

# Iowa Achievement Gaps Legislative Report



June 1, 2022

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## **LEGISLATIVE REQUIREMENT IOWA CODE 256.9(45)**

Prepare and submit to the chairpersons and ranking members of the Senate and House education committees a report on the state's progress toward closing the achievement gap, including student achievement for minority subgroups, and a comprehensive summary of state agency and local district activities and practices taken in the past year to close the achievement gap.

## SHIFTING STUDENT DEMOGRAPHICS

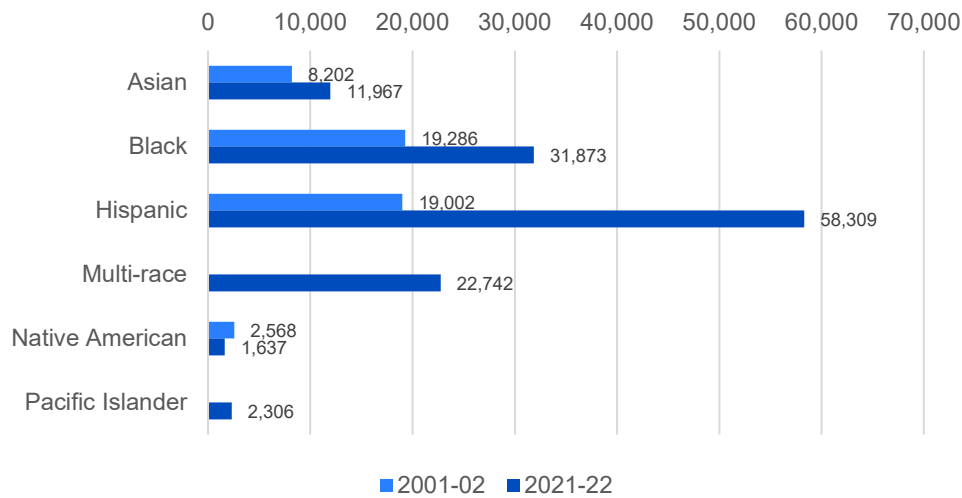
There is more racial and ethnic diversity in Iowa schools now than in any other time in state history. In fall 2021, 27 percent of Iowa K-12 public school students were students of color. There has been an approximately 163 percent increase in minority student enrollment over the past 20 years. Table 1 provides a breakdown of the long-term trend of the change in the diversity of the student population. While there has been an increase in the number of minority students, there has also been a corresponding decrease in the number of white students.

**Table 1: K-12 Statewide Enrollment**

School Year	Minority	White	Total	Percent Minority	Percent white
2021-2022	128,834	352,414	481,248	27%	73%
2020-2021	125,309	353,955	479,264	26%	74%
2019-2020	124,628	361,226	485,854	26%	74%
2018-2019	120,376	363,215	483,591	25%	75%
2014-2015	104,052	373,370	477,422	22%	78%
2001-2002	49,058	426,351	475,409	10%	90%

Figure 1 provides a detailed breakdown of the number of students in each racial/ethnic minority group over the past 20 years. In 2021-2022, the population of Hispanic students is both the largest (58,309) and the fastest-growing non-white student group in Iowa since 2001-2002 (growth rate of 207%). The second largest minority group in 2021-2022 are Black students who have increased 65 percent over this 20-year period, the second-fastest growth rate in Iowa. The third largest minority group is made up of students who report identifying as two or more races. The growth in this group cannot be calculated over the same time span because this option was not available before the 2009-2010 school year. Between 2001-2002 and 2021-2022, the Asian student population grew by 46 percent and the share of Native American students dropped by 57 percent.

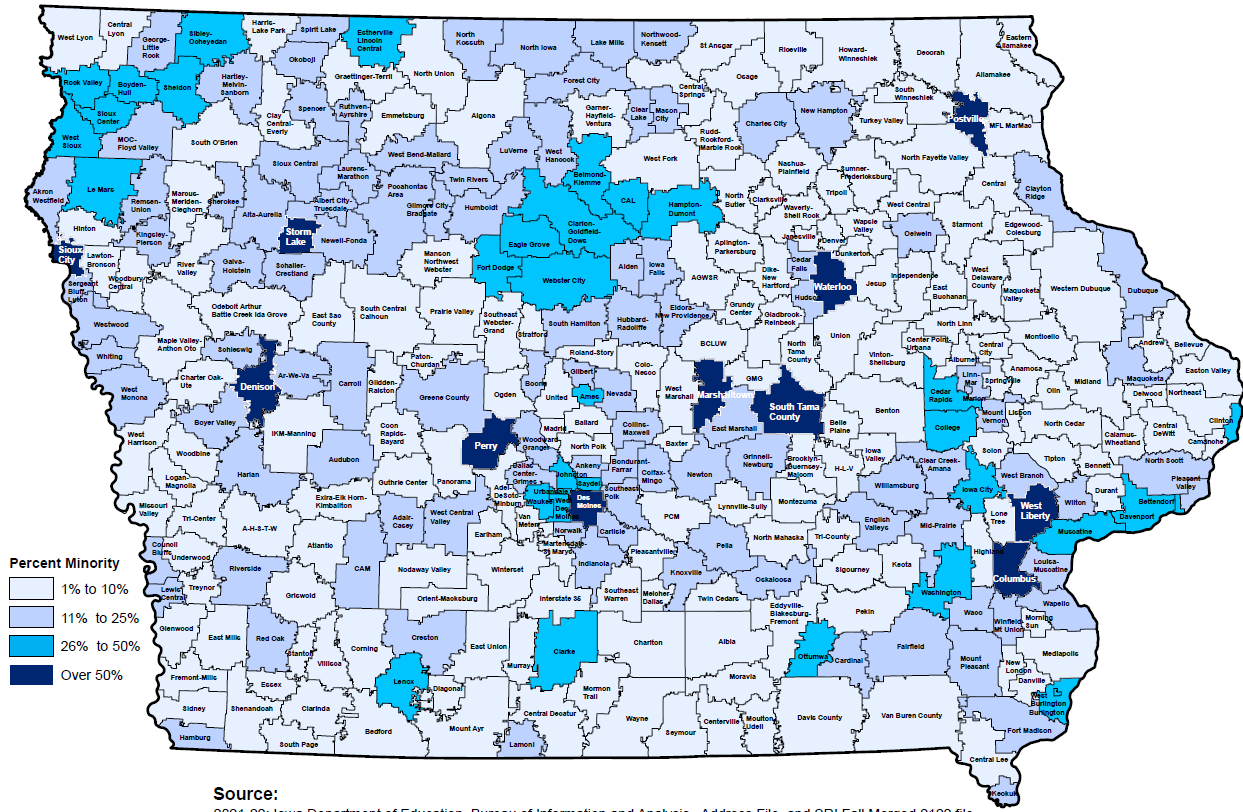
Figure 1: Minority Student Trends



While there is increasing diversity among school age children, Iowa is still fairly homogenous compared to national trends. The Census Bureau estimated that the school age population (children under the age of 18) across the United States switched in 2020 to majority-minority (Frey, 2018), meaning that nationally, over 50 percent of students in schools are now students of color. A majority-minority school describes a school in which the majority of students are non-white.

