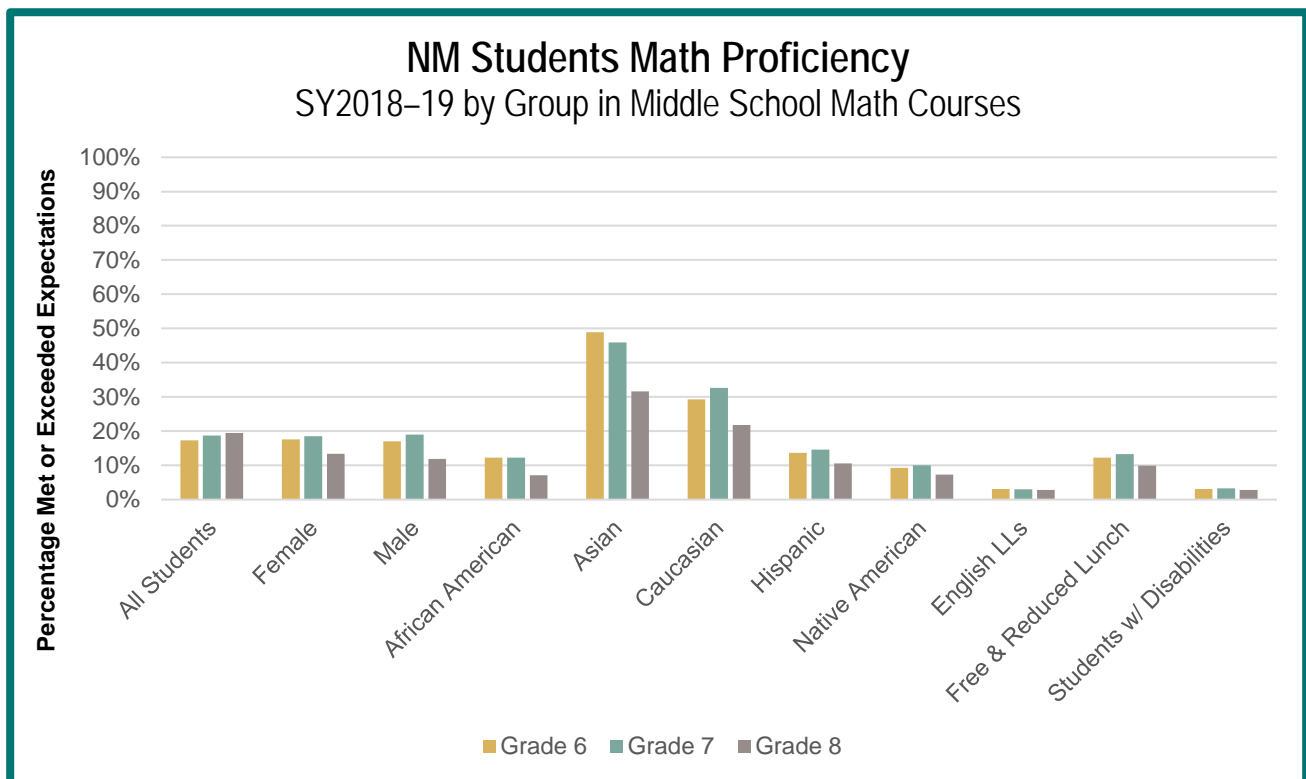


**Figure 6.** All New Mexico students in Grade 6–8 who met or exceeded expectations on the statewide mathematics assessment by subgroup for SY2018–19.
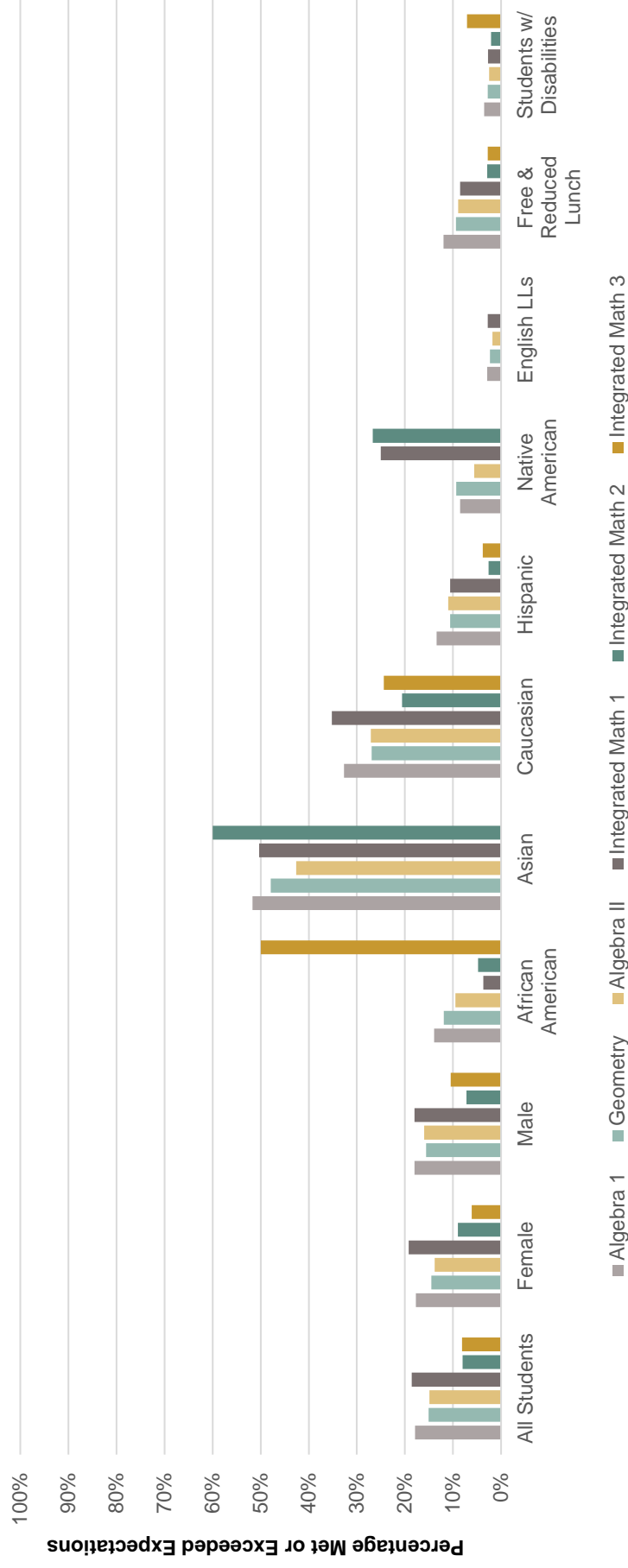
**Figure 7.** All New Mexico students taking high school courses who met or exceeded expectations on the mathematics statewide assessment by subgroup for SY2018–19.

**Figures 5, 6, and 7** show a data snapshot of one year of testing, this should not be read as trends over time. There is a clear disparity between ethnic groups and across grade levels and courses, and this needs to remain a critical issue. Students who have been identified as English language learners and those students with special needs lag even farther behind. As a bright spot, the New Mexico gender gap is being closed across grade levels and courses.

## All NM Students Science Proficiency
### By Grade Level

**Percentage Met or Exceeded Expectations**

| | Grade 4 | Grade 7 | Grade 11 |
|---|---|---|---|
| SY 2014–15 | 43% | 40% | 36% |
| SY 2015–16 | 43% | 45% | 39% |
| SY 2016–17 | 40% | 45% | 35% |
| SY 2017–18 | 46% | 42% | 35% |
| SY 2018–19 | 43% | 40% | 33% |

■ SY 2014–15   ■ SY 2015–16   ■ SY 2016–17   ■ SY 2017–18   ■ SY 2018–19
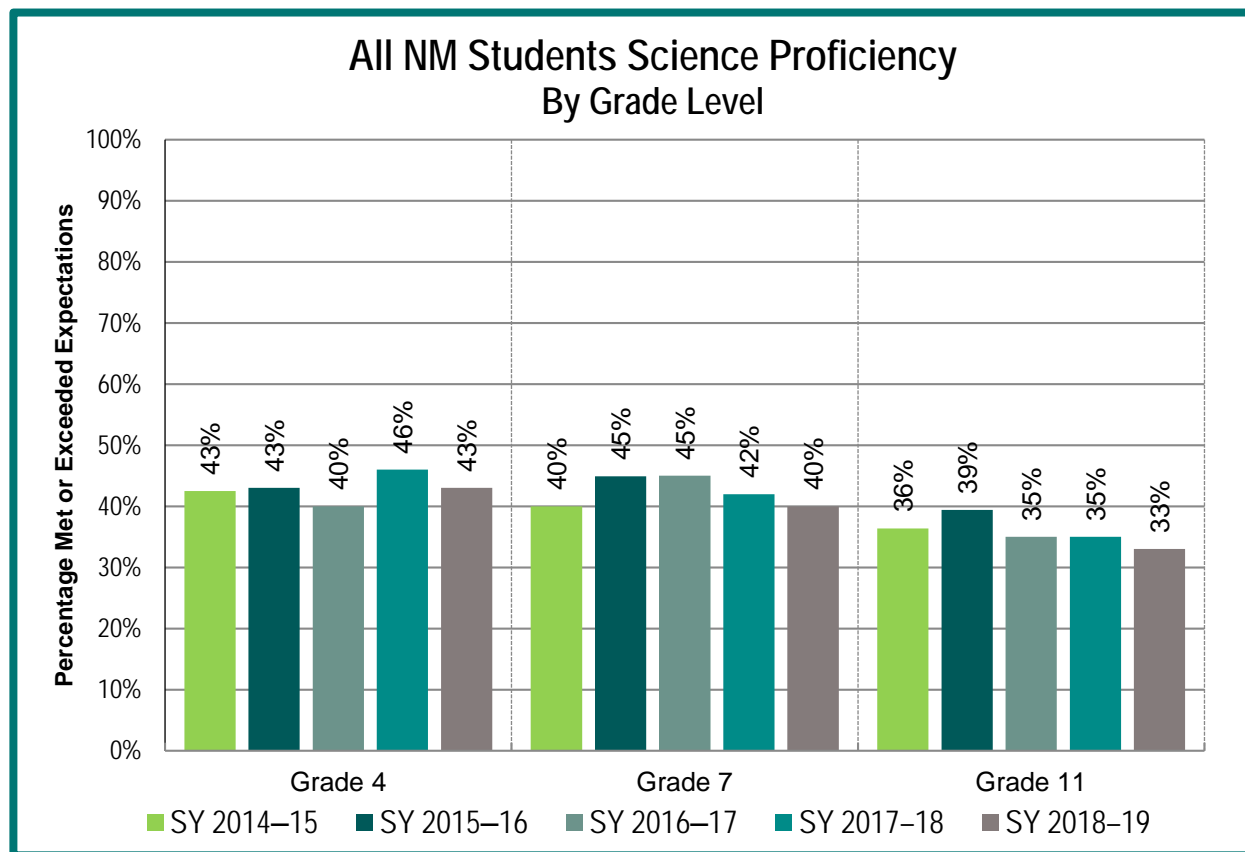
**Figure 8.** All NM students who met or exceeded expectations on the statewide science summative assessment from SY 2014–15 to SY 2018–19.

