

# VITAL SIGNS

# D.C.

**B**usiness leaders in the District of Columbia 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.

While it posts some of the lowest average achievement scores in the nation, the District's students also have made some of the largest gains in the past decade. Yet not enough students--least of all minorities--get the chance to learn challenging content that prepares them for college and careers, and science teachers say they don't have the resources they need to succeed.

## DISTRICT OF COLUMBIA NEEDS MORE STEM TALENT

### STEM fields are growing in District of Columbia

Between 2017 and 2027:

**STEM jobs will grow**

**Non-STEM jobs will grow**

**5%**

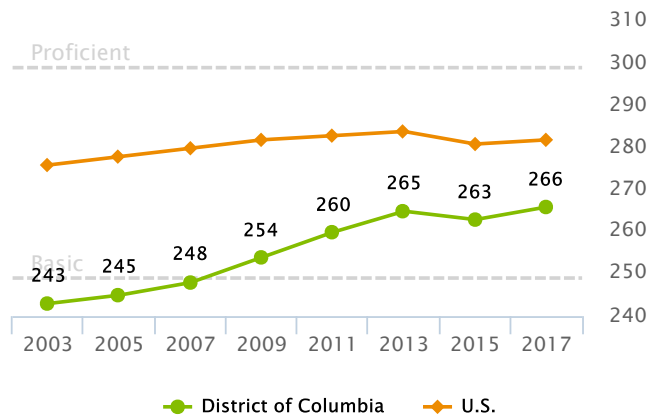
**4%**

## THE DC STEM SKILLS SHORTAGE STARTS EARLY

### DC has made progress in math

After surging for years, however, eighth-graders stalled after 2013.

Trends in 8th grade math scores, 2003-2017

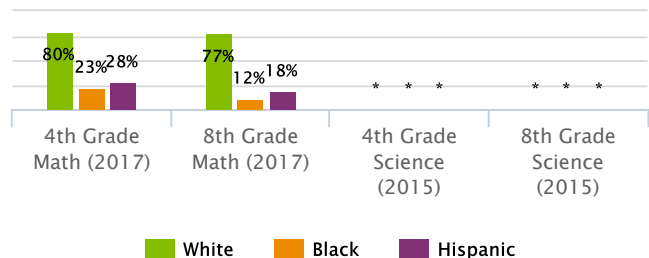


SOURCE: U.S. Department of Education, 2003-2017

### Students of color lag farthest behind

Closing achievement gaps must remain a priority.

Percentage of District of Columbia students at or above proficient, by race/ethnicity



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

\*Data not available or reporting requirements not met.

For the complete state report, methodology, and sources, see [vitalsigns.ecs.org](http://vitalsigns.ecs.org) ([vitalsigns.ecs.org](http://vitalsigns.ecs.org))

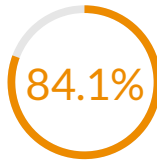
### DC must plug the gaps in the STEM pipeline

The District of Columbia STEM pipeline loses young people at every level of the education system. Low graduation rates from high school and college narrow the pipeline of students who can gain advanced STEM skills. Of those students who do graduate, few get a post-secondary degree in ST

