NEW RELEASE FOR 2018

U.S. Department of Education
Office for Civil Rights

2015–16 CIVIL RIGHTS DATA COLLECTION

STEM COURSE TAKING

DATA HIGHLIGHTS ON SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS COURSE TAKING IN OUR NATION'S PUBLIC SCHOOLS

What's the 2015–16 Civil Rights Data Collection?

The 2015–16 Civil Rights Data Collection (CRDC) is a survey of all public schools and school districts in the United States. The CRDC measures student access to courses, programs, staff, and resources that impact education equity and opportunity for students. The CRDC has long provided critical information used by the Department of Education's Office for Civil Rights in its enforcement and monitoring activities.

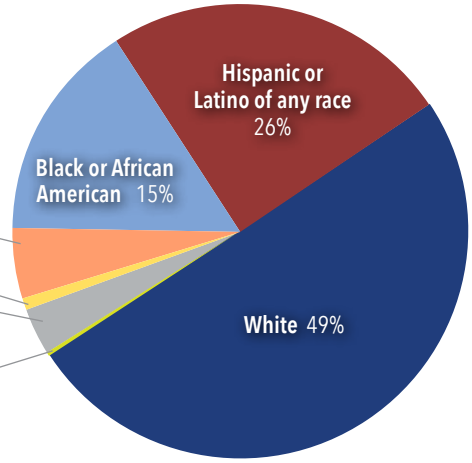
In addition, the CRDC is a valuable resource for other federal agencies, policymakers, researchers, educators, school officials, parents, students, and other members of the public who seek data on student equity and opportunity. To further explore the CRDC data through the use of data tools, please visit the CRDC Reporting Website at *ocrdata.ed.gov*. To download the CRDC data, visit *crdc.ed.gov*.

Who's in the 2015–16 CRDC?

Number of school districts: 17,337
Number of schools: 96,360
Total number of students: 50.6 Million

Nationwide Student Demographics:

Race/Ethnicity:[1]



Boys: 51% **Girls:** 49%

English Learners: 10%

Students with Disabilities: 14%

- Students with disabilities served under the Individuals with Disabilities Education Act (IDEA): 12%
- Students with disabilities served only under Section 504 of the Rehabilitation Act, as amended: 2%

SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

WHAT'S INSIDE

Middle School Mathematics Courses 3
High School Mathematics Courses 5
High School Science Courses 5
Data Highlights and CRDC Endnotes 11
More About the CRDC 12

Data Collected for the First Time

Algebra I classes in grades 7-8 and 9-12 2
Students enrolled in Algebra I in grades 7-8 2
Geometry classes in grades 9-12 5
Students enrolled in Geometry in grades 9-12 6

SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS COURSE TAKING†

The CRDC collects information regarding science, technology, engineering, and mathematics (STEM) courses that are available to students. The data include course enrollment and course availability for some middle school and high school courses.[2] Middle school courses include Algebra I and Geometry. High school courses include Algebra I and Geometry, as well as Algebra II, advanced mathematics,[3] Calculus, Biology, Chemistry, and Physics. The CRDC also collects student passing data on Algebra I in middle school and high school.

Several of these data elements were new for the 2015–16 CRDC, including:

- Number of Algebra I classes in Grades 7-8
- Number of Algebra I classes in Grades 9-12
- Number of students enrolled in Algebra I in Grade 7
- Number of students enrolled in Algebra I in Grade 8*
- Number of students who passed Algebra I in Grade 7
- Number of students who passed Algebra I in Grade 8*
- Number of students enrolled in Geometry in Grade 8
- Number of Geometry classes in Grades 9-12
- Number of students enrolled in Geometry in Grades 9-12*

*Data are disaggregated by race, sex, disability (IDEA),[4] and English learners.[5]

Foundation of STEM Success

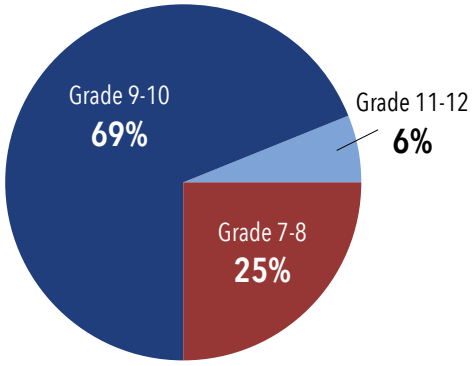
Algebra is often referred to as a "gatekeeper course" because it is generally considered a prerequisite for higher-level mathematics courses. Early passage of this foundational mathematics course helps prepare students for subsequent STEM coursework.