Figure 2 provides a statewide view of the percent of minority students enrolled in Iowa districts. In 2021-2022 there are 11 districts in which over 50 percent of students enrolled are non-white (majority-minority). In an additional 32 districts, minority student enrollment makes up between 25 to 50 percent of the total student population. If Iowa continues to become more racially and ethnically diverse, as it has over the past two decades, then the number of districts that are majority-minority would also be expected to increase.

**Figure 2: Percent Minority Enrollment in Iowa Districts 2021-2022**



Source:  
2021-22: Iowa Department of Education, Bureau of Information and Analysis, Address File, and SRI Fall Merged 2122 file

## STUDENT ASSESSMENT AND THE ACHIEVEMENT GAP- LATEST TRENDS

Over the past decade, Iowa has seen the largest increases in the Hispanic and Black racial/ethnic student groups. Thus, the focus of these analyses is on achievement gaps between Hispanic, Black, and white students. The purpose is to highlight differences in performance between the largest and fastest-growing student groups. This does not suggest that other student groups do not also have larger differences in achievement. This analysis uses assessment scores in both English language arts (ELA) and mathematics to measure the achievement gap between these three student groups.

In order to gauge impact, an analysis was conducted on the results from the Iowa Statewide Assessment of Student Progress (ISASP). The most recent data are available from the 2020-2021 school year, and Iowa began using this new statewide assessment during the 2018-2019 school year. Because of the transition to this new assessment in spring 2019, longer term longitudinal trends are not possible.

The COVID-19 pandemic began near the end of the 2019-2020 school year with many schools in Iowa and across the nation closing in March 2020. On March 16, 2020, nearly all districts across Iowa effectively closed delivering only about 70 to 75 percent of the typical instructional year. The spring 2020 assessment administration was also cancelled. Furthermore, in the 2020-2021 school year, many districts, schools, and classrooms had disrupted learning because of outbreaks that caused students or staff to quarantine due to sickness or exposure. Data demonstrating the overall impact of the pandemic on student learning are still emerging. Initial estimates suggest student achievement was several months to up to a year and half behind for many students, further exacerbating existing gaps (Bailey et al., 2021; Hamilton et al., 2020). Although the data in these analyses provide useful early indicators, the impact of the pandemic on achievement gaps may not be fully understood for years.

Figures 3 through 8 show student performance (average scale score) in ELA and mathematics ISASP scores from grades 3 to 11. The figures and tables each contain the first (2018-2019) and most recent (2020-2021) data. Each figure is accompanied by text that describes the figures. First are statements about how the achievement gaps decreased or increased for specific groups of students in specific grades. Second are statements about the differences in scores by groups and grades for the two years. Third is a description of the manner in which gaps changed. Ideally, both groups would improve but the lower performing group would improve more than the higher performing group (e.g., Figure 3, Grades 4 and 11). Sometimes, a gap will close because the higher performing group performs worse than the lower performing group, which would result in the mean scores of both groups being closer than they were in the prior year (e.g., Figure 4, Grade 7). Tables 2 and 3 provide an overall summary of the results in Figures 3 to 8.

Figure 3 shows the gap between Black and white students in ELA. From 2018-2019 to 2020-2021, the Black/white gap decreased for grades 4, 7, and 11. The Black/white gap stayed the same or increased for all other grades. Achievement scores for both white and Black students increased for grades 4, 6, 8, 10, and 11. The gap for grade 7 decreased because white students' average score decreased more from 2019 to 2021 than Black students' average across the same years. The gap for grades 4 and 11 decreased because Black students improved performance more than white students.



**Figure 3: English Language Arts - Black/White Achievement Gap**

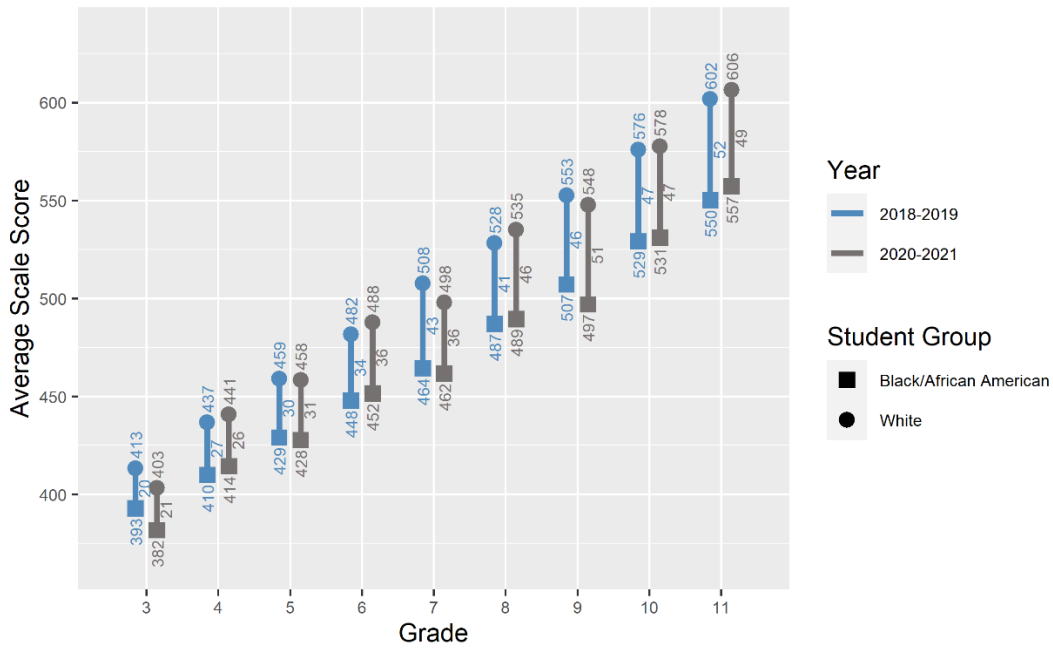


Figure 4 shows the gap between Hispanic and white students in ELA. From 2018-2019 to 2020-2021, the Hispanic/white gap decreased for grades 7, 10, and 11. The Hispanic/white gap stayed the same or increased for all other grades. Achievement for both Hispanic and white students increased for grades 4, 6, 8, 10, and 11. The gap for grade 7 decreased because white students' average score decreased more from 2019 to 2021 than Hispanic students' average across the same years. The gap for grades 10 and 11 decreased because Hispanic students improved performance more than white students.