**Figure 8** shows the percentage of NM students who met or exceeded expectations on the statewide science assessment. Scores remain fairly consistent between elementary and middle school, but there is a dip in those scores in 11th grade.

**Note:** The statewide science assessment in NM was administered every year but only to students in grades 4, 7, and 11.

**Figure 9.** All NM students in Grade 4 who met or exceeded expectations on the science statewide assessment from SY 2014–15 to SY 2018–19, by group

**Figure 10.** All NM students in Grade 7 who met or exceeded expectations on the science statewide assessment from SY 2014–15 to SY 2018–19, by group

# NM Students Science Proficieny from SY 2014–15 to SY 2018–19

## By Subgroup in Grade 11



**Percentage Met or Exceeded Expectations**

Legend:
- SY 2014–15
- SY 2015–16
- SY 2016–17
- SY 2017–18
- SY 2018–19

| Group | SY 2014–15 | SY 2015–16 | SY 2016–17 | SY 2017–18 | SY 2018–19 |
|---|---|---|---|---|---|
| All Students | 36% | 39% | 35% | 27% | 33% |
| Female | 32% | 34.8% | 31% | 25% | 29% |
| Male | 41% | 43.8% | 39% | 30% | 37% |
| African American | 32% | 30.4% | 28% | 21% | 24% |
| Asian | 54% | 58.6% | 57% | 48% | 57% |
| Caucasian | 58% | 63.0% | 58% | 50% | 57% |
| Hispanic | 29% | 32.5% | 29% | 22% | 27% |
| Native American | 17% | 20.4% | 17% | 15% | 14% |
| English LLs | 5% | 6% | 7% | 4% | 4% |
| Free & Reduced Lunch | 25% | 30% | 18% | 19% | 22% |
| Students w/ Disabilities | 12% | 15% | 14% | 9% | 8% |

**Figure 11.** All NM students in Grade 11 who met or exceeded expectations on the statewide science assessment from SY 2014–15 to SY 2018–19, by group

**Figures 9, 10, and 11** show that achievement within categories is relatively consistent over time. As with math, there is a clear disparity between ethnic groups. English language learners, and students with special needs, and this must be addressed as a state. English learners in Grade 4 have seen increasing proficiency in science over the past four years. In elementary and middle school, the gender gap is closing, but this doesn't hold true in high school, where we see an eight percent gender gap in SY 2018–2019.

### SUMMARY OF ALL STUDENT DATA

**Mathematics scores** show approximately 30 percent of Grade 3 students are assessed as "meeting or exceeding expectations" in math proficiency, this measure drops to closer to 10 percent for Grade 11 students. The year-over-year decline is steady and especially concerning, as we work towards increasing numbers of students who are career and college readiness.

**Science assessment data** show an increase in some student groups that meet or exceed expectations in Grade 11. However, the trend continues to show a decrease overall in science proficiency from SY2017–2018 to SY2018–2019. In the last five years, males and females have scored similarly in Grades 4 and 7, showing the achievement gap between those groups are closing.

**In summary,** this data clearly calls for action in systematically working to achieve high educational performance in math and science subjects for **all** New Mexico students. The critical issues and recommended actions outlined in the report are intended to serve as a guide for addressing the inequities in achievement and creating a more effective, statewide, systemic plan by examining and improving teacher preparation and the delivery of instruction for K–12 students.

## 3.3 National Assessment of Educational Progress (NAEP)

NAEP data shows how NM students compare with other students across the nation in various subjects.

The schools and students participating in NAEP assessments are selected to be representative of all schools nationally and of public schools at the state level. Samples of schools and students are drawn from participating states and from the District of Columbia and Department of Defense schools.

Since the late 1960s, NAEP exams have been administered periodically to a random sample of US students in grades 4, 8, and 12 in mathematics, reading, science, writing, the arts, civics, economics, geography, and US history. The results are not reported at the individual student level. In fact, given the matrix sampling used to cover a wide variety of content, all students do not receive the same exams. Like the New Mexico statewide assessments, the NAEP exams include both multiple-choice and extended-response items.

### 3.3.1 NAEP Mathematics Data

| Table 1. NAEP Math Data—4th<br>Comparison of Grade 4 Math Students in NM and the US<br>**Percentage Proficient or Advanced**<br>Six Assessment Cycles | | |
|---|---|---|
| YEAR | NEW MEXICO<br>GRADE 4 | THE NATION<br>GRADE 4 |
| 2009 | 26 | 39 |
| 2011 | 30 | 39 |
| 2013 | 31 | 41 |
| 2015 | 27 | 39 |
| 2017 | 27 | 40 |
| 2019 | 28 | 41 |

| Table 2. NAEP Math Data—8th<br>Comparison of Grade 8 Math Students in NM and the US<br>**Percentage Proficient or Advanced**<br>Six Assessment Cycles | | |
|---|---|---|
| YEAR | NEW MEXICO<br>GRADE 8 | THE NATION<br>GRADE 8 |
| 2009 | 20 | 34 |
| 2011 | 24 | 34 |
| 2013 | 23 | 34 |
| 2015 | 21 | 33 |
| 2017 | 21 | 34 |
| 2019 | 21 | 33 |

Note. Tables 1 and 2 reveal that New Mexico students' NAEP math scores are lower than the national average.

## 3.3.2 NAEP Science Data

| Table 3. NAEP Science Data—4th<br>Comparison of Grade 4 NM and US Students<br>**Percentage Proficient or Advanced**<br>Five Assessment Cycles. | | |
|---|---|---|
| **YEAR** | **NEW MEXICO** | **THE NATION** |
| **2009** | 24 | 32 |
| **2011** | Not tested | Not tested |
| **2015** | 25 | 37 |
| **2017** | Not tested | Not tested |
| **2019** | N/A | N/A |

NAEP only released science test results for the nation, not states.

| Table 4. NAEP Science Data—8th<br>Comparison of Grade 8 NM and US Students<br>**Percentage Proficient or Advanced**<br>Five Assessment Cycles. | | |
|---|---|---|
| **YEAR** | **NEW MEXICO** | **THE NATION** |
| **2009** | 21 | 27 |
| **2011** | 22 | 31 |
| **2015** | 21 | 31 |
| **2017** | Not tested | Not tested |
| **2019** | N/A | N/A |

NAEP only released science test results for the nation, not states.

NAEP results can be accessed at: http://nces.ed.gov/nationsreportcard/states/

## 3.4 ACT and SAT

ACT and SAT scores are another measure of student achievement. The tables below indicate average scores and participation rates. These tests are not mandatory and are generally taken by college-bound students. The reported scores do not reflect percent correct on test items. The scores are normalized to reflect a comparison of the student's performance to a national population. Many colleges' entrance requirements are based on ACT and SAT scores.

| Table 5. SAT Math Scores. Comparison of SAT math scores from 2014 to 2019 for New Mexico and the nation's participating high school seniors | | | | | | |
|---|---|---|---|---|---|---|
| SAT MATH | NEW MEXICO | | | NATION | | |
| SY | # of Seniors | % of Participating Seniors | Average SAT Score | # of Seniors | % of Participating Seniors | Average SAT Score |
| 2014–15 | 1,684 | 9.5 | 528 | 1,332,096 | Not available | 498 |
| 2015–16 | 1,842 | 9.2 | 545 | 1,637,589 | NA | 508 |
| 2016–17 | 2,342 | 11 | 561 | 1,715,481 | NA | 527 |
| 2017–18 | 3,225 | 16 | *551 | 2,136,539 | NA | *531 |
| 2018–19 | 3,653 | 19 | *524 | 2,220,087 | NA | *528 |

Note. The new SAT Suite benchmark outcomes should not be compared against results from the old SAT or PSAT/NMSQT, as the scaled scores and benchmark definitions have changed.