For the 2015–16 school year, the CRDC collected data indicating that nearly 30,000 public schools in the United States served students who were enrolled in either Grade 7 or Grade 8. Of the schools with Grade 7 students enrolled, approximately 21 percent offered Algebra I classes. Of the schools with Grade 8 students enrolled, approximately 58 percent offered Algebra I.

OVERALL STUDENT ENROLLMENT IN ALGEBRA I

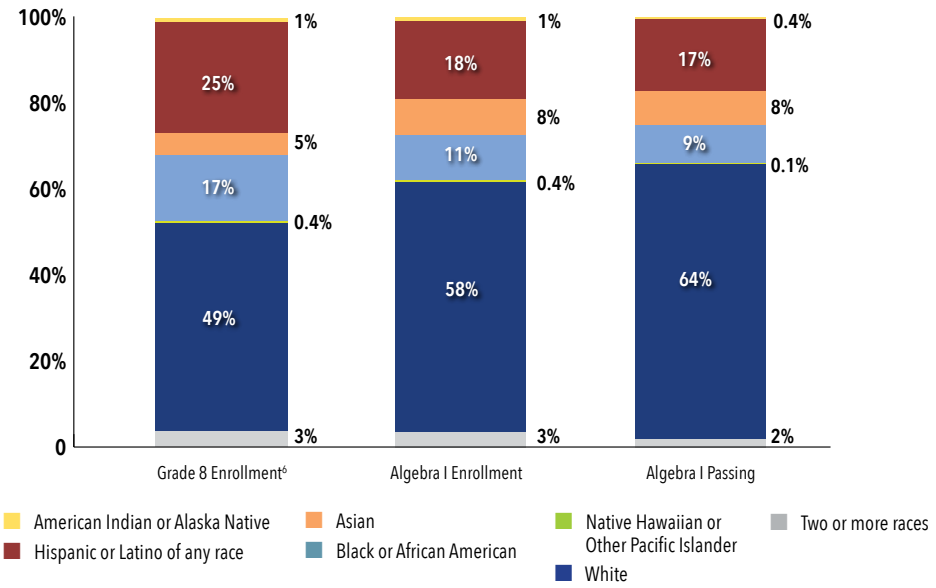
Across all grades, approximately 4.4 million students were enrolled in Algebra I during the 2015–16 school year. **Figure 1** displays the percentage distribution of all students enrolled in Algebra I, by grade span. The data show that 69 percent of students who were enrolled in Algebra I were in Grades 9 or 10. Six percent of students who were enrolled in Algebra I were in Grades 11 or 12, and about 25 percent were in Grades 7 or 8.

FIGURE 1: Percentage distribution of students enrolled in Algebra I, by grade span



SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

FIGURE 2: Percentage distribution of Grade 8 students enrolled in and passing Algebra I, by race



NOTE: Data may not add up to 100 percent due to rounding.
SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

GRADE 8 ALGEBRA I ENROLLMENT AND PASSING RATES BY RACE

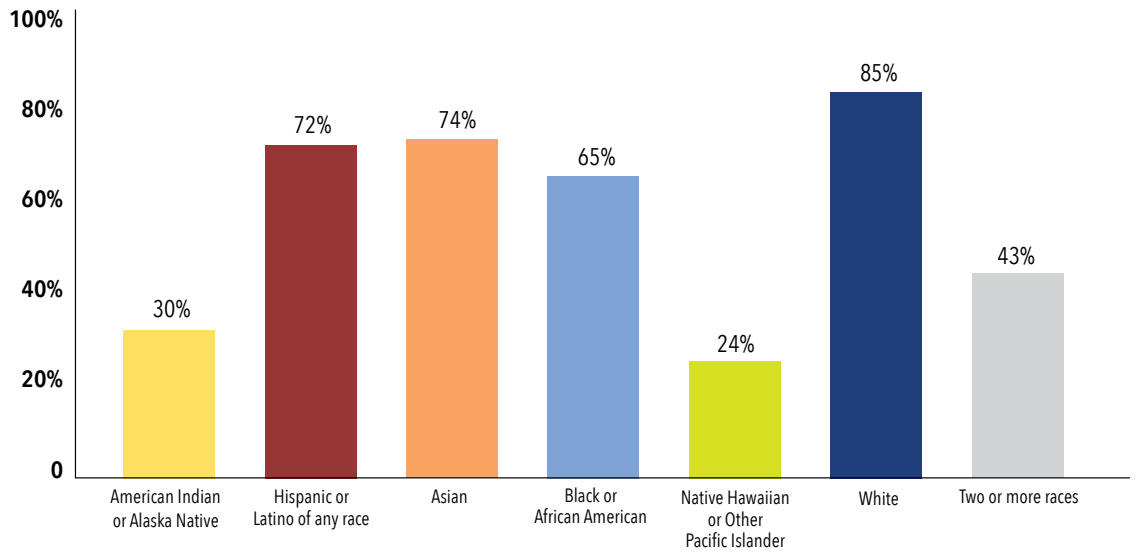
Figure 2 presents the percentage distribution of Grade 8 students enrolled in and passing Algebra I, by race. White students constituted 49 percent of the 14.6 million students in schools that offered Algebra I in Grade 8, and 58 percent of the students enrolled in Algebra I in Grade 8. Asian students comprised 5 percent of the students enrolled in schools that offered Algebra I in Grade 8, and 8 percent of those students enrolled in Algebra I in Grade 8.