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



District of Columbia

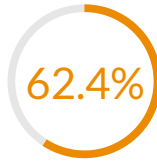


United States

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



District of Columbia

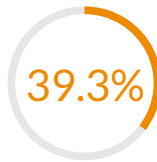


United States

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

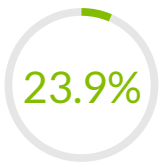


District of Columbia

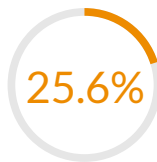


United States

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



District of Columbia



United States

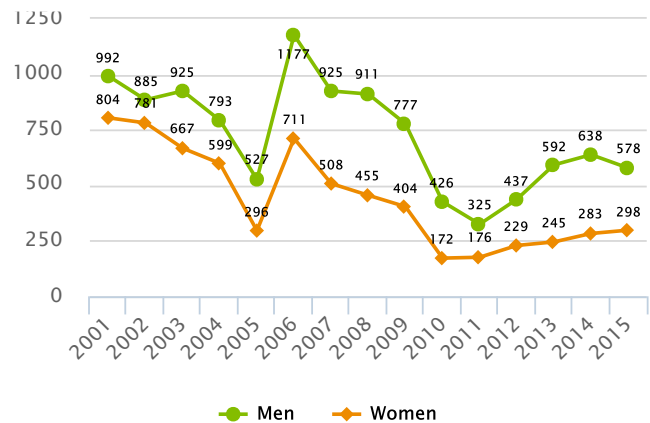
### TAP DC'S FEMALE AND MINORITY TALENT

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

#### Women have lost ground in computing

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

Number of computing degrees/certificates in DC

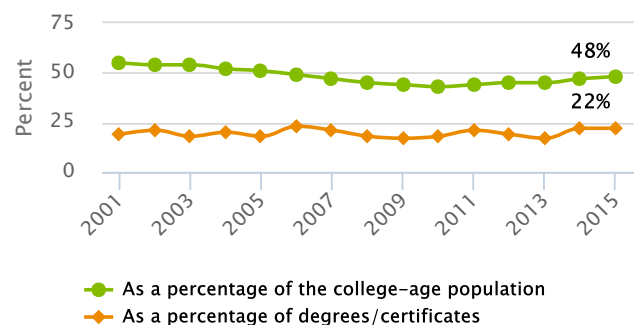


SOURCE: U.S. Department of Education, 2001-2015

#### 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 DC earning engineering degrees/certificates



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

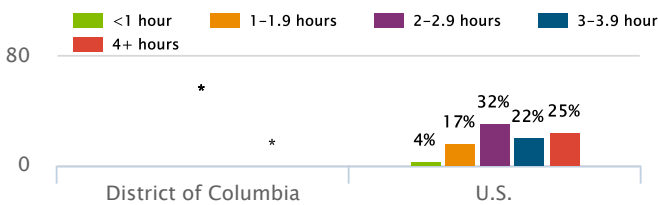
\*Data not available or reporting requirements not met.

### GIVE DISTRICT OF COLUMBIA STUDENTS ACCESS TO BETTER STEM LEARNING OPPORTUNITIES

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

#### The District should make time for elementary science

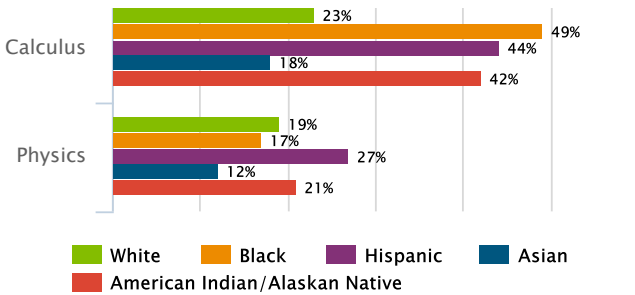
Hours per week spent on science, grades 1-4, 2015



#### DC should improve access to advanced courses

Many students lack access to such courses.

Students in DC 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 District of Columbia:

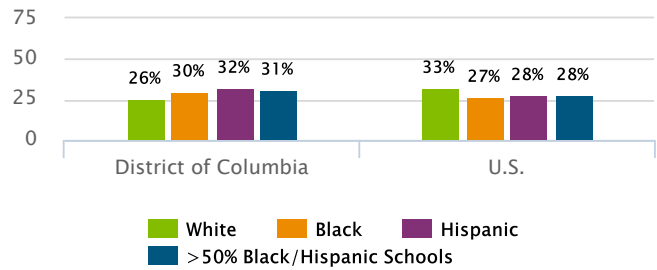
	Took AP Math Exam	Scored 3+ on AP Math Exam
All Students	20%	4%
White	55%	30%
Black	13%	1%
Hispanic	33%	4%
Asian	61%	9%
American Indian/Alaskan Native	%	%