| Table 6. Comparison of ACT math scores from 2013 to 2019 for New Mexico and the nation's participating high school seniors[1] | | | | | | |
|---|---|---|---|---|---|---|
| ACT MATH | NEW MEXICO | | | NATION | | |
| SY | # of Seniors | % of Seniors Participating | Average ACT Score | # of Seniors | % of Seniors Participating | Average ACT Score |
| 2012–13 | 13,423 | 70 | 19.7 | 1,799,243 | 54 | 20.9 |
| 2013–14 | 12,945 | 69 | 19.7 | 1,845,787 | 57 | 20.9 |
| 2014–15 | 13,393 | 71 | 19.8 | 1,924,436 | 59 | 20.8 |
| 2015–16 | 13,435 | 70 | 19.5 | 2,090,342 | 64 | 20.6 |
| 2016–17 | 13,523 | 66 | 19.4 | 2,030,038 | 60 | 20.7 |
| 2017–18 | 13,749 | 70 | 19.1 | 1,914,817 | 58 | 20.5 |
| 2018–19 | 13,196 | 63 | 18.9 | 1,782,820 | 52 | 20.4 |

[1] College and Career Readiness Mathematics benchmark score is 22

| ACT SCIENCE | NEW MEXICO | | | NATION | | |
|---|---|---|---|---|---|---|
| SY | # of Seniors | % of Seniors Participating | Average ACT Score | # of Seniors | % of Seniors Participating | Average ACT Score |
| 2012–13 | 13,423 | 70 | 20.1 | 1,799,243 | 54 | 20.7 |
| 2013–14 | 12,945 | 69 | 20.1 | 1,845,787 | 57 | 20.8 |
| 2014–15 | 13,393 | 71 | 20.3 | 1,924,436 | 59 | 20.9 |
| 2015–16 | 13,435 | 70 | 20.1 | 2,090,342 | 64 | 20.8 |
| 2016–17 | 13,523 | 66 | 20.0 | 2,030,038 | 60 | 21.0 |
| 2017–18 | 13,749 | 70 | 19.7 | 1,914,817 | 58 | 20.7 |
| 2018–19 | 13,196 | 63 | 19.6 | 1,782,820 | 52 | 20.6 |

**Table 7. Comparison of ACT science scores** from 2013 to 2019 for New Mexico and the nation's participating high school seniors[2]

Participation rates in New Mexico for the ACT are much larger than those for the SAT. In 2018–2019, 27 percent of New Mexico students who took the ACT met the math benchmark and 26 percent met the science benchmark for college and career readiness. In 2018–2019, 56 percent of students who took the ACT indicated having an interest in STEM majors and/or careers.

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[2] College and Career Readiness Science benchmark score is 23

# 4. Student Course-Taking Patterns

## 4.1 Algebra 1 in Grade 8

The 2007 Legislature amended state law to include the provision, "Beginning with the 2008–2009 school year, in eighth grade, Algebra 1 shall be offered in regular classroom settings or through on-line courses or agreements with high schools." [22-13-1E NMSA 1978]

| Table 8. Algebra 1. Percentage and number of New Mexico Students in Grade 8 taking Algebra 1 (STARS course 2031), for high school credit, from years 2014–15 to 2018–19 | | | |
|---|---|---|---|
| Year | Total Number of Students In Grade 8 | Grade 8 Students Taking Algebra 1 for HS credit | % of Grade 8 Students in HS credit Algebra 1 |
| SY 2014–15 | 25,116 | 1,997 | 8 |
| SY 2015–16 | 24,623 | 2,172 | 9 |
| SY 2016–17 | 27,722 | 2,978 | 12 |
| SY 2017–18 | 24,757 | 2,601 | 11 |
| SY 2018–19 | 23,806 | 2,302 | 9 |

**Note:** Students who took Algebra 1 in grade 7 are not counted in the above table.

By offering Algebra in 8th grade, the state is providing the opportunity for students who have demonstrated mastery in middle school math standards to participate in an accelerated course sequence and receive high school credit. Approximately 10 percent of our eighth grade students are in the position to take advantage of this opportunity.

Note: STARS course 2031 requires that a secondary math endorsed teacher is the course instructor.

## 4.2 High School Science Enrollments for 2018–2019

| COURSES | SY 2014–15 | SY 2015–16 | SY 2016–17 | SY 2017–2018 | SY 2018–19 |
|---|---|---|---|---|---|
| **Table 9. NM HS Science Enrollment.** Percentage of students enrolled in high school science classes, from SY 2014–15 to SY 2018–19. | | | | | |
| **INTEGRATED SCIENCES** | | | | | |
| IB Science Courses | < 1 | < 1 | < 1 | < 1 | < 1 |
| Integrated/Unified Science | 8 | 9 | 7 | 6 | 6 |
| General Science | 2 | 2 | 3 | 3 | 2 |
| Other | 1 | 1 | 1 | 2 | 1 |
| **Total Other/Integrated Science Students** | 10,383 | 9,783 | 8,500 | 10,851 | 7,805 |
| **LIFE SCIENCES** | | | | | |
| AP Biology | 1 | 1 | 1 | 1 | 1 |
| Anatomy and Physiology | 4 | 3 | 4 | 4 | 3 |
| Biology 1 | 30 | 30 | 30 | 27 | 32 |
| Biology 2 | 3 | 2 | 2 | 2 | 2 |
| Biology Other | < 1 | 1 | 1 | 1 | 1 |
| **Total Life Science Students** | 31,982 | 32,622 | 30,120 | 35,326 | 31,198 |
| **PHYSICAL SCIENCES** | | | | | |
| AP Chemistry | 1 | 1 | 1 | 1 | 1 |
| AP Physics | 1 | 1 | 1 | 1 | 1 |
| Chemistry 1 | 17 | 18 | 18 | 17 | 18 |
| Chemistry 2 | 1 | 1 | 1 | 1 | 1 |
| Chemistry Other | 1 | 1 | 1 | 1 | 1 |
| Forensic Science | 2 | 2 | 2 | 2 | 2 |
| Physical Science | 9 | 9 | 10 | 11 | 8 |
| Physics 1 | 5 | 7 | 5 | 7 | 7 |
| Physics 2 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Physics Other | < 1 | < 1 | < 1 | < 1 | < 1 |
| **Total Physical Science Students** | 31,720 | 32,581 | 32,143 | 41,745 | 30,844 |
| **EARTH AND SPACE SCIENCES** | | | | | |
| AP Environmental Science | 1 | 1 | 1 | 1 | 1 |
| Astronomy | 2 | 2 | 2 | 2 | 2 |
| Earth and Space Sciences | 6 | 5 | 6 | 6 | 7 |
| Environmental Science | 2 | 3 | 2 | 3 | 2 |
| Geology | 1 | 1 | 1 | 1 | 1 |
| **Total Earth Systems and Space Science Students** | 9,269 | 9,184 | 9,364 | 12,913 | 10,688 |

**Table 9. NM HS Science Enrollment.** New Mexico school districts offer a wide variety of high school science courses. In SY 2018−19, the focus of student enrollment is primarily in life and physical science. Biology 1 and Chemistry 1 have the highest enrollment rates. Students are required to have three years of science to graduate, and two years must be a lab science.

| COURSES | SY 2014–15 | SY 2015–16 | SY 2016–17 | SY 2017–2018 | SY 2018–19 |
|---|---|---|---|---|---|
| **Table 10. NM HS Math Enrollment.** Percentage of students enrolled in high school math classes from SY 2014–15 to SY 2018–19. | | | | | |
| **I N T E G R A T E D   M A T H   C O U R S E S** | | | | | |
| Integrated Pathway: Mathematics I | 1 | 1 | 1 | 1 | 1 |
| Integrated Pathway: Mathematics II | 1 | 1 | 1 | 1 | 1 |
| Integrated Pathway: Mathematics III | 1 | 1 | 1 | 1 | < 1 |
| Integrated Pathway: Mathematics IV | 1 | 1 | 1 | 1 | 1 |
| **Total Integrated Mathematics Students** | 4,150 | 3,763 | 3,966 | 3,308 | 2,335 |
| **I B   M A T H   C O U R S E S** | | | | | |
| IB Mathematical Studies | < 1 | < 1 | < 1 | < 1 | < 1 |
| IB Mathematics | < 1 | < 1 | < 1 | < 1 | < 1 |
| **Total IB Mathematics Students** | 147 | 164 | 155 | 249 | 203 |
| **T R A D I T I O N A L   M A T H   C O U R S E S** | | | | | |
| Algebra I | 25 | 25 | 24 | 24 | 29 |
| Geometry | 26 | 25 | 24 | 25 | 24 |
| Algebra II | 23 | 23 | 23 | 22 | 22 |
| Algebra II/Trigonometry | 1 | < 1 | 1 | 2 | 2 |
| Trigonometry | 2 | 1 | 1 | 1 | 1 |
| Trigonometry/Analytic Geometry | 1 | 1 | < 1 | < 1 | < 1 |
| Trigonometry/Math Analysis | 1 | < 1 | < 1 | < 1 | < 1 |
| Math Analysis | < 1 | < 1 | < 1 | < 1 | < 1 |
| Analytic Geometry/Math Analysis | < 1 | < 1 | < 1 | 1 | 1 |
| Pre-Calculus | 4 | 4 | 4 | 5 | 4 |
| Calculus | 1 | < 1 | < 1 | < 1 | < 1 |
| Differential Calculus | < 1 | < 1 | < 1 | < 1 | < 1 |
| Applied Math | 1 | 2 | 2 | 2 | 2 |
| Probability and Statistics | 2 | 2 | 2 | 2 | 2 |
| Elementary Functions | 1 | 1 | 1 | 1 | 1 |
| Discrete Mathematics | < 1 | < 1 | < 1 | < 1 | < 1 |
| Fractal Mathematics | n/a | n/a | < 1 | < 1 | n/a |
| Financial Literacy | 7 | 7 | 8 | 8 | 7 |
| **Total Traditional Mathematics Students** | 102,492 | 101,948 | 105,030 | 103,555 | 86,716 |
| **A P   M A T H   C O U R S E S** | | | | | |
| AP Calculus AB | 2 | 2 | 2 | 1 | 1 |
| AP Calculus BC | < 1 | < 1 | < 1 | < 1 | < 1 |
| AP Statistics | 1 | 1 | 1 | 1 | 1 |
| **Total AP Mathematics Students** | 3,460 | 3,527 | 3,501 | 3,105 | 2,689 |

## 4.4 High School Computer Science Enrollments for 2018–2019

The NM PED is committed to making computer science accessible to students in New Mexico districts and charter schools and took the first step through the release of a memo, stating at the beginning in the 2018–2019 school year that students who demonstrate proficiency on the statewide mathematics assessment for Geometry or Algebra II and meet the Algebra II graduation requirement may utilize a qualifying computer science course to earn a mathematics graduation credit. Students who demonstrate proficiency on the science SBA in grade 11 may utilize a qualifying computer science course to earn a science credit.