Black students constituted 17 percent of the students in schools that offered Algebra I in Grade 8, and 11 percent of the students enrolled in Algebra I in Grade 8. Latino students comprised 25 percent of the students in schools that offered Algebra I in Grade 8, and 18 percent of the students enrolled in Algebra I in Grade 8.

American Indian or Alaska Native students (1 percent), Native Hawaiian or Other Pacific Islander students (0.4 percent), and students of two or more races (3 percent) were enrolled in Algebra I in Grade 8 at a rate comparable to their student enrollment at schools that offered Algebra I in Grade 8.

Passing Algebra I indicates a student successfully completed the course and received full credit. Of the total population of students who passed Algebra I in Grade 8, 64 percent were white, 17 percent were Latino, 9 percent were black, and 8 percent were Asian.[7] American Indian or Alaska Native students accounted for 0.4 percent of students who passed Algebra I in Grade 8. Native Hawaiian or Other Pacific Islander students accounted for 0.1 percent of students who passed Algebra I in Grade 8. Students of two or more races accounted for 2 percent of students who passed Algebra I in Grade 8.

FIGURE 3: Passing rates for students enrolled in Grade 8 Algebra I, by race



SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

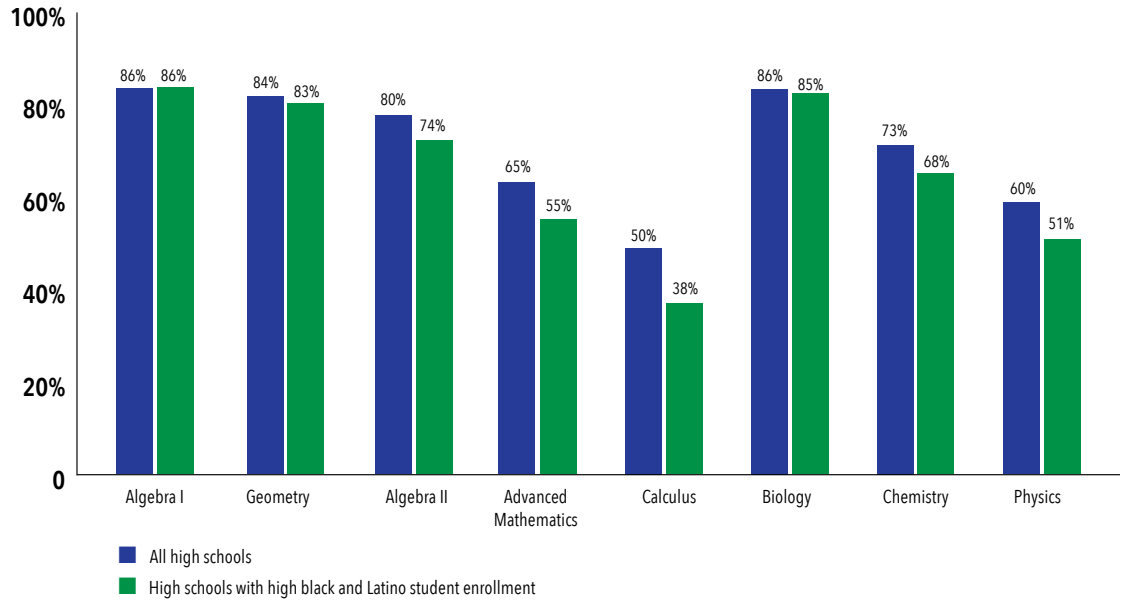
Figure 3 shows the passing rates for students enrolled in Grade 8 Algebra I, by race. Of white students and Asian students who were enrolled in Algebra I in Grade 8, 85 percent of white students and 74 percent of Asian students passed the course. Of Latino students and black students enrolled in Algebra I in Grade 8, 72 percent of Latino students and 65 percent of black students passed the course.

