VITAL SIGNS

NORTH DAKOTA

Business leaders in North Dakota cannot find the science, technology, engineering and mathematics (STEM) talent they need to stay competitive. Students' lagging performance in K-12 is a critical reason why. The good news is that the nation's most effective STEM education programs can help turn the tide.

North Dakota's students have made some progress in math over the past decade, yet not enough have the chance to learn challenging content to prepare them for college and careers. In contrast to most other states, North Dakota has also witnessed a decline in the numbers of computing degrees and certificates awarded in the state over the past 14 years.

NORTH DAKOTA NEEDS MORE STEM TALENT

STEM fields are growing in North Dakota

Between 2017 and 2027:

STEM jobs will grow

5%

Non-STEM jobs will grow

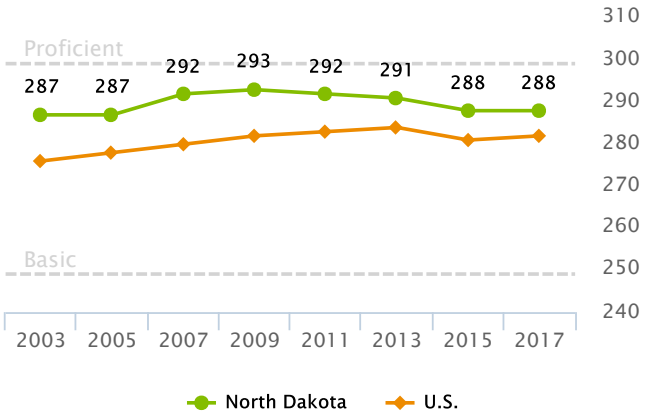
4%

THE NORTH DAKOTA STEM SKILLS SHORTAGE STARTS EARLY

Progress in math has faltered

In eighth-grade, scores have fallen back to 2003 levels.

Trends in 8th grade math scores, 2003-2017

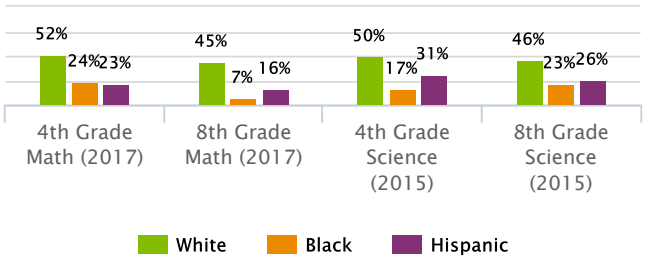


SOURCE: U.S. Department of Education, 2003–2017

Students of color lag farthest behind

Closing achievement gaps must remain a priority.

Percentage of North Dakota students at or above proficient, by race/ethnicity



SOURCE: U.S. Department of Education, 2015–2017

*Data not available or reporting requirements not met.

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For the complete state report, methodology, and sources, see vitalsigns.ecs.org (vitalsigns.ecs.org)

NORTH DAKOTA

VITAL SIGNS

The state must plug the gaps in the STEM pipeline

The North Dakota STEM pipeline loses young people at every level of the education system. Some fail to graduate from high school and many do not finish college, which narrows the pipeline of students who can gain advanced STEM skills. Of those students who do graduate, just under a third get a post-secondary degree in STEM.

What percentage of high school students graduate? (2014-2015)

87.5% — North Dakota

84.1% — United States

Of high school graduates who enter a 4-year degree program, what percentage graduate? (2012-2013)

63.7% — North Dakota

62.4% — United States

Of high school graduates who enter a 2-year associate's degrees program, what percentage graduate? (2012-2013)

What percentage of certificates and degrees is in STEM fields? (2014-2015)

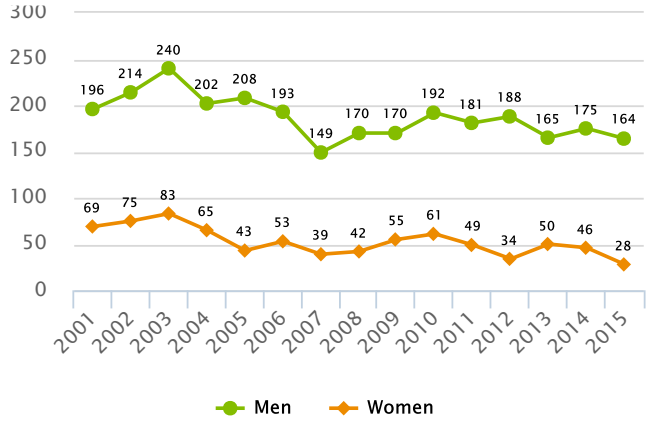
TAP NORTH DAKOTA'S FEMALE AND MINORITY TALENT

Together, females and minorities make up more than half of North Dakota's population, yet they are much less likely to earn STEM degrees or become STEM professionals. Closing these gaps can pay big dividends in the state.