Qualifying computer science courses available in the 2018–2019 school year include: Scientific Technologies, Mathematical Modeling, Fractal Mathematics, AP Computer Science A, and AP Computer Science Principles.

| Table 11. NM HS Computer Science Course Trends. The number of Grade 11 & 12 students enrolled in high school computer science classes from SY 2017–18 to SY 2018–19. | | |
|---|---|---|
| COURSES | SY 2017–2018 | SY 2018–19 |
| C O M P U T E R  S C I E N C E  C O U R S E S | | |
| AP Computer Science A | 133 | 109 |
| AP Computer Science Principles | 99 | 115 |
| Scientific Technologies | 45 | 117 |
| Mathematical Modeling | 0 | 0 |
| Fractal Mathematics | 1 | 0 |

While there is a small increase in students enrolling in Computer Science courses, this chart points to a need for providing more opportunities in New Mexico for providing that coursework.

## 4.5 Advanced Placement (AP)

Since success on the Advanced Placement (AP) examinations taken in high school can result in college credit at many institutions of higher education, AP is often considered an indication of superior achievement in high school. AP grades are reported on a 5-point scale as follows: **5** Extremely well qualified, **4** Well qualified, **3** Qualified, **2** Possibly qualified, **1** No recommendation. AP scores of 3, 4, and 5 may qualify to receive college credit or advanced placement.

Traditionally, the measure used to determine AP success at the state level has been the percentage of students taking the exams who scored 3 or higher. Tables 12, 13, and 14 provide the AP results for the math, computer science, and science exams.

**Table 12. NM AP Math and Computer Science Exams.** Number of students taking and percent passing math and computer science Advanced Placement exams, from SY 2015–2016 to SY 2018–2019

| ASSESSMENT RESULTS FOR AP MATH AND COMPUTER SCIENCE COURSES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Calculus AB | | Calculus BC | | Statistics | | Computer Science A | | Computer Science Principles | |
| | # Taking Test | % Passing Test | # Taking | % Passing | # Taking | % Passing | # Taking | % Passing | # Taking | % Passing |
| 2016 | 879 | 33 | 356 | 53 | 465 | 26 | 60 | 60 | n/a | n/a |
| 2017 | 1073 | 34 | 447 | 61 | 524 | 28 | 74 | 74 | 14 | 71 |
| 2018 | 1218 | 38 | 391 | 55 | 592 | 25 | 113 | 113 | 40 | 80 |
| 2019 | 836 | 35 | 258 | 61 | 485 | 25 | 78 | 78 | 116 | 69 |

**Table 13. NM AP Science Exams.** Number of students taking and percent passing science Advanced Placement exams, from SY 2015–2016 to SY 2018–2019

| ASSESSMENT RESULTS FOR AP SCIENCE COURSES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Biology | | Chemistry | | Environmental Science | | Physics C: Elec. and Mag. | | Physics C: Mechanics | |
| | # Taking Test | % Passing Test | # Taking | % Passing | # Taking | % Passing | # Taking | % Passing | # Taking | % Passing |
| 2016 | 677 | 40 | 422 | 22 | 217 | 38 | 21 | 81 | 82 | 74 |
| 2017 | 853 | 48 | 588 | 26 | 277 | 38 | 51 | 67 | 100 | 70 |
| 2018 | 894 | 47 | 591 | 26 | 342 | 28 | 37 | 68 | 79 | 73 |
| 2019 | 653 | 48 | 398 | 25 | 301 | 26 | 35 | 49 | 70 | 76 |

[2]Physics B was discontinued after the 2013–2014 school year and replaced by Physics 1 and Physics 2 exams (see Table 14).

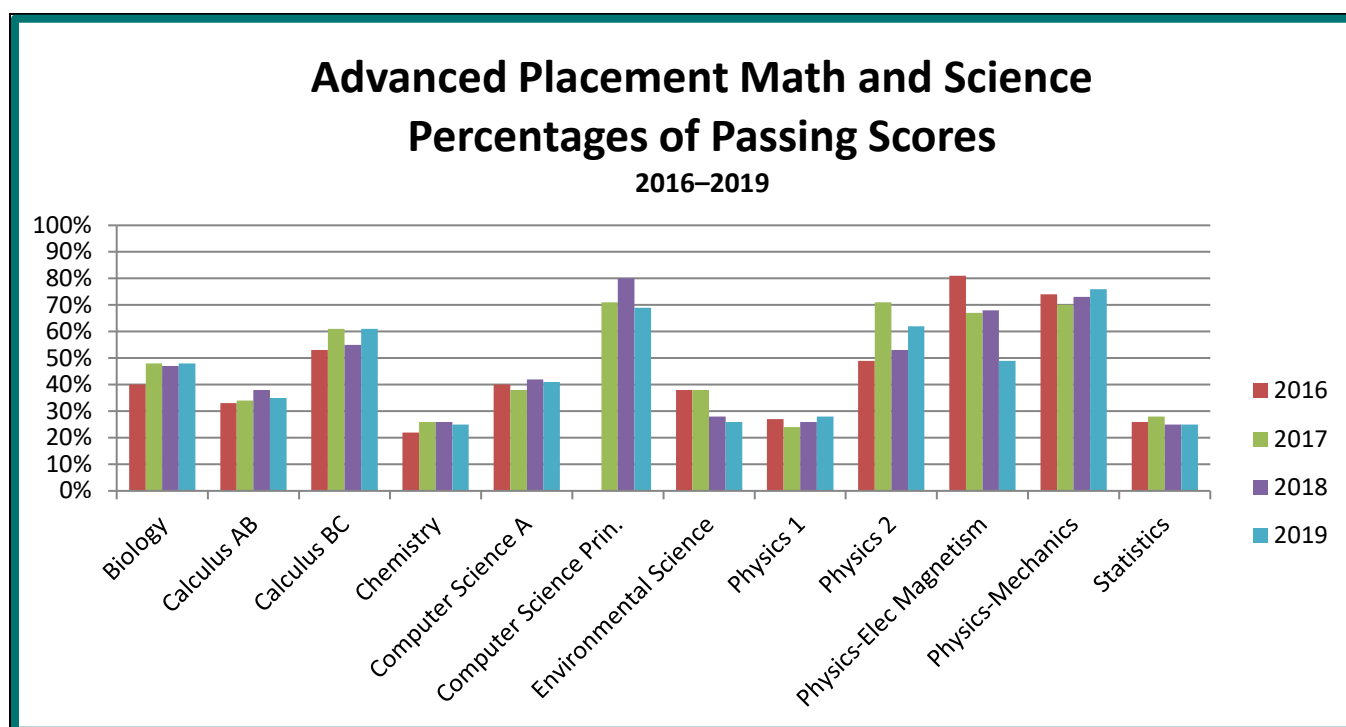| Table 14. Replacement Assessments for Physics B. Number of students taking and percent passing Physics 1 and Physics 2 exams from SY 2015–2016 to SY 2018–2019 | | | | |
|---|---|---|---|---|
| ASSESSMENT RESULTS FOR PHYSICS 1 AND 2 COURSES | | | | |
| | Physics 1 | | Physics 2 | |
| Year | # Taking Test | % Passing Test | # Taking Test | % Passing Test |
| 2016 | 334 | 27 | 45 | 49 |
| 2017 | 512 | 24 | 35 | 71 |
| 2018 | 667 | 26 | 36 | 53 |
| 2019 | 450 | 28 | 13 | 62 |



**Figure 12.** New Mexico students passing the Advanced Placement tests from SY2015–16 to SY2018–19.

## 4.6 Dual Credit Program

Information on Dual Credit was not available at the time of publishing the report.

# 5. Actions Taken in School Year 2018–2019

This section includes a brief summary of actions taken by the Math and Science Advisory Council (MSAC), the Math and Science Bureau, and NMPED partners to improve student achievement in math and science.

## 5.1 Activities of the Math and Science Advisory Council

The MSAC duties are defined by New Mexico State Statute, see Appendix A. From July 1, 2018 to June 30, 2019, members from public schools, public post-secondary educational institutions, museums, and national laboratories served on the MSAC. Kim Allen Scheerer and Christy Krenek served as co-chairs.