These groups had passing rates below 50 percent: students of two or more races (43 percent), American Indian or Alaska Native students (30 percent), and Native Hawaiian or Other Pacific Islander students (24 percent).

High School Mathematics and Science Courses

The CRDC data show that for the 2015–16 school year, there were approximately 16.7 million students enrolled in 26,300 public high schools. The CRDC collects data on several mathematics and science preparatory courses typically offered in high schools. The mathematics courses include Algebra I, Geometry, Algebra II, advanced mathematics, and Calculus. The science courses include Biology, Chemistry, and Physics. The data indicate that most – but not all – of the nation's public high schools offered these mathematics and science preparatory courses during the 2015–16 school year.

FIGURE 4: Percentage of high schools offering mathematics and science courses



SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

STEM COURSE AVAILABILITY IN HIGH SCHOOLS

Figure 4 displays the percentage of high schools offering mathematics and science courses. The data show that 86 percent of high schools offered Algebra I, 84 percent offered Geometry, and 80 percent offered Algebra II. Advanced mathematics and Calculus were offered at fewer schools: 65 percent and 50 percent, respectively. For science courses, 86 percent of the nation's high schools offered Biology and 73 percent offered Chemistry. However, just 60 percent of high schools offered Physics courses.

Figure 4 further indicates the approximately 5,000 high schools with high black and Latino enrollment (i.e. schools with more than 75 percent black and Latino student enrollment) offered mathematics and science courses at a lower rate than the overall population of all high schools.[8] This difference is greatest with respect to advanced mathematics, Calculus, and Physics.

FIGURE 5: Number of students enrolled in high school mathematics and science courses

	Student Enrollment
High School Enrollment	16,700,000
Algebra I	3,270,000
Geometry	3,393,000
Algebra II	2,946,000
Advanced Mathematics	2,205,000
Calculus	692,600
Biology	4,469,000
Chemistry	2,915,000
Physics	1,597,000

SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

FIGURE 6: Percentage distribution of students enrolled in high school mathematics and science courses, by sex

	Male Enrollment	Female Enrollment
High School Enrollment	51%	49%
Algebra I	53%	47%
Geometry	51%	49%
Algebra II	49%	51%
Advanced Mathematics	48%	52%
Calculus	50%	50%
Biology	50%	50%
Chemistry	48%	52%
Physics	54%	46%

SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

OVERALL STUDENT ENROLLMENT IN HIGH SCHOOL STEM COURSES

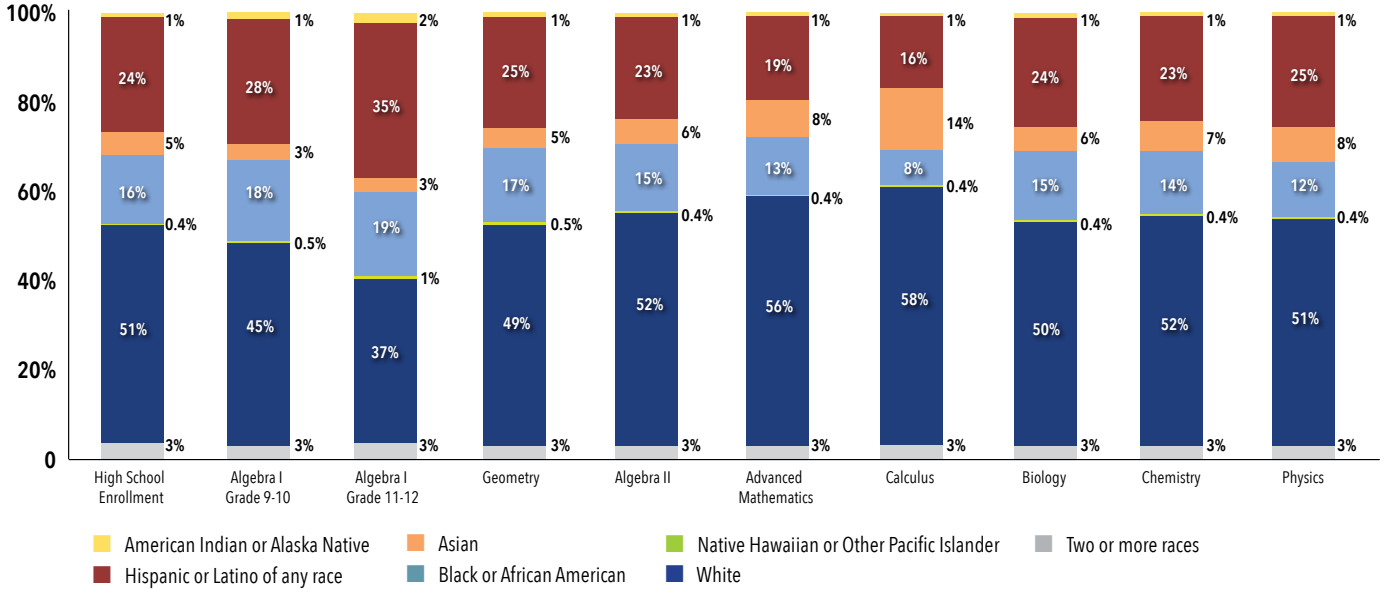
Figure 5 shows the number of students enrolled in high school mathematics and science courses. During the 2015–16 school year, there were over 16.7 million students enrolled in high schools. Approximately 12.5 million of those students – nearly 75 percent of the total high school student population – were enrolled in Algebra I, Geometry, Algebra II, advanced mathematics, and/or Calculus. Nearly 9.0 million of the 16.7 million total student population – or about 54 percent of the total high school population – were enrolled in Biology, Chemistry, and/or Physics.

HIGH SCHOOL STEM ENROLLMENT BY SEX

Enrollment in mathematics and sciences courses approached parity for male and female students. **Figure 6** presents the percentage distribution of students enrolled in high school mathematics and science courses, by sex. Female students comprised 49 percent of the high school student enrollment. Enrollment rates of female students in Algebra II (51 percent), advanced mathematics (52 percent), Calculus (50 percent), Biology (50 percent), and Chemistry (52 percent) exceeded their high school student enrollment rate. The enrollment rate of female students in Geometry (49 percent) matched their high school enrollment rate. The enrollment rates of female students in Algebra I (47 percent) and Physics (46 percent) were within 2 percentage points and 3 percentage points, respectively, of their overall high school enrollment rate.

Male students represented 51 percent of the overall high school student enrollment. Their enrollment rates in every course, except advanced mathematics and Chemistry, were within 2 percentage points of their overall student enrollment rate, and for advanced mathematics and Chemistry, the enrollment rates were within 3 percentage points of their overall student enrollment rate. Enrollment rates of male students in Algebra I (53 percent) and Physics (54 percent) exceeded their overall student enrollment rate by 2 percentage points and 3 percentage points, respectively.

FIGURE 7: Percentage distribution of students enrolled in high school mathematics and science courses, by race



NOTE: Data may not add up to 100 percent due to rounding.
SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