**Figure 4: English Language Arts - Hispanic/White Achievement Gap**

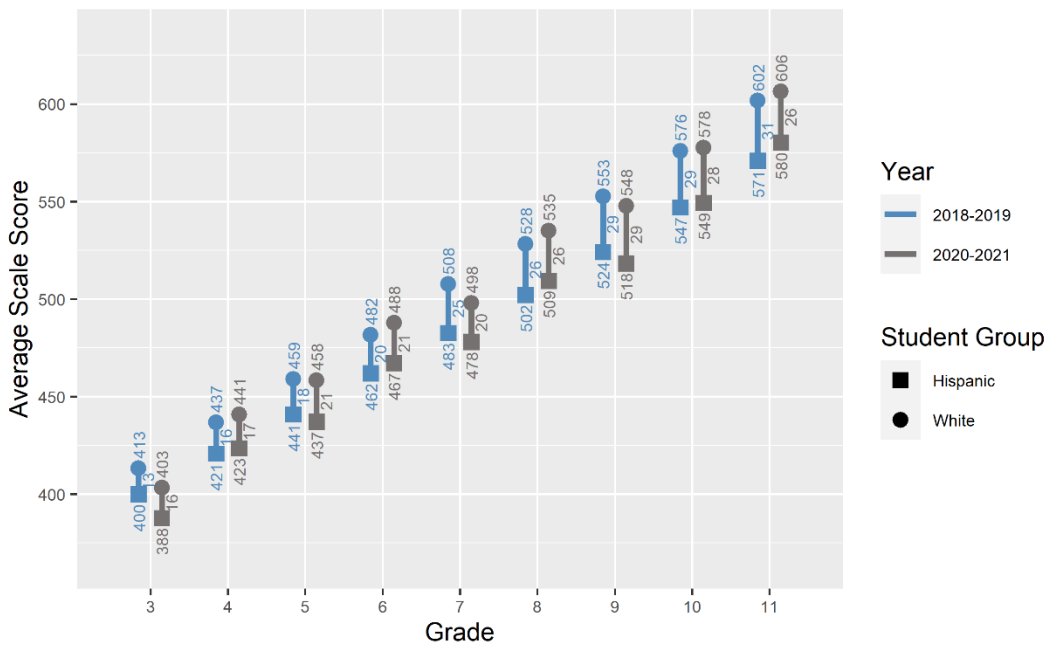


Figure 5 depicts the gap between Low SES (socioeconomic status) free or reduced-price lunch (FRL) and Non-Low SES (Non-FRL) students in ELA from 2018-2019 to 2020-2021. The FRL/Non-FRL gap decreased for grades 7, 10, and 11. The FRL/Non-FRL gap stayed the same or increased for all other grades. Overall, achievement for FRL/Not-FRL students increased for grades 4, 6, 8, and 11. Achievement for FRL students increased for grades 4, 6, 8, 10, and 11. The gap for grade 7 decreased because Non-FRL students' average score decreased more from 2019 to 2021 than FRL students' average across the same years. The gap for grade 10 decreased because FRL students improved their performance while Non-FRL students stayed the same. The gap for grade 11 decreased because FRL students improved performance more than Non-FRL students.

**Figure 5: English Language Arts – FRL/Non-FRL Achievement Gap**

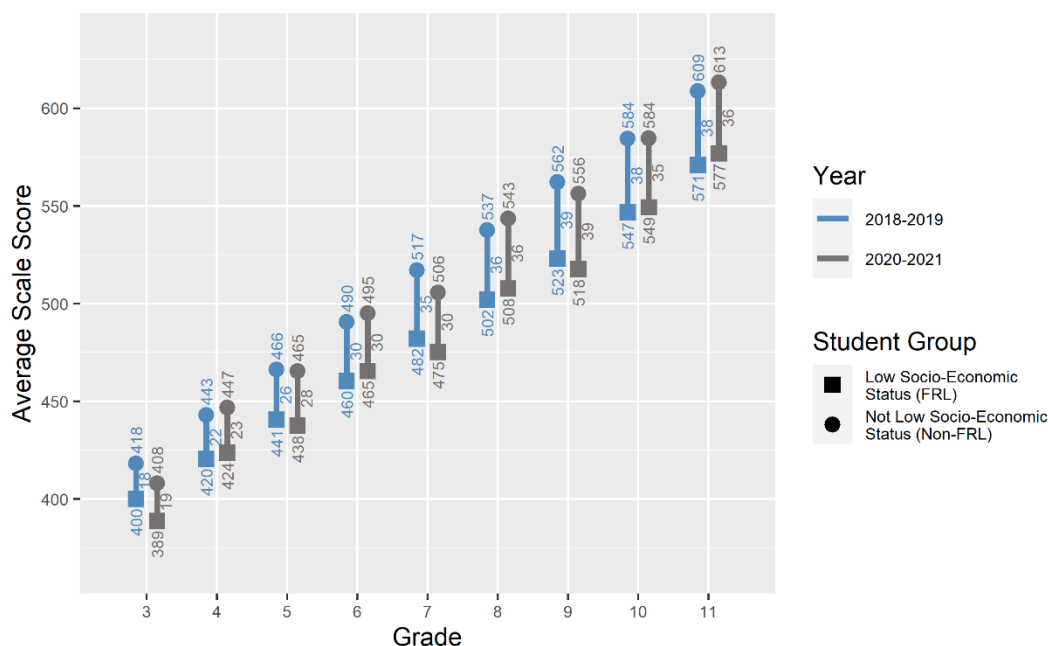


Figure 6 illustrates the Black and white student achievement gap in mathematics. From 2018-2019 to 2020-2021, the Black/white gap decreased for grades 4, 7, and 11. The Black/white gap stayed the same or increased for all other grades. Achievement for white students increased for grade 3 while achievement for Black students increased for grade 11. The gap for grades 4 and 7 decreased because white students' average score decreased more from 2019 to 2021 than Black students' average across the same years. The gap for grade 11 decreased because white students' average score decreased while Black students improved performance.