### MSAC Activities

- Participation in the STEM NM collaborative ecosystem in December 2018
- Co-Chair attendance at the NM Informal Science Educators (NM ISE) network meeting presentation of Martínez v. State of New Mexico by Diane Torres-Velásquez, Ph.D. of the Latino Education Task Force in December 2018
- Participation in the evaluation and review of material using the NextGen TIME process on January 10–13, 2019
- Support of Los Alamos National Laboratory's STEAM Day at the Legislature on January 17, 2019
- Meeting with newly appointed secretaries of Public Education and Higher Education departments and with College of Education Deans in February 2019 to garner support for establishing an endorsement for Elementary Mathematics and Science
- Regular meetings of past and present members beginning in May 2019 with representatives from UNM, NMSU, WNMU, and NM Highlands to draft competencies for an elementary mathematics endorsement
- Participation in the NM PED INSPIRE 2019 Conference—support and facilitation of professional learning events on May 30 and May 31, 2019 at the Albuquerque Convention Center
- Participation in the state selection committees for the Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST)—select state finalists for the PAEMST award in 7–12 Mathematics and Science on June 14, 2019.

### MSAC Meeting Dates and Locations

- August 25, 2018—Explora Museum (Albuquerque)
- October 22, 2018—Sevilleta National Wildlife Refuge (north of Socorro)
- February 7, 2019 — Milagro Middle School (Santa Fe)
- May 17, 2019—New Mexico State University (Las Cruces)

### MSAC Accomplishments

- The 2018 Math and Science Annual Report was posted and made available on the NMPED Math and Science Bureau website.
- The MSAC encouraged the NMPED to seek a waiver year for the NM Assessment of Science Readiness to give districts an opportunity to implement the NM STEM Ready! Science Standards.



*Members of MSAC, NMPED Math and Science Bureau and staff at NMSU while touring the STEM Outreach Center in May 2019.*

## 5.2 Activities of the Math and Science Bureau

Note: Number of students is estimated based on percentage of teachers impacted (75 percent elementary; 25 percent secondary) and estimated class size loads (elementary=24 students; secondary=150 students).

**Table 15. MATH AND SCIENCE PROFESSIONAL LEARNING**
Supported by 2019 Legislative appropriations of $3.5 million to provide support for educators in STEM areas

| | # of Teachers Impacted | | # of Students Impacted** | Partners/Collaborators |
|---|---|---|---|---|
| | FY 18 | FY 19 | FY 19 | |
| **BUILDING CAPACITY** | | | | |
| Facilitator Trainings — Making Sense of Science & Making Sense of Student Work | 62 | 108 | n/a | WestEd |
| MESA Regional Coaching Support | 135 | N/A | N/A | NM MESA |
| **TEACHER SUPPORT** | FY 18 | FY 19 | FY 19 | Partners/Collaborators |
| Math Content Instructional Materials Review | 45 | 75 | n/a | Instructional Materials Bureau, MC$^2$ |
| Making Sense of Science Teacher Institutes — Matter, Dynamic Earth, Energy, Genes & Traits, Systems, Waves, MultiDimensional Science Ed. | 360 | 783 | 43,488 | Albuquerque, Grant County Schools, Roswell Independent School District |
| Virtual Professional Learning Community | n/a | 20 | 2,500 | NM school districts and charters |
| OpenSciEd Field Test | n/a | 32 | 5,250 | NM school districts and charters |
| NM STEM Symposium/INSPIRE 2019 | 356 | 457 | 25,675 | NM school districts and charters |
| Making Sense of Student Work — Formative assessment teacher courses | 327 | 210 | 13,125 | NM school districts, charter schools, and Mathematically Connected Communities (MC$^2$) |
| PARCC Webinars | 290 | n/a | n/a | NM school districts and charters |
| Science Webinars | 221 | 140 | 7,875 | NM school districts and charters |
| NM DreamTeam | n/a | 27 | 4,050 | NM school districts, charter schools, and LearnZillion |
| NextGen TIME | n/a | 66 | n/a | NM school districts and charter schools, BSCS, and WestEd |
| Multiplicative Reasoning Training | n/a | 109 | 2,725 | NM school districts, charter schools, and MC$^2$ |
| **LEADERSHIP SUPPORT** | | | | |
| NM STEM Ready! Science Standards Leadership Training | 192 | 166 | n/a | NM school districts and charters |
| Supporting Science Standards Implementation | n/a | 64 | n/a | NM school districts and charters |
| **Approximate Total # of Students Impacted, FY 19** | | | 99,963 | |

## Table 16. Accomplishments Achieved with State Funding—Highlights*

| | Unified Statewide Vision for STEM Education | High Educational Performance for all NM students | High Academic Standards & Aligned Assessment | High Quality STEM Teachers for All Students | STEM Learning Opportunities for Students at All Grade Levels | Out-of-School STEM Learning |
|---|---|---|---|---|---|---|
| **NM STEM Ready! Science Standards Leadership Training** <br> NM leaders attended a one-day professional learning session addressing the implementation of the NM STEM Ready! Science Standards. Participants experienced a science and engineering design challenge, developed an understanding of the structure of the standards, and created a vision for the shifts in instruction that support active student learning. | ▓ | | ▓ | | | |
| **Making Sense of SCIENCE Supporting Science Standards Implementation** <br> WestEd worked with the Math and Science Bureau to adapt the MultiDimensional Science Education course to support administrators and partners with the implementation of the NM STEM Ready! Science Standards; 64 administrators from 19 school districts and 3 state charter schools attended this course along with representatives from six state partner organizations. | ▓ | | | | | |
| **Science Readiness Partnership** <br> MSB provided intensive support in implementing the NM STEM Ready! Science Standards to 13 school teams. | | ▓ | | ▓ | | |
| **Math Content Instructional Materials Review** <br> The MSB and MC², in partnership with the NMPED Instructional Material Bureau, created a learning experience based on the Standards for Mathematical Practices and Common Core State Standards for Math. It was a one-day professional learning session, attended by 81 NM teachers. | | | ▓ | | ▓ | |
| **STEM Partner Support** <br> The MSB partnered with other organizations to expand support for teachers and students in STEM programs. In SY 2018–2019, the MSB collaborated extensively with the Informal Science Education Network (NM ISE Net) and MC². | | ▓ | | ▓ | ▓ | |

*Aligned with the STEM Strategic Framework of New Mexico, page 9

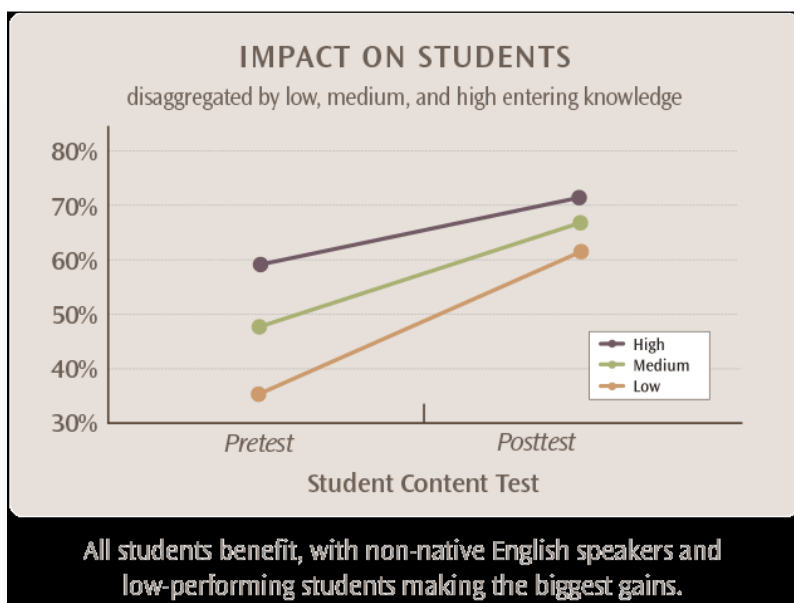| Accomplishments Achieved with State Funding—Highlights* (continued) | Unified Statewide Vision for STEM Education | High Educational Performance for all NM students | High Academic Standards & Aligned Assessment | High Quality STEM Teachers for All Students | STEM Learning Opportunities for Students at All Grade Levels | Out-of-School STEM Learning |
|---|---|---|---|---|---|---|
| **Making Sense of Science (MSS): Facilitation Academy, School Year, and Summer Institutes**<br><br>In March, WestEd trained 24 New Mexico educators as facilitators for the MSS MultiDimensional Science Education and summer institutes and trained 46 New Mexico educators in course updates, bringing them into alignment with the NM STEM Ready! Science Standards. In the 2018–2019 school year, 783 teachers from 55 school districts and 12 state charter schools attended the MSS school year and summer institutes in MultiDimensional Science Education, Genes & Traits, Matter, Energy, Dynamic Earth, Systems, and Waves. MSS institutes provide teachers with deep content knowledge, pedagogical strategies, and ways to incorporate literacy into science. | | | | | | |
| **Virtual Professional Learning Community**<br><br>The MSB and the Title 1 Bureau collaborated to provide support to 20 K–12 science teachers virtually. These teachers met twice a month after school for hour-long sessions to discuss problems of practice they face in the classroom and to receive collegial support to enhance their practice. | | | | | | |
| **NM Science DreamTeam**<br><br>MSB and Instructional Materials Bureau provided support to 24 high school teachers and 3 science coaches to develop high school cornerstone units. | | | | | | |
| **INSPIRE 2019 Teacher Summit**<br><br>MSB, MC², and teacher leaders facilitated 11 mathematics and science sessions over the two-day teachers' summit, providing professional learning to 457 teachers. | | | | | | |
| **Making Sense of Student Work (MSSW)**<br><br>The NMPED provided MSSW for math formative assessment training to 210 teachers during the 2018–2019 school year. | | | | | | |