Women have lost ground in computing

The available talent in computer science would rise dramatically if the state simply closed the gender gap in these subjects.

Number of computing degrees/certificates in North Dakota

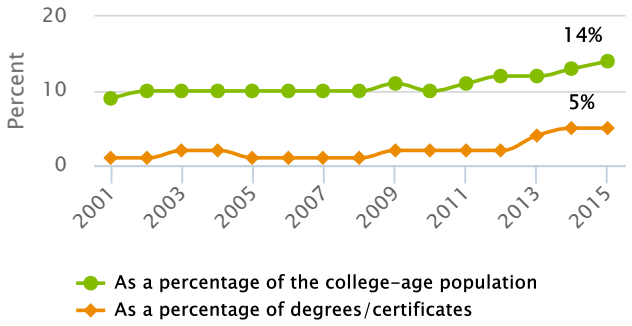


SOURCE: U.S. Department of Education, 2001–2015

People of color are not gaining ground in engineering degrees

It is critical to prepare and inspire many more students of color to pursue STEM subjects such as computer science and engineering.

Underrepresented minorities in North Dakota earning engineering degrees/certificates



SOURCE: U.S. Department of Education, 2001–2015

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NORTH DAKOTA

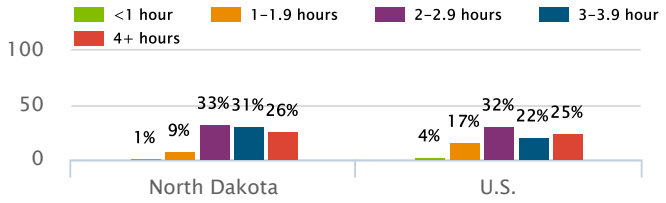
VITAL SIGNS

GIVE NORTH DAKOTA STUDENTS ACCESS TO BETTER STEM LEARNING OPPORTUNITIES

Lack of access to such opportunities severely limits young people's college and career prospects.

The state should make time for elementary science

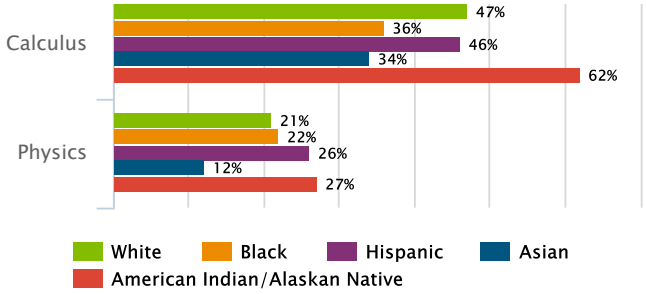
Hours per week spent on science, grades 1-4, 2015



The state should improve access to advanced courses

Many students lack access to such courses.

Students in North Dakota high schools that do not offer challenging math and science courses, 2013/14



Success in Advanced Placement courses can put more students on a path to STEM careers.

Of the high school graduating class of 2015 in North Dakota:

	Took AP Math Exam	Scored 3+ on AP Math Exam
All Students	5%	4%
White	5%	4%
Black	2%	1%
Hispanic	0%	0%
Asian	17%	14%
American Indian/Alaskan Native	1%	0%

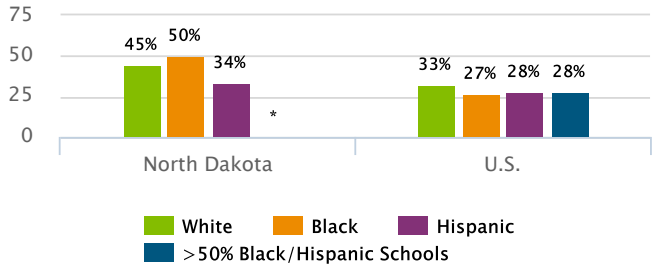
EDUCATION COMMISSION OF THE STATES

DEVELOP AND RETAIN TALENTED STEM TEACHERS IN NORTH DAKOTA

Research shows that teachers' content knowledge and teaching experience can affect student performance