**Figure 6: Mathematics - Black/White Achievement Gap**

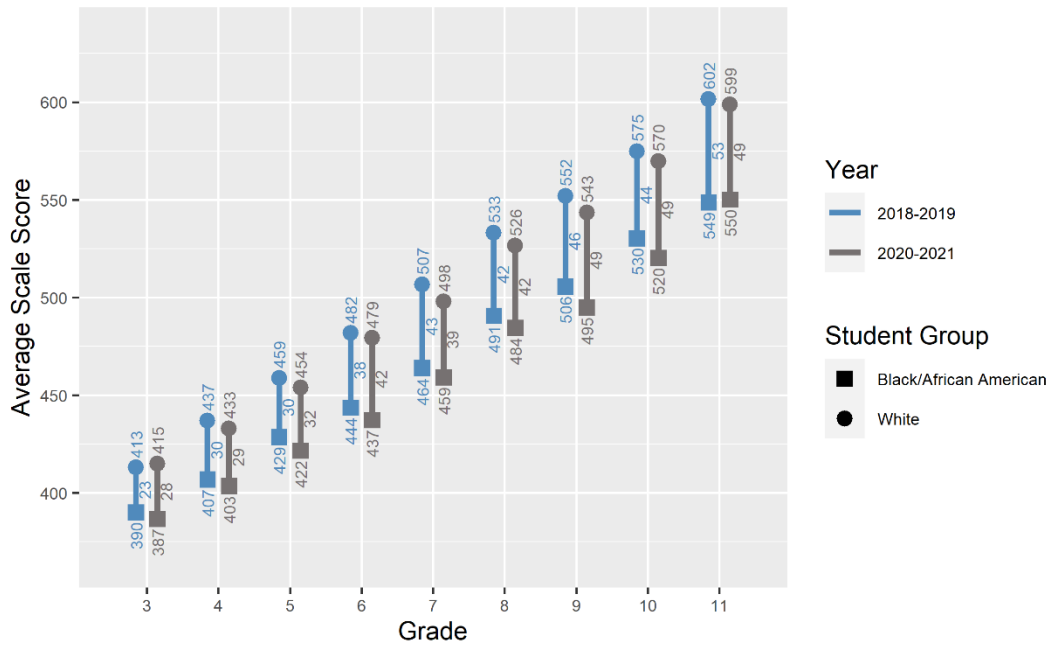


Figure 7 shows the mathematics achievement gap between Hispanic and white students. From 2018-2019 to 2020-2021, the Hispanic/white gap decreased for grades 7, 8, and 11. The Hispanic/white gap stayed the same or increased for all other grades. Achievement for white students increased for grade 3. Achievement for Hispanic students did not improve for any grade but remained the same for grade 11. The gap for grades 7 and 8 decreased because white students' average score decreased more from 2019 to 2021 than Hispanic students' average across the same years. The gap for grade 11 decreased because the performance of white students decreased while the performance of Hispanic students stayed the same.

**Figure 7: Mathematics - Hispanic/White Achievement Gap**

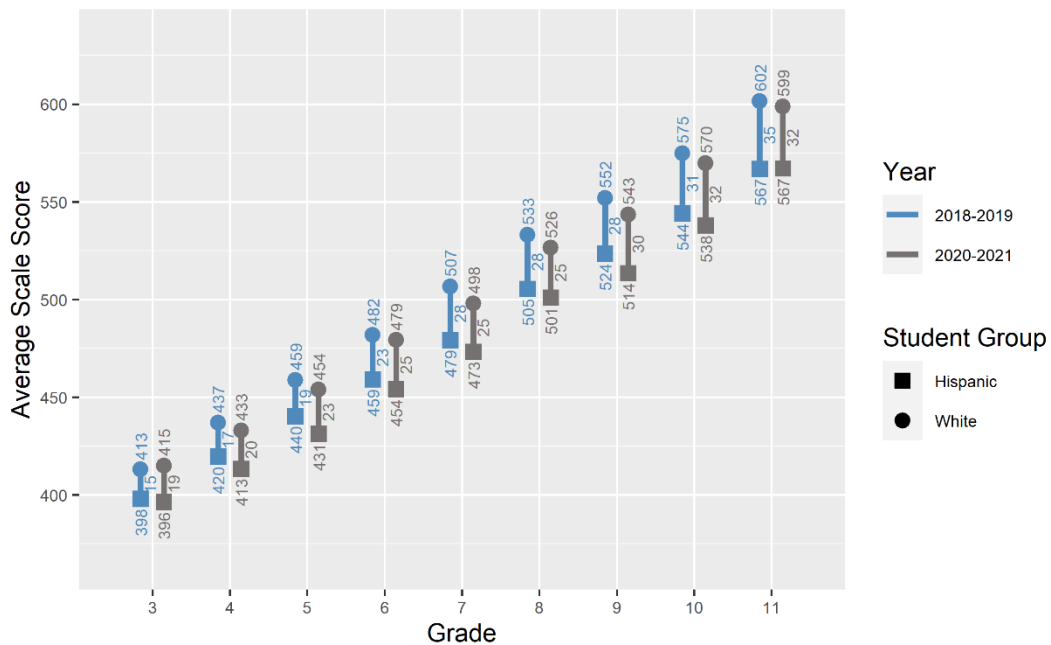
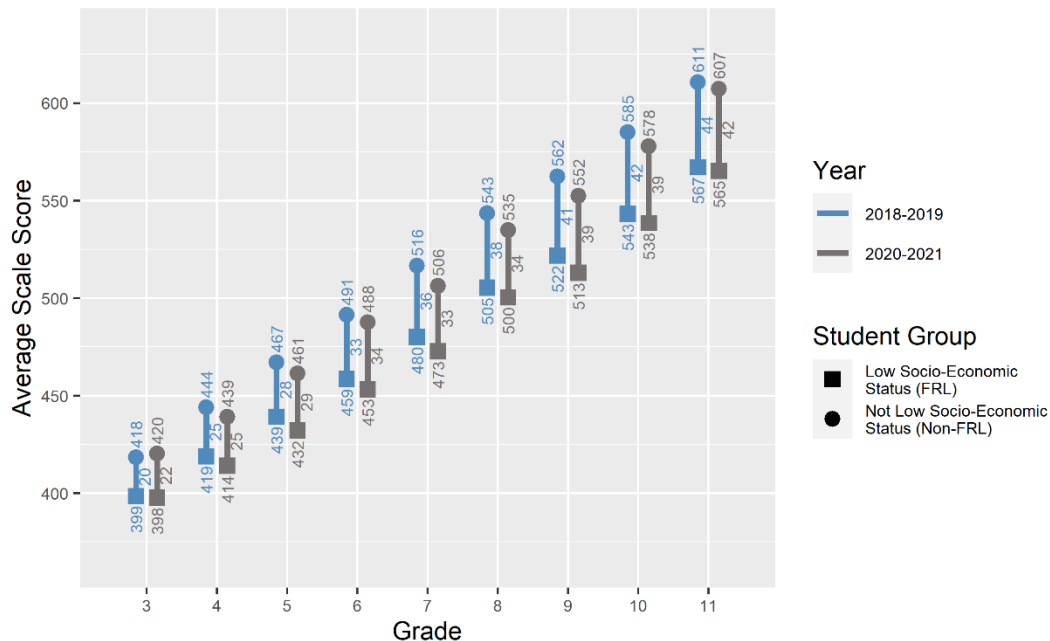