## Accomplishments Achieved with State Funding—Highlights* (continued)

| | Unified Statewide Vision for STEM Education | High Educational Performance for all NM students | High Academic Standards & Aligned Assessment | High Quality STEM Teachers for All Students | STEM Learning Opportunities for Students at All Grade Levels | Out-of-School STEM Learning |
|---|---|---|---|---|---|---|
| **Webinars** <br> The MSB provided ongoing supported for science teachers virtually, through several webinars. To support teachers with the implementation of the NM STEM Ready! Science Standards, a webinar series on Implementing the NM STEM Ready! Science Standards was produced, showing how to plan and support a sense-making learning environment. | ■ | | | | | |
| **OpenSciEd Field Test** <br> New Mexico, in collaboration with nine other state education agencies, developers and funders, took part in a field test of open source science curriculum called OpenSciEd. The long term vision of OpenSciEd includes ensuring that every science teacher in the country can access and download freely available, high-quality, NGSS aligned instructional materials. Additionally, OpenSciEd envisions supporting districts and schools by providing high-quality instructional materials training to science teachers and trainers. Teachers in New Mexico from 10 districts and 2 state charter schools field tested two units of science instructional materials for grades 6, 7, and 8 that are aligned to the NM STEM Ready! Science Standards. These units will be released in Fall 2019. | | ■ | | ■ | | |
| **Teach To One Math Pilot** <br> The NMPED partnered with Bloomfield Public Schools, McCurdy Charter School, and Taos Municipal Schools in the last year of a three-year pilot to improve students' mathematics achievement in grades 6–8. Teach to One provides learning experiences that are personalized, adaptive, and self-improving to optimize the delivery of math instruction to learners with a variety of learning needs. | | | | | | |
| **NextGen TIME** <br> As a result of the calls for support in assessing instructional materials, the NMPED provided a two and one-half day training in January 2019 on a tool that supports districts in critically analyzing instructional materials for adoption. 19 district teams participated in the training. | | | ■ | | | |

| Accomplishments Achieved with Federal Funding—Highlights* | Unified Statewide Vision for STEM Education | High Educational Performance for all NM students | High Academic Standards & Aligned Assessment | High Quality STEM Teachers for All Students | STEM Learning Opportunities for Students at All Grade Levels | Out-of-School STEM Learning |
|---|---|---|---|---|---|---|
| **NASA GLOBE Grant—MISSION EARTH:** Beginning in 2016 for five years, and in partnership with WestEd and several universities, NASA is funding professional learning for teachers, equipment, and a part-time NM state coordinator, Christy Wall, PhD. Dr. Wall, an atmospheric scientist, is providing training and field support in several pilot schools in New Mexico. | | | | | | |

# Making Sense of SCIENCE Teacher & Administrator Courses
## 2019 Summary

## What is Making Sense of SCIENCE?

The New Mexico Public Education Department has contracted with WestEd's Making Sense of SCIENCE (MSS) project since 2015 to train accomplished New Mexico teacher leaders and staff developers to facilitate five-day MSS teacher courses on Energy, Matter, Dynamic Earth, and Genes and Traits. In 2019, a new two-day course was added and adapted for both teachers and administrators: MultiDimensional Science Education. This year also saw the Math and Science Bureau offer the two-day Systems and Waves courses during the school year and offer seven different courses during the summer in three locations across the state. The project's approach emphasizes teachers experiencing the same inquiry-based science that they are teaching their students and focuses on science content understanding, classroom practice, literacy proficiency, and pedagogical reasoning.



**IMPACT ON STUDENTS**
disaggregated by low, medium, and high entering knowledge

Student Content Test

All students benefit, with non-native English speakers and low-performing students making the biggest gains.

The project's effectiveness has previously been demonstrated through federally funded, multi-state, randomized, controlled trials studying the achievement results of students of comparable teachers who did and did not receive MSS professional learning (Heller, Daehler & Shinohara, 2003; Heller, Daehler, Wong, Shinohara & Miratrix, 2012).

### Teachers' science content knowledge gains were substantial.

Eighty-one percent of teachers believed that the MSS courses strengthened their understanding of science content. The table below summarizes gains teachers made in content knowledge in each course during the 2019 institutes.

| Course | Pre-Test (Mean % Correct) | Post-Test (Mean % Correct) | Mean Gain (%) |
|---|---|---|---|
| Dynamic Earth | 47 | 59 | 12 |
| Matter | 75 | 83 | 8 |
| Genes & Traits | 42 | 56 | 14 |
| Energy | 52 | 65 | 13 |
| Systems (2-day) | 57 | 67 | 10 |
| Waves (2-day) | 50 | 72 | 22 |

| Course | Pre-Test (Mean % Correct) | Post-Test (Mean % Correct) | Mean Gain (%) |
|---|---|---|---|
| Systems (3-day) | 58 | 67 | 9 |
| Waves (3-day) | 52 | 64 | 12 |
| MDSE | 54 | 62 | 8 |

*Participants in the SYSTEMS course making sense of systems.*

"This training gave me the confidence that I can give the best learning that my students deserve."
[MSS Participant, **Feb. 2019**]

*I would tell them that this experience is important for all teachers who teach science, because it helps put us in the position of students, and it's reflective of how they feel in the science classroom. It's also a good reminder that the shift to NGSS means that teachers are facilitators and don't need to give students answers."*
[MSS Participant, **Summer 2019**]

## Who attended?

Making Sense of SCIENCE courses were attended by 847 educators from 55 school districts and 12 state charter schools. Educators attending the Systems and Waves course received a corresponding curriculum unit.

| | |
|---|---|
| Number of educators who attended | 847 |
| Number of workshops | 39 |
| Locations | Albuquerque, Las Vegas, Roswell, Silver City |
| Districts | 55 |
| State charter schools | 12 |
| Elementary teachers | 494 |
| Middle school teachers | 105 |
| High school teachers | 177 |
| Administrators | 71 |

"Thank you for inspiring me to do better implementing NGSS!" [MSS participant, **Feb. 2019**]

"This professional training should be given yearly for beginners and for refreshers."
[MSS participant, **Summer 2019**]

| Course | Number of Educators Attended |
|---|---|
| Systems 2- & 3-day institutes | 295 |
| Waves 2- & 3-day institutes | 93 |
| MultiDimensional Science Education 2-day institute | 205 |
| Matter 5-day institute | 50 |
| Dynamic Earth 5-day institute | 48 |
| Energy 5-day institute | 22 |
| Genes & Traits 5-day institute | 24 |
| **Total in Attendance*** | 847 |

* Some educators attended one or more sessions.

## MAKING SENSE OF SCIENCE FACILITATOR TRAINING



In March 2019, the NMPED contracted with WestEd's Making Sense of SCIENCE (MSS) program; they trained 24 New Mexico teachers and other educators to facilitate MultiDimensional Science Education (MDSE) a new 2-day MSS course. MDSE addresses the multidimensional nature of the NM STEM Ready! Science Standards, examining eight dimensions of science learning, and how they can be integrated into classroom practice. In April 2019, WestEd trained 46 current New Mexico facilitators in updates to the three-day Grade K–5 System and middle school Waves courses and updates to the five-day Energy, Dynamic Earth, and Genes & Traits courses.

MSS uses a model that supports New Mexico in building capacity with high-quality, professional learning opportunities for teachers. WestEd focuses on training NM teacher leaders, informal science providers, and university faculty, who will then train other NM educators.

## MAKING SENSE OF STUDENT WORK (MSSW)

The NMPED contracted with WestEd to train 22 educators in 2017 to facilitate MSSW for math. MSSW is an analytical way of looking at students' work to identify what they know, categorize misconceptions, and determine what learning is needed to strengthen students' understanding. MSSW has strong ties to literacy and is ideal for collaborative groups of teachers to use during professional learning communities (PLCs).

The NMPED held MSSW sessions in February, March, and May for 210 math educators.
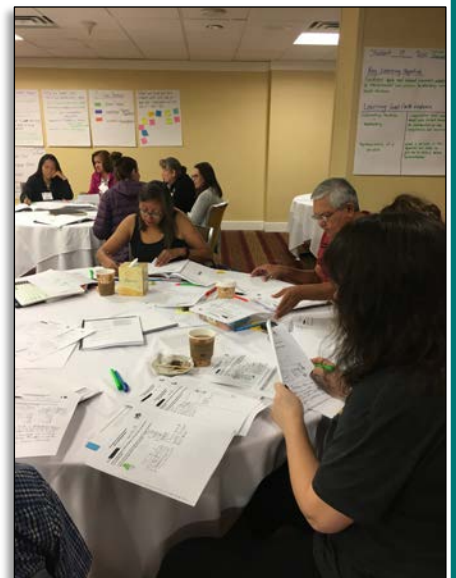


*Teachers attending Making Sense of Student Work Math training*

# Science Readiness Partnership (SRP)

The Math and Science Bureau worked with a cohort of school teams with an intense focus on the implementation of the NM STEM Ready! Science Standards. Teachers and administrators from 13 school teams participated in face-to-face and virtual learning opportunities. The learning opportunities included two days focused on the structure and implementation of the standards, two days of Making Sense of Science, and two virtual meetings focused on topics selected by the school teams.

