VITAL SIGNS

WEST VIRGINIA

Business leaders in West Virginia 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.

West Virginia students have made scant progress in math over the past decade, and too many lack opportunities to learn challenging content to prepare them for college and careers. For example, students spend little time on elementary science, though eighth graders are more likely than their peers in other states to conduct hands-on investigations.

WEST VIRGINIA NEEDS MORE STEM TALENT

STEM fields are growing in West Virginia

Between 2017 and 2027:

STEM jobs will grow

8%

Non-STEM jobs will grow

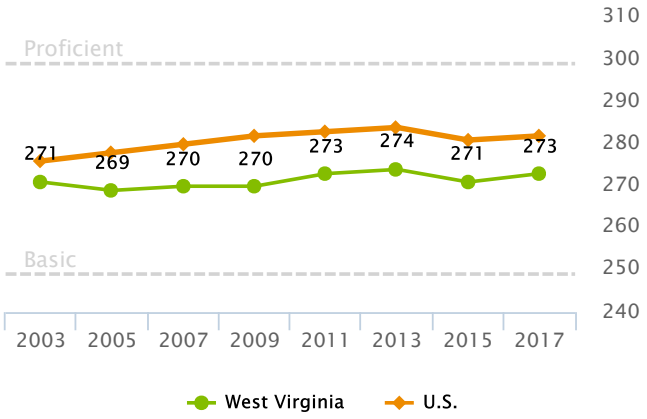
3%

THE WEST VIRGINIA STEM SKILLS SHORTAGE STARTS EARLY

Progress in math has faltered

Eighth-grade scores have fallen back to 2003 levels.

Trends in 8th grade math scores, 2003-2017

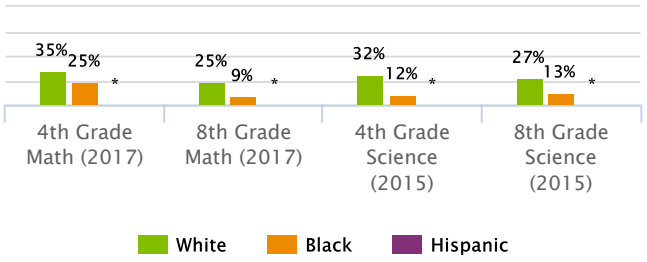


SOURCE: U.S. Department of Education, 2003–2017

Students of color lag farthest behind

Closing achievement gaps must remain a priority.

Percentage of West Virginia students at or above proficient, by race/ethnicity



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

*Data not available or reporting requirements not met.

EDUCATION COMMISSION OF THE STATES

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

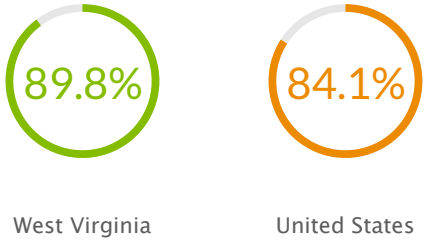
WEST VIRGINIA

VITAL SIGNS

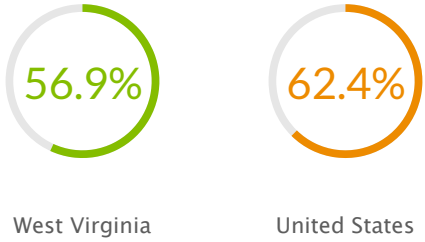
The state must plug the gaps in the STEM pipeline

The West Virginia 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. The two-year college graduation rate is particularly low. Of those students who do graduate, few get a post-secondary degree in STEM.

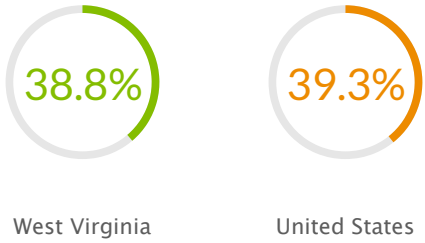
What percentage of high school students graduate? (2014-2015)



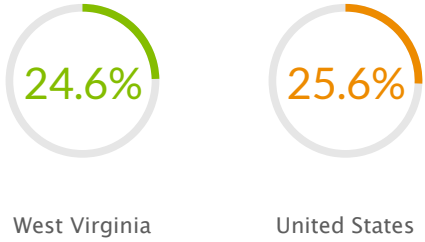
Of high school graduates who enter a 4-year degree program, what percentage graduate? (2012-2013)