Figure 8 illustrates the mathematics achievement gap between FRL and Non-FRL. From 2018-2019 to 2020-2021, the FRL/Non-FRL gap decreased for grades 7, 8, 9, 10, and 11. The FRL/Non-FRL gap stayed the same or increased for grades 3, 4, 5, and 6. Achievement for Non-FRL students increased for grade 3. Achievement for FRL students did not increase for any grade. The gap for grades 7 to 11 decreased because Non-FRL students' average score decreased more from 2019 to 2021 than FRL students' average across the same years.

**Figure 8: Mathematics – FRL/Not-FRL Achievement Gap**



Tables 2 and 3 provide an overall summary of the achievement gaps from Figures 3 to 8. Across the three different student group comparison, two content areas, and nine grade levels there are 54 combinations where the achievement gap could have increased, decreased, or stayed the same. Cells in green highlight where the lower performing group improved more than the higher performing group and as a result closed the achievement gap. Cells highlighted in orange depict cases where the achievement gap closed but for the wrong reason. In these cases, the higher performing group scored lower than they had the prior year and as a result, the achievement gap narrowed.

Across all combinations, in roughly half of the cases (48%), the achievement gap increased between student groups. Additionally, there were 20 cases (37%) where the achievement gap decreased. On the surface, this appears to be a positive finding. However, when looking more closely, the majority (n = 14) of the gaps decreased because the higher performing group had a decrease in student performance. In eight cases (15%), performance stayed the same and the achievement gap did not change. In six cases (11%), the achievement gap narrowed because the lower achieving student group gained in achievement more than the higher performing student group.

**Table 2: Achievement Gaps Status**

Grades	ELA			Math		
	Black/white	Hispanic/white	FRL/Non-FRL	Black/white	Hispanic/white	FRL/Non-FRL
3	Increase	Increase	Increase	Increase	Increase	Increase
4	Decrease	Increase	Increase	Decrease	Increase	No Change
5	Increase	Increase	Increase	Increase	Increase	Increase
6	Increase	Increase	No Change	Increase	Increase	Increase
7	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease
8	Increase	No Change	No Change	No Change	Decrease	Decrease
9	Increase	No Change	No Change	Increase	Increase	Decrease
10	No Change	Decrease	Decrease	Increase	Increase	Decrease
11	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease

Lower performing group improved more than the higher performing group  
 Higher performing group decreased more than the lower performing group

**Table 3: Summary of Achievement Gaps**

Gap Status	ELA			Math			Total	Percent
	Black/white	Hispanic/white	FRL/Non-FRL	Black/white	Hispanic/white	FRL/Non-FRL		
Increase in gap	5	4	3	5	6	3	26	48%
Decrease - wrong reason	1	1	1	3	3	5	14	26%
Decrease - right reason	2	2	2	0	0	0	6	11%
Stayed the same	1	2	3	1	0	1	8	15%
Total	9	9	9	9	9	9	54	100%

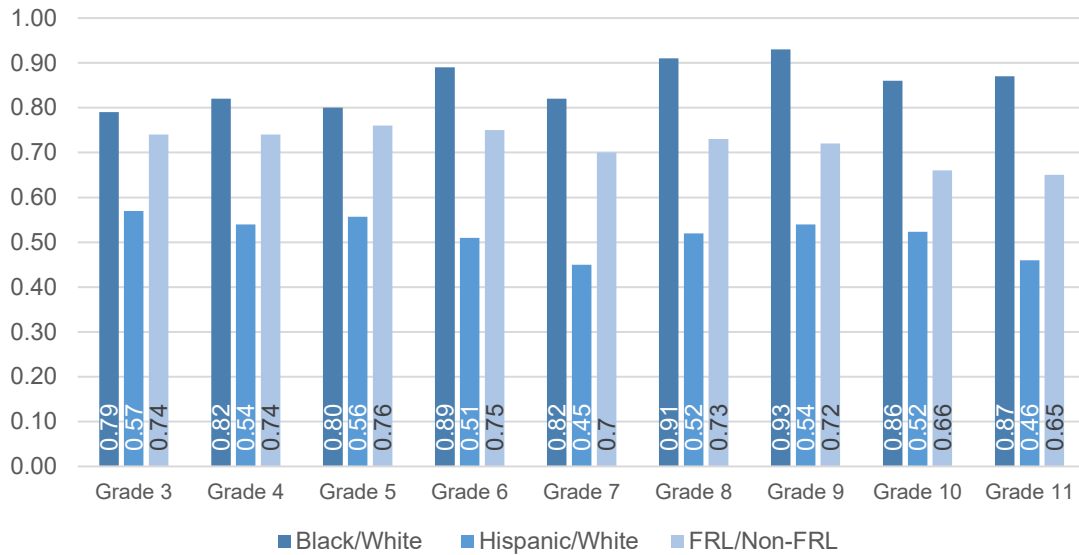
**Magnitude of the Achievement Gaps**

Analyses were conducted to examine the magnitude of the achievement gaps. An effect size (in this case, Cohen’s *d*) is a statistic that shows the strength of a relationship. It is a simple way to quantify the differences in performance between two groups. The larger the effect size, the more meaningful and stronger the result.