*The SRP training is very essential to us educators. Thank you so much for having the initiative to introduce this to us educators. Kudos to all of you, you have done a great job in improving our Science Curriculum.*
*—SRP Teacher*

| Gallup McKinley County School District | Central Consolidated School District | T or C Municipal School District | Bernalillo Public School District |
|---|---|---|---|
| John F. Kennedy Middle School Roosevelt Elementary School Thoreau Elementary School Thoreau Middle School Tobe Turpen Elementary School | Newcomb Middle School Nizhoni Elementary School Mesa Elementary | Arrey Elementary School T or C Elementary School | Algodones Elementary School |

*GREAT TRAINING! Very informative! I am currently implementing STEM into my second grade classroom. I have a sense of confidence while delivering the lessons.*

*—SRP Teacher*

# Teach To One Math Pilot Program

The NMPED partnered with Bloomfield Public Schools and Taos Municipal Schools in a three-year math pilot to improve students' mathematics achievement in grades 6–8. To optimize the delivery of math instruction to learners with a variety of learning needs, learning experiences are personalized, adaptive, and self-improving. Delivery of instruction is through multiple, technology-enabled (e.g., coached virtual instruction, virtual live tutoring) and live instruction (e.g., live teacher-led investigations, small group collaboration, peer-to-peer investigation, independent practice) modalities, provided simultaneously in the classroom, supporting students by providing them the opportunity to learn the same skill in different ways.

During the 2018–2019 school year, Taos Municipal Schools expanded the math pilot to Ranchos de Taos, Taos High School, and to the whole middle school. The schools utilized the innovative and personalized learning modalities for middle school math students and showed a year's growth for all students, as measured by the NWEA MAP spring assessment.

| Middle School Students' Fall to Spring Growth<br>As a Ratio of National Average Growth<br>(2015 norms) | | | | |
|---|---|---|---|---|
| District | School | Grade(s) | Growth in Years for SY 2017–18 | Growth in Years for SY 2018–19 |
| Bloomfield Public School | Mesa Alta Jr. High | 7 and 8 | 1.4 | 1.1 |
| Taos Municipal School | Ranchos de Taos Elementary | 5 | N/A | 1.2 |
| Taos Municipal School | Taos Middle School | 6, 7, and 8 | 1.4 (6th only) | 1.6 |
| Taos Municipal School | Taos High School | 9 | N/A | 2.4 |

# OPENSCIED FIELD TEST

New Mexico, in collaboration with nine other state education agencies, developers, and funders, took part in a field test of open source science curriculum called OpenSciEd. The long term vision of OpenSciEd includes 1) ensuring any science

teacher in the country can access and download freely available, high-quality NGSS aligned instructional materials and 2) supporting districts and schools by providing professional learning for science teachers and leaders in high-quality instructional materials. During the 2018–2019 school year, teachers from 10 districts and 2 state charter schools field tested two units of science instructional materials for grades 6, 7, and 8 that were aligned to the NM STEM Ready! Science Standards.



Field-test teachers were provided six days of face-to-face professional learning and six hours of virtual professional learning throughout the school year. The NMPED provided instructional kits, student/teacher books, and science notebooks to all field test classrooms.

The units that were field tested during the 2018–2019 school year will be released to the general public during the 2019–2020 school year.

*OpenSciEd field test teachers, facilitators, and Director Vazquez celebrating the completion of Winter Curriculum Support Convening.*

# NEW MEXICO SCIENCE DREAMTEAM



*NM DreamTeam teachers and science coaches collaborate to create science units of study.*

The NMPED partnered with LearnZillion to provide support and training for 24 science teachers and 3 science coaches in a series of face-to-face and virtual meetings. These science teachers and science coaches created several high school cornerstone units aligned to the NM STEM Ready! Science Standards utilizing the 5E instructional model.

## MULTIPLICATIVE REASONING/ ADDITIVE REASONING WORKSHOPS

The MSB collaborated with NMSU/MC² to provide a series of workshops focused on multiplicative reasoning for 3–5 grade teachers. On two Saturdays, 109 teachers attended workshops in Farmington, Rio Rancho, and Deming from September to November 2018. A third day, offered in Spring 2019, allowed teachers to experience the Making Sense of Student Work protocol for analyzing student work.

An additional session on additive reasoning provided instructional coaches strategies to support teachers who attended the Multiplicative Reasoning Series workshops. This two-day learning focused on exploring

- how children in the primary grades progress from early ideas about counting to the use of additive reasoning to add and subtract within 20;
- models, activities, and instructional strategies that support numeracy development;
- interview tasks that can help identify a student's current understanding; and
- instruction that supports development of more sophisticated understanding.

## VIRTUAL PROFESSIONAL LEARNING COMMUNITY

The Math and Science and the Title 1 Bureaus at the New Mexico Public Education Department collaborated to provide support to K–12 science teachers virtually. This virtual PLC supported 20 science teachers from 12 districts and 2 state charter schools in identifying and brainstorming solutions to problems of practice. These teachers met twice a month after school for hour-long sessions to discuss problems of practice they face in their classrooms and received collegial support to enhance their practice.

| Districts | State-Chartered Charter Schools |
|---|---|
| Capitan Municipal Schools<br>Cimarron Municipal Schools<br>Clayton Municipal Schools<br>Dora Consolidated Schools<br>Farmington Municipal Schools<br>Lordsburg Public Schools<br>Raton Public Schools<br>Roswell Independent Schools<br>Socorro Consolidated Schools<br>Springer Municipal Schools<br>Tularosa Municipal Schools<br>West Las Vegas Public Schools | McCurdy Charter School<br>Six Directions Indigenous Charter School |

*"As a rural teacher, one often feels simply an outlier to the middle corridor. The outreach provided by the Math and Science Bureau's collaboration has been able to engage conversation that removes the feeling of isolation."*
        *—Virtual PLC participant*

## What is NASA GLOBE Mission EARTH?

The GLOBE Mission EARTH program aims to strengthen student preparation for STEM careers, especially for underserved youth, through teaching field-based science and rigorous research protocols. Students collect environmental data, interact with scientists, carry out projects to investigate the communities where they live, and connect with students throughout the world. Embedding this work into schools that specialize in career academies facilitates curriculum integration and coherence.

## NASA GLOBE Mission EARTH Funding

In partnership with WestEd/University of California Berkeley, University of Toledo, Boston University, Tennessee State University, NASA Langley Researcher Center, and the GLOBE Implementation Office and beginning in 2016, funding for five years was awarded to provide professional learning for teachers, equipment, and a part-time NM state coordinator, Christy Wall, PhD. Dr. Wall, an atmospheric scientist, is providing training and field support in several pilot schools in New Mexico.

During the 2018–2019 school year, five schools participated in the GLOBE Mission EARTH Program. From these schools, 12 teachers received individualized professional development courses on how to use GLOBE and scientific data collection, as well as other NASA resources, to meet New Mexico's STEM Ready Science! Standards and to teach students technical skills needed for a career in STEM fields. During the school year, teachers had follow-up support as they began to implement these tools in their classrooms.

Of the five participating schools, two were new to the program: Taos High School and Jefferson Montessori Academy. Teachers from Taos High School worked with Dr. Wall to access an aerosol instrument from NASA. Students collected aerosol and cloud data nearly every day and discussed their data with NASA scientist, Dr. Margaret Pippin. Teachers from Jefferson Montessori Academy worked with a group of students to complete rigorous scientific projects, which they presented at the GLOBE Student Research Symposium (SRS), held in Mescalero, NM. Scientists from New Mexico Tech and local industry judged the posters. Two student groups won awards for their work, and one of these groups was invited to present their research at the International GLOBE Annual Meeting, held in Detroit, MI.



*Left: Students from Carlsbad Early College High School collect water from the Pecos River for testing*

*Right: Students and teachers from Jefferson Montessori Academy proudly display their certificates from the SRS.*

# PRESIDENTIAL AWARDS FOR EXCELLENCE IN MATHEMATICS & SCIENCE TEACHING



# Congratulations to the Recent National Awardees!



### Krystal Irby
### 7–12 Science
*Albuquerque Public Schools*

Krystal Irby has been an educator for over a decade, most recently teaching 11th-grade physics through project-based learning (PBL) at Nex+Gen Academy. In addition to teaching, Krystal works with several teacher networks, including the New Mexico Public Education Department, Discovery Educators' Network, and the New Tech Network, to deliver professional development and share best practices in both science and technology.



### Cindy Lee
### 7–12 Science
*Cobre Consolidated Schools District*

Cindy Lee has been a science educator for over two decades at Snell Middle School. She has served on committees to evaluate state standards, review instructional materials, and assist with the implementation of new standards for science education. During her career, Cindy has been selected as teacher of the year for Snell Middle School, Outstanding MESA Advisor for New Mexico, and has received the Golden Apple Award.



### Erin Mayer
### K–6 Mathematics
*Albuquerque Public Schools*

Erin Mayer has been an educator for 13 years. For the past seven years, she has taught at Janet Kahn School of Integrated Arts and currently teaches all subjects to her fourth/fifth grade class. Erin is a lead developer for Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S[3]), a mathematics framework. AIM4S[3] was developed to provide equitable access to mathematics for English language learners and students who struggle with mathematics.



### Eric Schultz
### K–6 Mathematics
*Pojoaque Valley Public Schools*

Eric Schultz has been an educator for seven years. Currently he teaches sixth grade mathematics at Pojoaque Valley's Sixth Grade Academy. Eric was eager to better himself as a teacher due to his experiences working with MC[2] at NMSU. During his three years as a teacher leader, Eric worked collaboratively to learn about best practices for teaching mathematics. He also participates in the teacher leader network of the Los Alamos National Labs Math and Science Academy where he works to improve math instruction for students.

# Congratulations to the 2019 State Finalists!

**Jessica Esquibel: 7–12 Mathematics**
*Albuquerque Public Schools*

**Melody Hagaman: 7–12 Science**
*Las Cruces Public Schools*

**Brian Smith: 7–12 Science**
*Santa Fe Public Schools*

**The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST)** are the highest honors bestowed by the United States government specifically for K–12 mathematics and science teaching. State finalists are forwarded to the national PAEMST review committee for possible selection as a national awardee. Recipients of the national award receive a certificate signed by the President of the United States; a paid trip for two to Washington, DC; and a $10,000 award. For more information, please visit www.paemst.org.