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)



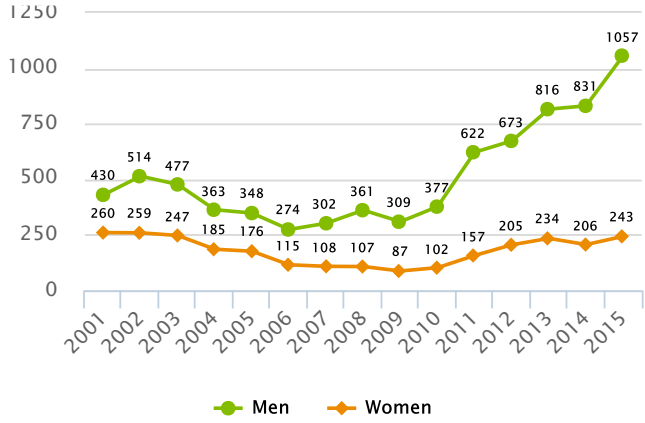
TAP WEST VIRGINIA'S FEMALE AND MINORITY TALENT

Together, females and minorities make up more than half of West Virginia'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 West Virginia

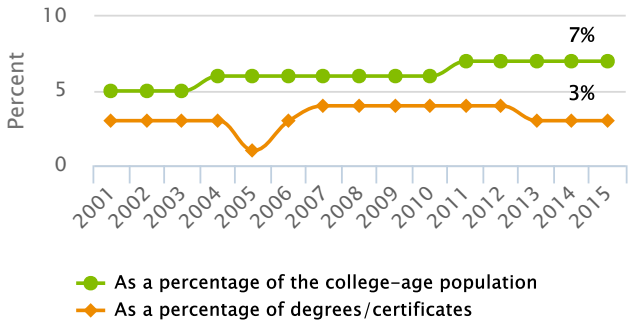


SOURCE: U.S. Department of Education, 2001–2015

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 West Virginia earning engineering degrees/certificates



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

*Data not available or reporting requirements not met.

EDUCATION COMMISSION OF THE STATES

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

WEST VIRGINIA

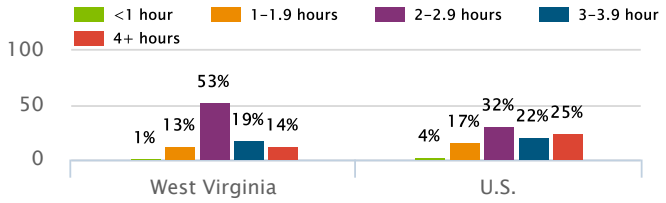
VITAL SIGNS

GIVE WEST VIRGINIA 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

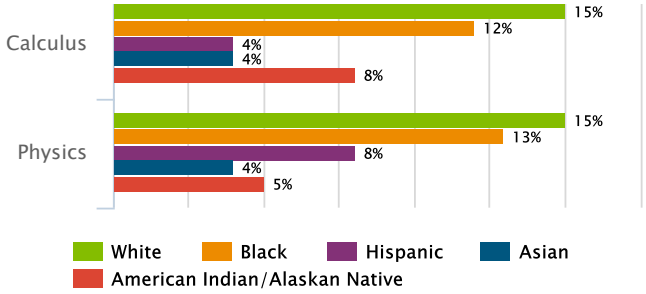
Hours per week spent on science, grades 1-4, 2015



The state should improve access to advanced courses

Many students lack access to such courses.

Students in West Virginia 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 West Virginia:

	Took AP Math Exam	Scored 3+ on AP Math Exam
All Students	6%	3%
White	6%	2%
Black	2%	1%
Hispanic	7%	3%
Asian	30%	22%
American Indian/Alaskan Native	14%	14%