Figure 9 shows the effect sizes between student groups in ELA from the spring 2021 assessment administration. Generally, across all grades and content areas, the Black/white gap would be considered large, the Hispanic/white gap would be considered moderate, and the FRL/Non-FRL gap would be considered to be approaching large. An effect size of .5 and above is considered medium in magnitude and an effect size of .8 or above is considered a large effect (Sawilowsky, 2009).

To provide additional context, an effect size of .5 means the average Hispanic student would score below 69 percent of white students. An effect of .7 indicates the average student eligible for FRL would score below 73 percent of Non-FRL students. Similar results can be found when examining effect sizes in the achievement gap between subgroups in mathematics performance.

**Figure 9: ELA – Achievement Gap Effect Sizes: 2020-2021**



## MATHEMATICS COURSE PATHWAYS

### MATHEMATICS PATHWAYS AND STUDENT ACHIEVEMENT

This section examines the impact of courses taken in high school on student performance. More specifically, this analysis focuses on the effect of student choices to take rigorous coursework and its contribution to reducing achievement gaps between student groups. The research questions are:

- Does taking a more rigorous mathematics course pathway lead to higher academic achievement?
- Are there achievement differences between students who took different course pathways?
- Are there performance gaps between student groups for those students who take the same course pathways?

Five years of student-level data were linked from the graduating class of 2020 for all public high schools in Iowa. This cohort was used to examine the relationship between mathematics courses taken and students 11 grade performance on the required summative assessments. The vast majority of students participated in the ISASP and a smaller subset of students took the Dynamic Learning Maps (DLM) alternate assessment. DLM is the assessment given to approximately one percent of students with significant cognitive disabilities who are unable to participate in the ISASP.

In order to examine results from the class of 2020, data was linked back to when this cohort was in eighth grade during the 2015-2016 school year. Mathematics courses pathways from eighth grade to 12 grades were analyzed. The starting cohort included 32,293 Iowa public school students who were eighth graders in 2015-2016. Ninety-five percent ( $n = 30,659$ ) of the cohort was enrolled in an Iowa public high school from 2015-2016 to 2019-2020. Five percent ( $n = 1,634$ ) of the starting cohort was no longer enrolled senior year five years later. Even if the

starting cohort did not complete high school, 96 percent of students participated in either the ISASP or DLM mathematics assessment in 2018-2019 when they were high school juniors.

Table 4 shows the different mathematics pathways for the graduating class of 2020. There were three pathways for students who took five years of mathematics and three additional pathways for students who took four years of mathematics or less between eighth and 11 grade.

**Table 4: Student Mathematics Pathways**

**5 Years of Mathematics**

Pathway	Course Sequence
Traditional Algebra Pathway	Students took Algebra I in grade 9, geometry in grade 10, Algebra II in grade 11, and Pre-Calculus in grade 12.
Accelerated Algebra Pathway	Students took Algebra I in middle school/junior high, geometry in grade 9, Algebra II in grade 10, Pre-Calculus in grade 11, and Calculus, AP Calculus, or statistics in grade 12.
Other - 5 years	Students took mathematics in grade 8 to 12, did not follow a Traditional or Accelerated Algebra pathway.

**4 Years of Mathematics**

Pathway	Course Sequence
Traditional/Accelerated Algebra Pathway	Students followed a Traditional or Accelerated Algebra pathway in grades 8 to 11, but didn't take a mathematics course in grade 12.
Other - 4 years	Students took mathematics in grade 8 to 11, did not follow a Traditional or Accelerated Algebra pathway and also did not take a mathematics course in grade 12.
Interrupted	Students took four years of mathematics and no longer enrolled in grade 12.

Figure 10 displays the percent of students who took each of the different pathways outlined in Table 4. Of the different mathematics pathways, the Accelerated Algebra was the most rigorous course sequence. The least rigorous was the Other – 4 Years pathway or those students who had an Interrupted mathematics sequence in high school. Of the 32,293 Iowa public school students from the class of 2020 cohort, the most common mathematics sequence across all student groups was the Other - 5 Year pathway.

Overall, just over 11 percent of students took the Accelerated Algebra pathway, 14 percent took the Traditional Algebra pathway, and 18.5 percent took the Traditional Algebra or Accelerated Algebra pathway but did not take a senior year mathematics course. More than half of the students in the cohort did not follow the Traditional or Accelerated Algebra pathway. Some students took less rigorous courses; for example, a large number of students took Business or Consumer Mathematics courses instead of taking more rigorous courses like Calculus or Statistics.

Approximately one-third of students in each student group took the Other - 5 Year pathway. Twenty percent of white, Hispanic and FRL students took the Other 4 years pathway. About 13 percent of Black students also took this course pathway. Twelve percent of white students took the most rigorous course pathway (Accelerated Algebra Pathway). This compares to four percent of Black students, five percent Hispanic students, and six percent of FRL students who took the Accelerated Algebra Path. At least 12 percent of students in all four student groups took the Traditional Algebra Pathway.