### DEVELOP AND RETAIN TALENTED STEM TEACHERS IN DC

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

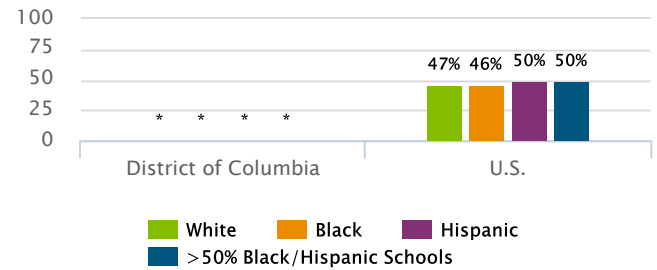
#### Boost teachers' content knowledge

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

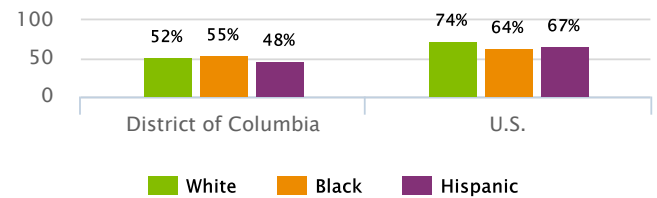


SOURCE: U.S. Department of Education 2015

#### Retain excellent teachers

DC students are less likely than their peers nationally to have experienced teachers

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



SOURCE: U.S. Department of Education 2017

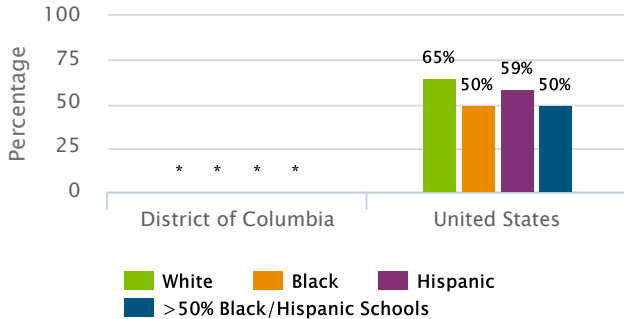
\*Data not available or reporting requirements not met.

### GIVE DC SCHOOLS AND TEACHERS THE RESOURCES THEY NEED

Teachers in the District of Columbia 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

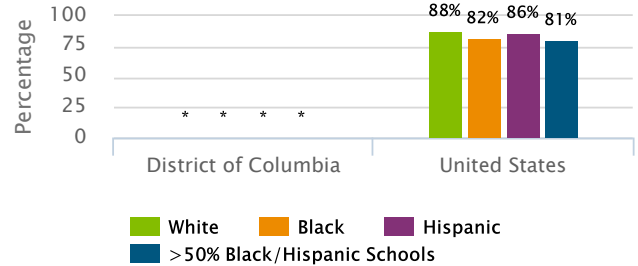


SOURCE: U.S. Department of Education, 2015

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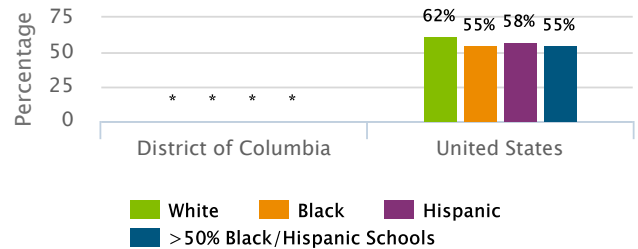
### DC should improve access to science facilities and supplies

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

For the complete state report, methodology, and sources, see [vitalsigns.ecs.org](http://vitalsigns.ecs.org) ([vitalsigns.ecs.org](http://vitalsigns.ecs.org))

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