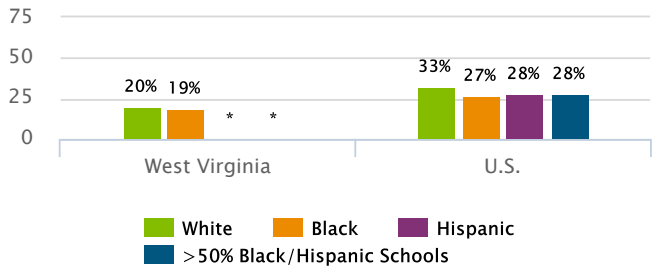
EDUCATION COMMISSION OF THE STATES

DEVELOP AND RETAIN TALENTED STEM TEACHERS IN WEST VIRGINIA

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

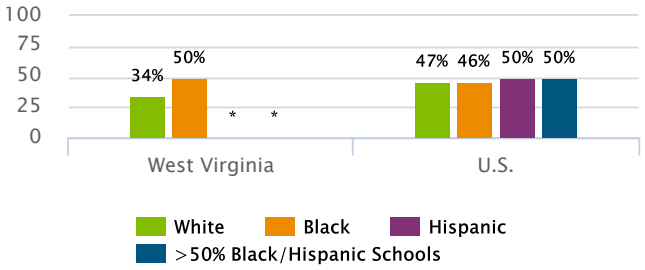
Boost teachers' content knowledge

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

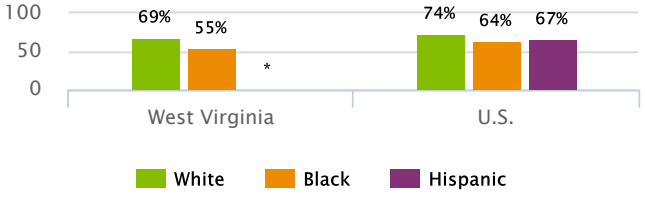


SOURCE: U.S. Department of Education 2015

Retain excellent teachers

Research shows that new teachers are less effective than teachers with three to five years of experience.

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.

WEST VIRGINIA

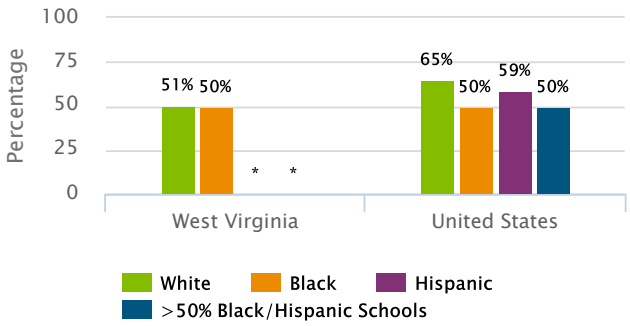
VITAL SIGNS

GIVE WEST VIRGINIA SCHOOLS AND TEACHERS THE RESOURCES THEY NEED

Teachers in West Virginia need better resources, facilities and teaching materials to succeed.

Too many teachers lack the tools of their trade

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

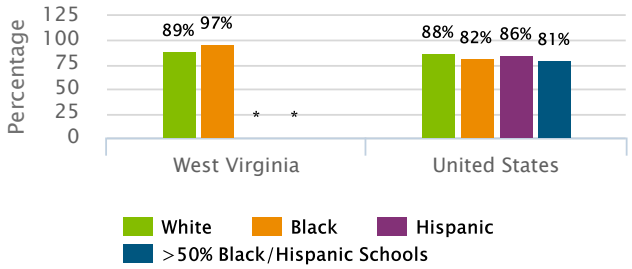


SOURCE: U.S. Department of Education, 2015

*Data not available or reporting requirements not met.

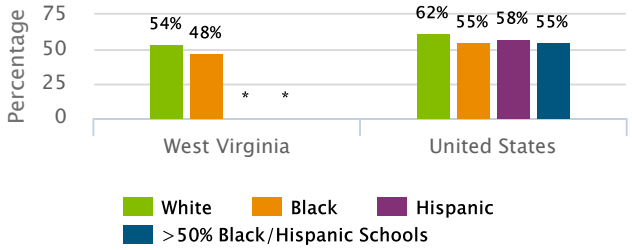
The state should improve access to science resources

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

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

Education Commission of the States serves as a partner to state policymakers by providing personalized support and helping education leaders come together and learn from one another. Through our programs and services, policymakers gain the insight and experience needed to create effective education policy.

EDUCATION COMMISSION OF THE STATES

Education Commission of the States, 700 Broadway, Suite 810, Denver, CO 80203, 303.299.3600