HIGH SCHOOL STEM ENROLLMENT BY RACE

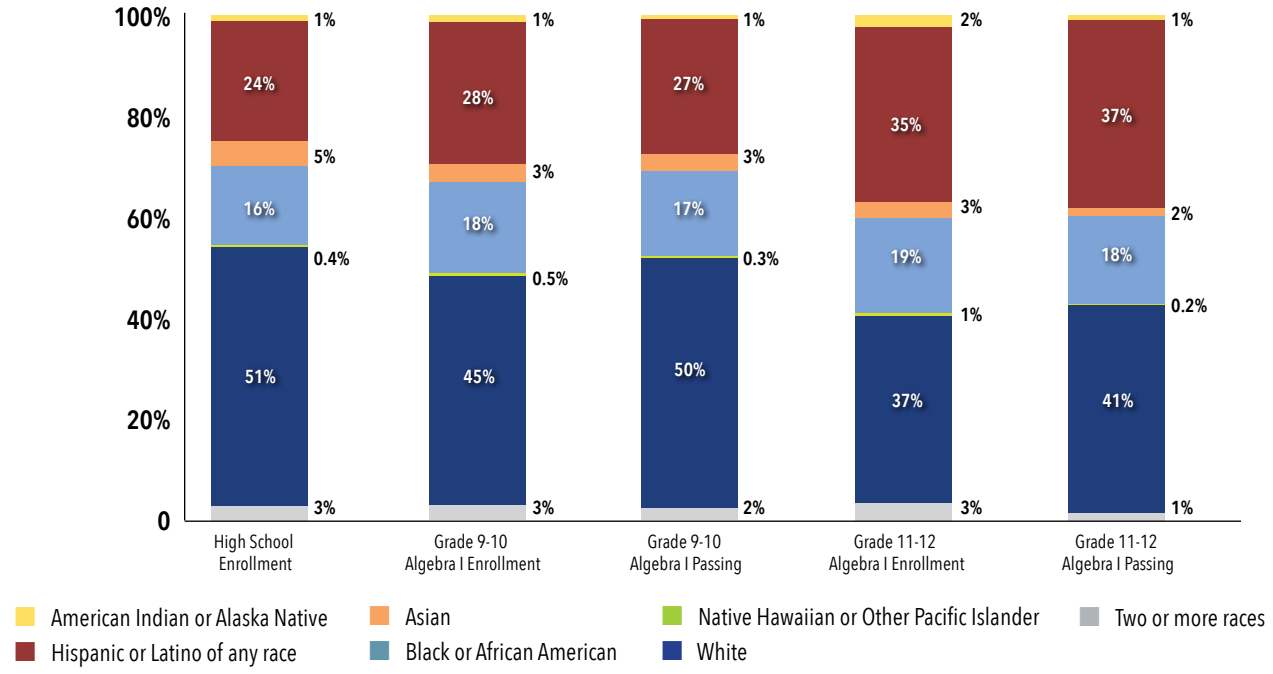
Figure 7 displays the percentage distributions of students enrolled in high school mathematics and science courses, by race. Of the Grade 9 and Grade 10 students enrolled in Algebra I, 18 percent were black and 28 percent were Latino, compared to 16 percent and 24 percent of high school enrollment, respectively.

White students, who were 51 percent of high school enrollment, were 45 percent of those enrolled in Algebra I in Grades 9 and 10. Asian students were 5 percent of all high school students enrolled and 3 percent of those enrolled in Algebra I in Grades 9 and 10. Of the students enrolled in Algebra I in Grades 11 and 12, 37 percent were white, 35 percent were Latino, 19 percent were black, and 3 percent were Asian. Most races were enrolled in Geometry at rates comparable with their high school student enrollment.

Black students constituted 16 percent of high school enrollment and 13 percent of students enrolled in advanced mathematics, 8 percent of students enrolled in Calculus, and 12 percent of students enrolled in Physics. Black students accounted for 17 percent of students enrolled in Geometry, 15 percent of those enrolled in Algebra II and Biology, and 14 percent of those enrolled in Chemistry.

Latino students constituted 24 percent of high school enrollment and represented 23 percent of students enrolled in Algebra II and Chemistry, 19 percent of students enrolled in advanced mathematics, and 16 percent of students enrolled in Calculus. Latino students represented 25 percent of students enrolled in Geometry and in Physics, and 24 percent of students enrolled in Biology.

FIGURE 8: Percentage distribution of high school students enrolled in and passing Algebra I, by race and grade span



NOTE: Data may not add up to 100 percent due to rounding.
SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

Figure 8 displays the percentage distribution of high school students enrolled in and passing Algebra I, by race and grade span. White students were 45 percent of students who took Algebra I in Grades 9-10 and 50 percent of the students who passed. White students were also 37 percent of the students who took Algebra I in Grades 11-12 and 41 percent of the students who passed.

Latino students constituted 28 percent of students enrolled in Grade 9-10 Algebra I and 35 percent of students enrolled in Grade 11-12 Algebra I. Latino students were 27 percent and 37 percent of students who passed Algebra I in Grades 9-10 and Grades 11-12, respectively.

Black students represented 18 percent of students studying Algebra I in Grades 9-10 and 17 percent of the students who passed the course. Black students also constituted 19 percent of students enrolled in Grade 11-12 Algebra I and 18 percent of the students who passed.

Students of two or more races constituted 3 percent of students enrolled in Grade 9-10 Algebra I and Grade 11-12 Algebra I. Students of two or more races were also 2 percent and 1 percent of students who passed Algebra I in Grades 9-10 and Grades 11-12, respectively.

Native Hawaiian or Other Pacific Islander students accounted for 0.5 percent of students studying Algebra I in Grades 9-10 and 0.3 percent of the students who passed the course. Native Hawaiian or Other Pacific Islander students also constituted 1 percent of students enrolled in Grade 11-12 Algebra I and 0.2 percent of the students who passed.

