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**LEGISLATIVE EDUCATION STUDY COMMITTEE**  
**BILL ANALYSIS**  
**54th Legislature, 1st Session, 2019**

<b>Bill Number</b>	<u>SB267</u>	<b>Sponsor</b>	<u>Papen</u>
<b>Tracking Number</b>	<u>.212431.1</u>	<b>Committee Referrals</b>	<u>SEC/SFC</u>
<b>Short Title</b>	<u>Science Early Education Pilot Project</u>		
<b>Analyst</b>	<u>Ochoa</u>	<b>Original Date</b>	<u>1/31/19</u>
		<b>Last Updated</b>	<u></u>

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**BILL SUMMARY**

Synopsis of Bill

Senate Bill 267 (SB267) would create a Science Early Education Fund for school districts and charter schools to implement hands-on, developmentally appropriate physics curriculum for grades sixth, seventh, and eighth.

**FISCAL IMPACT**

The bill appropriates \$750 thousand from the general fund to the Science Early Education Fund for expenditure in FY20 through FY25. Any unexpended or unencumbered balance remaining at the end of FY25 shall revert to the general fund. School districts and charter schools who apply for funding would be required to match the amount of funding they request to fund the pilot project. The Legislative Finance Committee (LFC) recommends \$3 million for STEM initiatives within the Public Education Department (PED), the executive recommendation is \$6 million.

**SUBSTANTIVE ISSUES**

SB267 would create a science early education pilot project to span a five-year period and include no fewer than 10 schools. School districts and charter schools who wish to participate would be required to provide sixth, seventh, and eighth grade students with hands-on, developmentally appropriate physics curriculum. The rationale of the program is that students' academic performance will be positively affected and the instruction may lead students to foment an interest in pursuing careers in science and mathematics. Schools who receive funding would be required to contract with an organization that provides professional development and materials for physics instruction tailored to grades six through eight.

**Accountability and Reporting.** The pilot project would be evaluated through a pre- and post-assessment that would measure students' academic performance, high school course selection, and students' postsecondary interest declarations as indicated in annual next-step plans required of all eighth through 12th grade students pursuant to Sections 22-13-1.1 NMSA 1978, Graduation Requirements. SB267 would require PED to establish reporting requirements for participating

schools. PED would be required to evaluate the results from the reported data and present the information to the governor and Legislature to determine whether physics should be a mandatory or elective course in grades six through eight.

**Assessment.** SB267 would require program progress to be measured through standardized assessments. The bill does not indicate if assessments will be selected by individual sites or through the department. PED analysis notes the statewide assessment for science is the New Mexico Standards Based Assessment which is only administered in grades four, seven, and eleven. The 2020 science assessment will be administered in grades five, eight, and eleven. The sponsor may wish to provide specific language regarding assessment to ensure the data used to evaluate the pilot project is standardized and indicative of the actual results of the program.

**New Mexico STEAM-Ready Science Standards.** PED analysis indicates SB267 is piloting physics education in middle school to determine whether the course be designated as mandatory or elective, however PED adopted the New Mexico STEM-Ready Science Standards (NMSRSS) in 2017 to incorporate the Next Generation Science Standards (NGSS). The department states NMSRSS already include physical science, as well as life, earth, and space science for all students in kindergarten through 12th grade. While SB267 would provide funds for specific content delivered to a specific subset of students over a designated amount of time, all students in New Mexico are required to receive instruction that is aligned to the current adopted standards.

## **ADMINISTRATIVE IMPLICATIONS**

PED would be required to administer the science early education pilot project including selection of participants and disbursement of funds. PED analysis indicates funds are not allocated to the department for administration of the pilot project, however LFC analysis states nothing precludes the department from using the funds appropriated in SB267 for administrative purposes.

## **OTHER SIGNIFICANT ISSUES**

**Transition to New Standards.** According to Achieve, an independent, nonpartisan, nonprofit education reform organization, successful implementation of NGSS would require four core factors to be in place: educator support, informed stakeholders, high-quality instructional materials, and an effective assessment system. The changes required by the vision of the NGSS are significant enough that even the most veteran educators and school leaders will require support throughout the transition to the new standards. State education agencies should coordinate with school districts to ensure there is an aligned learning plan across the state. Professional development content must ensure teachers and school leaders understand scientific practices, disciplinary core ideas, and crosscutting concepts. School staff should also have a solid understanding of the larger scope of science instruction, including pedagogy and ensuring access and equity for all students. Because of the nature of NGSS, students are no longer “learning science”, they are “scientists”. NGSS supports project-based learning that is hands-on and driven by students. This means school staff must be exposed to actual lessons modeled with real students and work examples. Ensuring these components are in place will increase chances of teachers feeling prepared to authentically engage students in NGSS.

To address implementation of new standards, the Legislature increased appropriations for PED’s STEM initiatives. PED received \$3 million in recurring general fund revenues for their STEM initiatives, an increase of \$1.1 million compared with the FY18 appropriation of \$1.9 million. Additionally, the Legislature appropriated \$500 thousand in nonrecurring general fund revenue to

PED specifically for implementation of the new standards. Generally, these dollars fund educator professional development and were intended to ensure teachers were prepared to begin teaching the new standards during the 2018-2019 school year.

Effective implementation of NGSS requires quality instructional materials that support phenomena-driven, three-dimensional learning, as well as the other innovations of NGSS. State education agencies and school districts should develop a strategy for obtaining instructional materials that are designed for NGSS and ensure existing materials can be used during the transition to the new standards. The strategy should include plans for what will happen during the transition time; how materials will be vetted; how materials will make it to the classroom in a timely manner; and how educators will be trained to use them properly during their instruction. To ensure consistency in the quality of instructional materials across the state, Achieve recommends that STEM instructional materials should be reviewed by a committee and examined against specific criteria. The committee should agree on a set of criteria that will be used to vet all the materials, and all members of the committee should be trained and calibrated on how to use these criteria. Finally, existing materials should be audited to verify NGSS alignment.

**Professional Development.** PED held a STEM symposium during the summers of 2017 and 2018 covering a variety of topics related to pedagogy, sample lessons, implementation, content integration, and assessment. PED also offers webinars about planning instruction around phenomena, NMSRSS innovations, and exploring three-dimensionality. PED expects that all classrooms are in full implementation of NMSRSS during the 2018-2019 school year although it is unclear if all New Mexico science teachers have had access to comprehensive professional development. To supplement this work and assist during the transition, the New Mexico Science Teachers Association (NMSTA) has conducted workshops across the state to prepare teachers for this shift in science instruction. NMSTA has trained over 200 teachers. The association's recommendation for quality science professional development includes a full two-day, hands-on workshop for teachers and administrators.

## **ALTERNATIVES**

Because physics standards are already required to be taught at the middle school level, the sponsor may wish to add this appropriation as a non-recurring support for professional development to supplement the STEM initiative line item.

## **RELATED BILLS**

HB114 NM Tech Supercomputing Challenge Program

## **SOURCES OF INFORMATION**

- LESC Files
- Legislative Finance Committee (LFC)
- Public Education Department (PED)

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