**Figure 10: Mathematics Pathway Distribution by Student Group - Class of 2020**

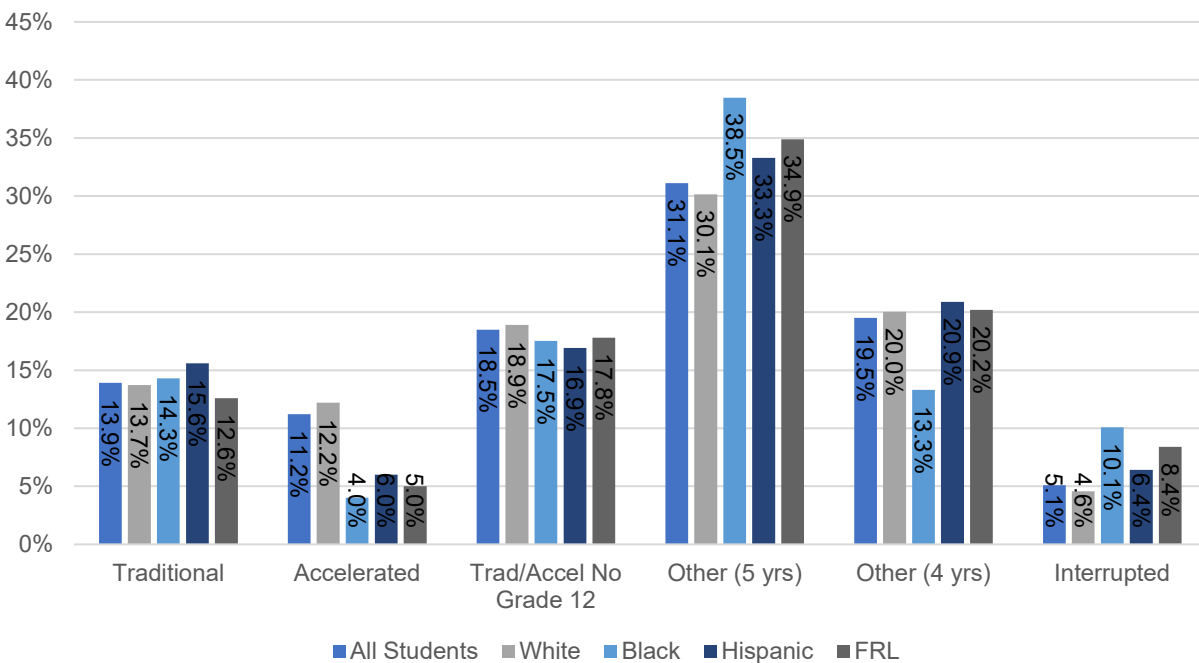
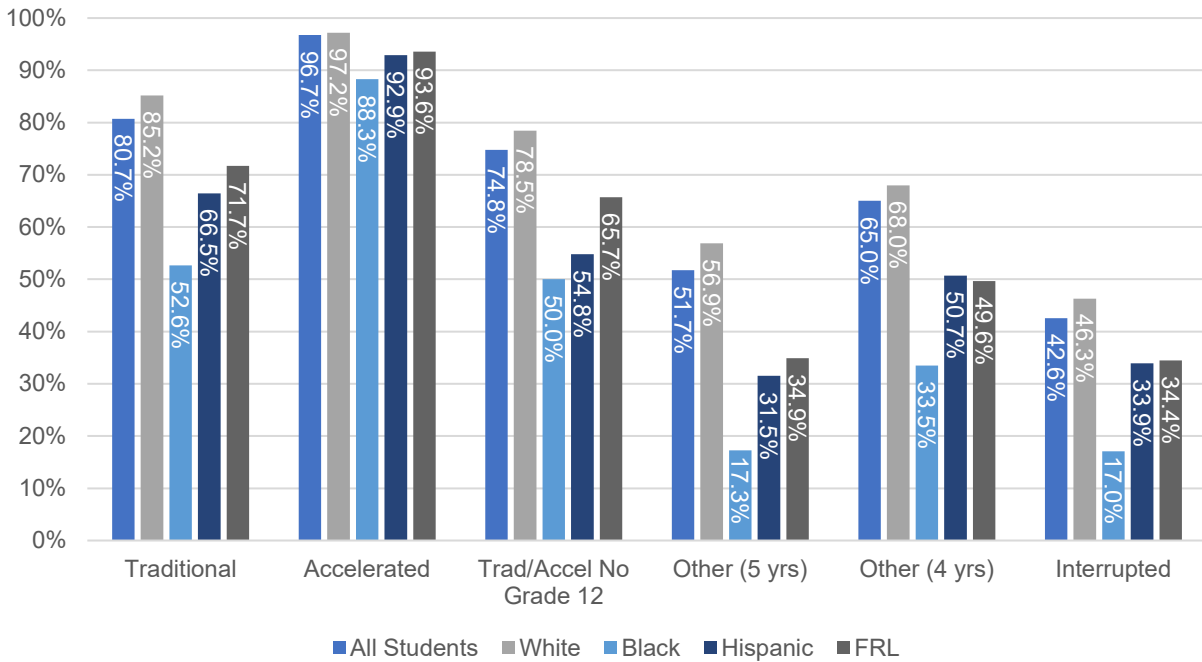


Figure 11 shows the 11<sup>th</sup> grade mathematics proficiency rates for the six different course pathways for all students and each subgroup. Students who took the most rigorous mathematics pathway (Accelerated Algebra) had the highest performance on the mathematics test. This same pattern held across all subgroups. Additionally, the achievement gap between the subgroups in the Accelerated Algebra Pathway are much smaller than students who took any of the other course sequences. For example, the difference between white and Black students was less than nine percentage points in Accelerated Algebra Pathway. However, the gap grows to 32.6 percentage points between white and Black students when examining the performance of students who took the Traditional Algebra Pathway. These results show that students who took a more rigorous course pathways performed better than those who did not take such course paths. Similar results can be found across all racial/ethnic categories and for students eligible for free or reduced-prices lunch. Looking beyond student performance in the Accelerated Algebra Pathway, there are larger gaps in proficiency rates between white and Black, white and Hispanic, and FRL students in all other five mathematics pathways.