Asian and American Indian or Alaska Native students both passed Grade 9-10 Algebra I at a rate comparable to their respective Algebra I enrollment (3 percent and 1 percent, respectively). In Grade 11-12 Algebra I, Asian students were 3 percent of enrollment and 2 percent of those who passed, while American Indian or Alaska Native students were 2 percent of students enrolled and 1 percent of students who passed.

FIGURE 9: Percentage distribution of students enrolled in high school mathematics and science courses, by English learners

	English Learners Enrollment	Non-English Learners Enrollment
High School Enrollment	6%	94%
Algebra I	9%	91%
Geometry	6%	94%
Algebra II	4%	96%
Advanced Mathematics	2%	98%
Calculus	2%	98%
Biology	6%	94%
Chemistry	4%	96%
Physics	4%	96%

SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

HIGH SCHOOL STEM ENROLLMENT OF ENGLISH LEARNER STUDENTS

Over 963,000 English learner (EL) students were enrolled in high schools across the nation during the 2015–16 school year, representing approximately 6 percent of total high school enrollment. **Figure 9** presents the percentage distribution of students enrolled in high school mathematics and science courses, by English learners. EL students represented 6 percent of students enrolled in Geometry and Biology. EL students represented 2 percent of students enrolled in Calculus and advanced mathematics, 9 percent of students enrolled in Algebra I, and 4 percent of students enrolled in Algebra II, Chemistry, and Physics.

FIGURE 10: Percentage distribution of students enrolled in high school mathematics and science courses, by disability (IDEA)

	Students with Disabilities (IDEA) Enrollment	Students without Disabilities Enrollment
High School Enrollment	12%	88%
Algebra I	13%	87%
Geometry	9%	91%
Algebra II	6%	94%
Advanced Mathematics	4%	96%
Calculus	2%	98%
Biology	10%	90%
Chemistry	6%	94%
Physics	6%	94%

SOURCE: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2015–16.

HIGH SCHOOL STEM ENROLLMENT OF STUDENTS WITH DISABILITIES (IDEA)

As used in this report, the term students with disabilities (IDEA) refers to students who receive special education and related services under the Individuals with Disabilities Education Act. Nearly 2 million students with disabilities (IDEA) were enrolled across the nation's high schools. Students with disabilities (IDEA) accounted for 12 percent of student enrollment. **Figure 10** presents the percentage distribution of students enrolled in high school mathematics and science courses, by disability (IDEA). The enrollment of students with disabilities (IDEA) in mathematics and science courses ranged from 2 percent (Calculus) to 10 percent (Biology), except for Algebra I (13 percent).

Data Highlights

† Note: Except where the percentage is below 1 percent, the percentages listed in these data highlights are rounded to the nearest whole number. Counts of 1,000,000 or greater are rounded to the nearest hundred thousand. Counts of 1,000 or greater are rounded to the nearest hundred. Counts of less than 1,000 are rounded to the nearest ten. For the survey form and full definitions of all terms mentioned in the report, visit *ocrdata.ed.gov/SurveyDocuments*.

CRDC Endnotes

[1] CRDC data report students using the seven racial/ethnic categories found in the U.S. Department of Education's Final Guidance on Collecting, Maintaining and Reporting Data on Race and Ethnicity. The Final Guidance can be found at *http://nces.ed.gov/pubs2008/rediguide/pdf/appendixA.pdf*. For brevity in this report, the racial/ethnic categories are referred to as "race."

[2] For the purpose of STEM course taking, high schools include any school or justice facility with any Grade 9–12 or ungraded high school age students.

[3] Advanced mathematics courses cover the following topics: trigonometry, trigonometry/algebra, trigonometry/analytic geometry, trigonometry/mathematics analysis, analytic geometry, mathematics analysis, mathematics analysis/analytic geometry, probability and statistics, and pre-calculus.

[4] As used in this report, the terms "students with disabilities (IDEA)" and "IDEA" are used to refer to students who receive special education and related services under the Individuals with Disabilities Education Act according to an Individualized Education Program, Individualized Family Service Plan, or service plan. These students may or may not receive related aids and services under Section 504 of the Rehabilitation Act of 1973, amended. 20 U.S.C. §§ 1400-1419; 34 C.F.R. pt. 300. Part B of the IDEA addresses the obligations of States and school districts to provide special education and related services to eligible children with disabilities. The Office of Special Education Programs (OSEP) in the Department's Office of Special Education and Rehabilitative Services (OSERS) administers the IDEA. The national percentages reported by OSEP may differ from those reported by OCR due to differences in the population of students included in the collection. For information about the IDEA, please see *osep.grads360.org* and *www.ed.gov/osers/osep/index.html*.