## 5.3 Math and Science Bureau's K–12 Math and Science Partnerships

New Mexico is home to several STEM initiatives whose staff have partnered with the Math and Science Bureau to support STEM education statewide. Some examples are highlighted below.

### New Mexico EPSCoR (Experimental Program to Stimulate Competitive Research)

The NM EPSCoR program is funded through the National Science Foundation and includes a broad range of learning and research experiences, both formal and informal, across educational levels and age groups. NM EPSCoR manages the NM SMART Grid Center that is pursuing research and workforce training for next-generation electric power production and delivery.

### New Mexico MESA

New Mexico Mathematics, Engineering, Science Achievement, Inc. (NM MESA) empowers and motivates middle and high school students to explore college majors and careers in mathematics, engineering, science, and related fields. MESA supports New Mexico's culturally diverse STEM teachers and students on school campuses throughout the state by helping students reach their full potential as leaders through STEM achievement. Teachers and students work collaboratively, participating in innovative programming via field trips, speaker presentations, workshops, graduating senior Loyalty Awards, academic competitions, community service, and leadership development.  NM MESA is a part of the national MESA USA program that works to serve underrepresented minority students with dynamic STEM education across the US.

### Computer Science Alliance

Computer Science Alliance is an educational non-profit.  The Alliance provides computer science education experts and educational solutions for students, teachers, schools, and districts.  These experts strive to increase access to high-quality computer science education through a lens of equity, rigor, and local solutions by providing guidance and advocacy to educational decision makers, professional development events for teachers, and activities for students.

# Appendices

## Appendix A: Statutory Requirements

This section describes the laws and rules that apply to the Mathematics and Science Education Act in relevant part as follows:

### 22-15E-1. Short title.

This act [Chapter 22, Article 15E NMSA 1978] may be cited as the "Mathematics and Science Education Act".
History: Laws 2007, ch. 44, § 1; 2007, ch. 239, § 1.

### 22-15E-2. Definitions.

As used in the Mathematics and Science Education Act:
A.    "bureau" means the mathematics and science bureau;
B.    "chief" means the chief of the bureau; and
C.    "council" means the mathematics and science advisory council.

### 22-15E-3. Bureau created; duties.

History: Laws 2007, ch. 44, § 2; 2007, ch. 239, § 2.
A.    The "mathematics and science bureau" is created in the department.  The secretary shall appoint the chief as provided in the Public Education Department Act [9-24-1 NMSA 1978].
B.    The bureau shall:
   (1)    administer the provisions of the Mathematics and Science Education Act;
   (2)    provide staff support for and coordinate the activities of the council;
   (3)    work with the council to develop a statewide strategic plan for mathematics and science education in the public schools and coordinate education activities with other state agencies, the federal government, business consortia and public or private organizations or other persons;
   (4)    ensure that school districts' plans include goals for improving mathematics and science education aligned to the department's strategic plan;
   (5)    recommend funding mechanisms that support the improvement of mathematics and science education in the state, including web-based mathematics and science curricula, mentoring and web-based homework assistance;
   (6)    promote partnerships among public schools, higher education institutions, government, business and educational and community organizations to improve the mathematics and science education in the state;
   (7)    develop and evaluate curricula, instructional programs and professional development programs in mathematics and science aligned with state academic content and performance standards; and
   (8)    assess the outcomes of efforts to improve mathematics and science education using existing data.
  History: Laws 2007, ch. 44, § 3; 2007, ch. 239, § 3.

### 22-15E-4. Mathematics and science advisory council; created; members; terms; vacancies.

A.    The "mathematics and science advisory council" is created, composed of twelve members.  Members of the council shall be appointed by the secretary for staggered terms of four years; provided that for the initial appointments, four members shall be appointed for two years, four members shall be appointed for three years and four members shall be appointed for four years.  Members shall serve until their successors have been appointed and qualified.  A vacancy shall be filled by appointment by the secretary for the unexpired term.
B.    Using a statewide application process, the secretary shall appoint members from throughout the state so as to ensure representation of the state's demographics, including geographic distribution, gender and ethnic diversity and as follows:
   (1)    four members from public schools, including at least two mathematics and science teachers and a school district administrator with experience in mathematics and science curricula;
   (2)    three members from public post-secondary educational institutions with expertise in mathematics or science education;
   (3)    four members from the private sector, including the national laboratories, museums and science- and engineering-based businesses; and

(4)    one member who represents the New Mexico partnership for mathematics and science education.
C.    Members of the council shall elect a chair from among the membership.  The council shall meet at the call of the chair not less than quarterly.  D.    Members of the council are entitled to receive per diem and mileage pursuant to the provisions of the Per Diem and Mileage Act [10-8-1 NMSA 1978] but shall receive no other compensation, perquisite or allowance.
History: Laws 2007, ch. 44, § 4; 2007, ch. 239, § 4

## 22-15E-5. Council duties.

The council shall:
A.    advise the bureau on implementation of the bureau's duties pursuant to the Mathematics and Science Education Act;
B.    make recommendations to the bureau and the department regarding the statewide strategic plan for improving mathematics and science education and advise on its implementation and incorporation into the department's five-year strategic plan for public elementary and secondary education in the state;
C.    advise the bureau, the department and the legislature regarding appropriations for mathematics and science education, administration, resources and services, including programs for public school students and staff;
D.    work with the bureau to determine the need for improvement in mathematics and science achievement of public school students and make recommendations to the department on how to meet these needs; and
E.    produce an annual report on public elementary and secondary mathematics and science student achievement to be submitted to the department, the governor and the legislature no later than November 30 of each year.
History: Laws 2007, ch. 44, § 5; 2007, ch. 239, § 5.

## 22-15E-6. Mathematics and science proficiency fund; created; purpose; annual reports.

A.    The "mathematics and science proficiency fund" is created as a non-reverting fund in the state treasury.  The fund consists of appropriations, gifts, grants, donations and income from investment of the fund.  Disbursements from the fund shall be made by warrant of the secretary of finance and administration pursuant to vouchers signed by the secretary of public education or the secretary's authorized representative.
B.    The fund shall be administered by the department, and money in the fund is appropriated to the department to provide awards to public schools, school districts, public post-secondary educational institutions and persons that implement innovative, research-based mathematics and science curricula and professional development programs.  The department shall promulgate rules for the application and award of money from the fund, including criteria to evaluate innovative, research-based mathematics and science programs and professional development programs.
C.    Each award recipient shall provide an annual report to the bureau that includes a detailed budget report, a description of the services provided and documented evidence of the stated outcomes of the program funded by the mathematics and science proficiency fund and that provides other information requested by the bureau
History: Laws 2007, ch. 44, § 6; 2007, ch. 239, § 6.

# Appendix B: Glossary and Acronyms

| | |
|---|---|
| AAUW | American Association of University Women |
| ACT | American College Testing |
| AIM4S³ | Achievement Inspired Mathematics for Scaffolding Student Success |
| AP | Advanced Placement |
| BSCS | Biological Sciences Curriculum Study |
| CCSS | Common Core State Standards |
| CNM | Central New Mexico Community College |
| ELA | English language arts |
| ELL | English language learner |
| EPSCoR | Experimental Program to Stimulate Competitive Research, a National Science Foundation funded grant |
| HED | New Mexico Higher Education Department |
| ISEC | Inquiry Science Education Consortium |
| LANL | Los Alamos National Laboratory |
| LANLF | Los Alamos National Laboratory Foundation |
| MC² | Mathematically Connected Communities |
| MDSE | MultiDimensional Science Education |
| MESA | Mathematics, Engineering, and Science Achievement, Inc. |
| MSAC | Math and Science Advisory Council |
| MSB | Math and Science Bureau of the Public Education Department |
| MSS | Making Sense of Science |
| MSSW | Making Sense of Student Work |
| NAEP | National Assessment of Educational Progress |
| NGSS | Next Generation Science Standards |
| NM | New Mexico |
| NM ISE Net | New Mexico Informal Science Education Network, a program of NM EPSCoR |
| NM-MSSA | New Mexico Measures of Student Success and Achievement |
| NMPED | New Mexico Public Education Department |
| NMAPA | New Mexico Alternate Performance Assessment |
| NMPMSE | New Mexico Partnership for Math and Science Education |
| NMSTA | New Mexico Science Teachers Association |
| NMSU | New Mexico State University |
| NSF | National Science Foundation |
| NWEA | Northwest Evaluation Association |
| PAEMST | Presidential Award for Excellence in Mathematics and Science Teaching |
| PARCC | Partnership for Assessment of Readiness for College and Career |
| PBL | Project-based learning |
| PD | Professional development |
| PL | Professional learning |
| PLC | Professional learning community |
| PSAT | PSAT is the Preliminary SAT/National Merit Scholarship Qualifying Test. The PSAT is a great primer for the SAT, and even the ACT. PSAT scores are used to identify National Merit Scholars and award merit scholarships. |
| SAT | Scholastics Aptitude Test |

| | |
|---|---|
| SBA | New Mexico Standards Based Assessments are provided for a number of content areas not assessed by the Transitional Assessment for Mathematics and English Language Arts This report refers to SBA science assessments only. |
| SRP | Science Readiness Partnership |
| SRS | Student Research Symposium |
| STARS | Student Teacher Accountability Reporting System (STARS) catalogs all approved courses and standard data set. |
| STEM | Science, technology, engineering, and mathematics |
| SY | School year |
| WNMU | Western New Mexico University |
| UNM | University of New Mexico |