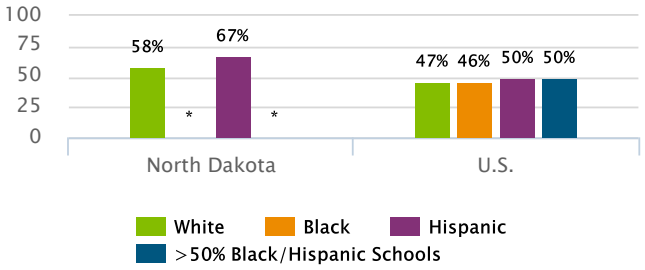
Boost teachers' content knowledge

Eighth-graders whose math teachers have an undergraduate major in math, 2017



SOURCE: U.S. Department of Education 2017

Eighth-graders whose science teachers have an undergraduate major in science, 2015

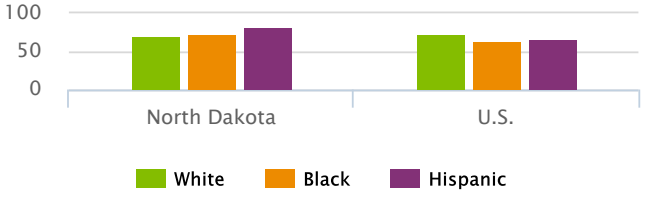


SOURCE: U.S. Department of Education 2015

Retain excellent teachers

Minority and low-income students are most likely to have inexperienced teachers

Eighth-graders whose math teachers have 6+ years of experience teaching their subject



SOURCE: U.S. Department of Education 2017

*Data not available or reporting requirements not met.

NORTH DAKOTA

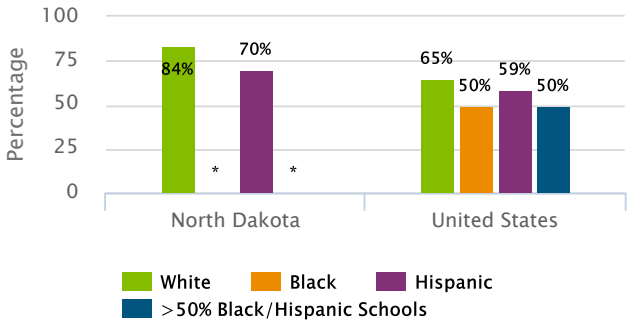
VITAL SIGNS

GIVE SCHOOLS AND TEACHERS THE RESOURCES THEY NEED

North Dakota stands out for providing teachers and students with the teaching materials and facilities they need to succeed, but the state has far to go in providing universal access to materials and equipment for science labs.

Some teachers lack the tools of their trade

Eighth-graders whose science teachers say they have all or most of the resources they need, 2015

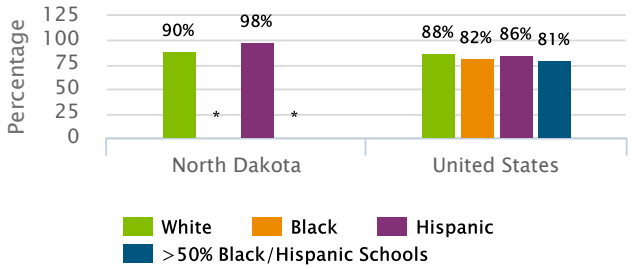


SOURCE: U.S. Department of Education, 2015

*Data not available or reporting requirements not met.

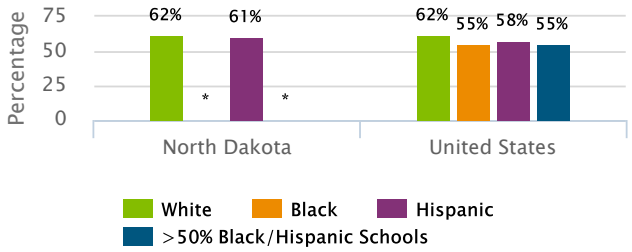
The state should maintain access to science facilities and supplies

Eighth-graders whose schools have science labs, 2015



SOURCE: U.S. Department of Education, 2015

Eighth-graders whose schools report that supplies or materials for science labs are available "to a large extent," 2015



SOURCE: U.S. Department of Education, 2015

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