[5] The Elementary and Secondary Education Act, as amended by ESSA, defines an English learner, under 20 U.S.C. § 7801(20), as a student (A) who is aged 3 through 21; and (B) who is enrolled or preparing to enroll in an elementary school or secondary school; and (C)(i) who was not born in the United States or whose native language is a language other than English; or who is both (ii)(I) a Native American or Alaska Native, or a native resident of the outlying areas; and (II) who comes from an environment where a language other than English has had a significant impact on the individual's level of English language proficiency; or (iii) who is migratory, whose native language is a language other than English, and who comes from an environment where a language other than English is dominant; and (D) whose difficulties in speaking, reading, writing, or understanding the English language may be sufficient to deny the individual (i) the ability to meet the challenging State academic standards; or (ii) the ability to successfully achieve in classrooms where the language of instruction is English; or (iii) the opportunity to participate fully in society. This definition was reflected in the CRDC's 2015-16 school form.

[6] For brevity in this report, student enrollment in schools that offered Grade 8 is referred to as Grade 8 enrollment.

[7] The term "black" refers to persons who are black or African American. The term "Latino" refers to persons who are Hispanic or Latino of any race.

[8] High black and Latino enrollment refers to schools with more than 75 percent black and Latino student enrollment. This definition is consistent with prior reports within OCR and other Department offices.

More About the CRDC

What is the purpose of the CRDC?

Since 1968, the U.S. Department of Education (ED) Office for Civil Rights (OCR), or its predecessor agency, has conducted the Civil Rights Data Collection (CRDC) to collect data on key education and civil rights issues in our nation's public schools.

The CRDC collects a variety of information, including student enrollment and educational programs and services, most of which is disaggregated by race, sex, English learners, and disability.

The CRDC is a longstanding and critical aspect of the overall enforcement and monitoring strategy used by OCR to ensure that recipients of the Department's Federal financial assistance do not discriminate on the basis of race, color, national origin, sex, and disability.

OCR relies on CRDC data from public school districts as it investigates complaints alleging discrimination, initiates proactive compliance reviews to focus on particularly acute or nationwide civil rights compliance problems, and provides policy guidance and technical assistance to educational institutions, parents, students, and others.

In addition, the CRDC is a valuable resource for other Department offices and federal agencies, policymakers and researchers, educators and school officials, parents and students, and other members of the public who seek data on student equity and opportunity.

Under what authority does OCR conduct the CRDC?

Section 203(c)(1) of the 1979 Department of Education Organization Act conveys to the Assistant Secretary for Civil Rights the authority to "collect or coordinate the collection of data necessary to ensure compliance with civil rights laws within the jurisdiction of the Office for Civil Rights." The civil rights laws enforced by OCR include:

- Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin;
- Title IX of the Education Amendments of 1972, which prohibits discrimination based on sex; and
- Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of disability.

OCR's implementing regulations for each of these statutes require recipients of the Department's federal financial assistance to submit to OCR "complete and accurate compliance reports at such times, and in such form and containing such information" as OCR "may determine to be necessary to enable [OCR] to ascertain whether the recipient has complied or is complying" with these laws and implementing regulations (34 CFR § 100.6(b), 34 CFR § 106.71, and 34 CFR § 104.61). Any data collection that OCR determines is necessary to ascertain or ensure compliance with these laws is mandatory.

For further general information about the CRDC, visit the *CRDC FAQ* page.

Availability of Alternate Format

Requests for documents in alternate formats such as Braille or large print should be submitted to the Alternate Format Center by calling 202.260.0852 or emailing the Section 508 Coordinator at *om_eeos@ed.gov*.

Notice to Persons with Limited English Proficiency

If you have difficulty understanding English, you can request free interpretation or translation assistance for Department information that is available to the public. To find out more about these services, please call 1-800-USA-LEARN (1.800.872.5327) (TTY: 1.800.877.8339) or email us at *ED.Language.Assistance@ed.gov*.

You also can write to U.S. Department of Education, Information Resource Center, LBJ Education Building, 400 Maryland Avenue SW, Washington, DC, 20202.

How to Contact the Department of Education and Office for Civil Rights

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