**Figure 11: Grade 11 Mathematics Proficiency by Student Group - Class of 2020**

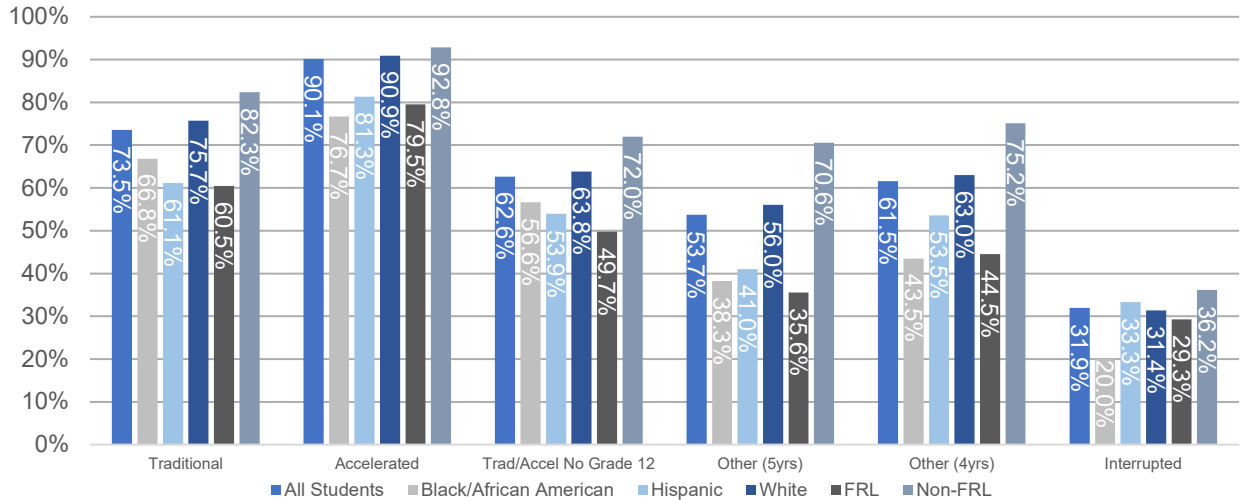


## POSTSECONDARY ENROLLMENT BY HIGH SCHOOL MATHEMATICS COURSE PATHWAYS

Taking the above analysis a step further, this section examines a subset of students from the mathematics pathway study to observe another outcome measure: postsecondary enrollment rates. Specifically, it examines the six different course pathways and the percent of students who enrolled in postsecondary within the first year after high school graduation. The population being studied are the 29,459 students of the class of 2020 (91.2% of the original 32,293) who graduated from an Iowa high school in 2019-2020. Students were matched to data from the [Iowa Postsecondary Readiness Reports](#), a product of Iowa's Statewide Longitudinal Data System, in order to determine the percent of students who enrolled in postsecondary education within the year following high school graduation.

Figure 12 shows the class of 2020 first year postsecondary enrollment rates broken out by each of the six mathematics pathways students took while in high school. Focusing on all students, 64.1 percent of high school graduates enrolled in postsecondary within the first year after graduation. Graduates who took the Accelerated Algebra Pathway (the most rigorous pathway) in high school enrolled in postsecondary at the highest rate (90.1%) followed by students who took the Traditional Algebra Pathway (73.5%). Graduates who were categorized in the Interrupted Mathematics Pathway enrolled at the lowest rate (31.9%).

**Figure 12: Postsecondary Enrollment Rates - Class of 2020**



The gap in enrollment rates between graduates who were eligible for FRL while in high school and those who were not was smaller among students who took the Accelerated Algebra Path (92.8% - 79.5% = 13.3 percentage points) and the Traditional Algebra Path (82.3% - 60.5% = 21.9 percentage points) than among students who were in the Traditional/Accelerated No Grade 12 (22.2 percentage points), Other - 4 Years (30.6 percentage points) and Other - 5 Years (35.0 percentage points). The patterns between mathematics pathways were similar when analyzing the gaps in enrollment rates between Black and white graduates as well as Hispanic and white graduates, although not to the same magnitude.

While this isn't a causal study, the above patterns suggest ensuring all students are on track to take at least the traditional algebra pathway in grades 8 to 12 (and are encouraged to do so) could contribute to reducing disparities in postsecondary enrollment rates between these student groups. The data also shows, though, that even when you hold high school mathematics course taking patterns constant, there are still disparities in postsecondary enrollment between these student subgroups at all levels. This indicates that further inequalities in opportunity, beyond mathematics course taking patterns, are likely contributing to the overall gaps in college going.

## ACTIVITIES TO CLOSE THE ACHIEVEMENT GAP

Over the past two academic school years, the COVID-19 global pandemic has caused an unprecedented disruption across all facets of life. The American Rescue Plan Elementary and Secondary School Emergency Relief (ARP ESSER) plan has provided an extraordinary amount of funding to K-12 education across the United States. The US Department of Education distributed \$122 billion of funding to all 50 states, the District of Columbia, and Puerto Rico. Iowa received over \$1.1 billion in funding through multiple funding rounds. Never before has the state received this amount of funding from the US Department of Education in such a short period of time.

As it should be expected, the vast majority of funds were earmarked to be sent directly to Iowa districts to provide additional funding and support during the COVID-19 pandemic. Allowable expenses included items such as masks, cleaning supplies and other related costs to increase health and safety needed to keep students and staff safe. In addition, later rounds of funding under ARP ESSER included requirements directed that a certain percentage of expenses need to go toward specific programs to address learning loss, summer enrichment, and after school programs.

During this time, the Iowa Department of Education (Department) sponsored three important projects using ARP ESSER funding. These included: 1) funding a center for children’s mental health at the Board of Regents/University of Iowa, 2) funding an early learning center at Council Bluffs Community School District (CSD), and 3) underwriting a project to help close the achievement gap with Waterloo Community School District (CSD).

The new Iowa Center for School Mental Health (Center) leverages the capacities of the Department and the University of Iowa College of Education’s Baker Teacher Leader Center. This partnership is intended to expand training opportunities for student teachers and practicing teachers, provide professional development resources and services to support mental health needs in schools and conduct research on the effective delivery of these services to students. The Center will provide services and support to schools. This will include crisis response services, face-to-face and online training and coaching for teachers, strategic planning support, needs assessment and program evaluation of social-emotional learning and positive behavioral interventions and supports (PBIS) implementation. Twenty million dollars of ARP funding was provided to support this Center.

The Council Bluffs CSD was awarded \$7 million to offer an early childhood pilot program that provides child care and early learning activities to prepare young children for preschool and kindergarten. The school district is constructing an Early Learning Center (ELC) and the Department is partnering on this exploratory project. The goal of this project is to better understand what it takes for a school district to start early childhood and preschool programs that blend childcare and quality early learning experiences for children birth to five within a Multi-Tiered System of Supports (MTSS) framework.

The Waterloo CSD received \$3 million for a program that will aim to close the achievement gap in literacy and mathematics, particularly among minority students. The Waterloo CSD pilot project will include three main activities.

1. Leadership and Implementation. The Department will provide funds to support a national expert in implementation and in lifting complex district systems within a MTSS. This expert will work directly with the district in the area of leadership.
2. Evidence-Based Core Content or Interventions and Practices – Specialists. The Department will provide funds to support two national experts (one in literacy and one in

mathematics) to train Waterloo CSD coaches and provide direct on-site coaching and support to coaches and teachers throughout the year.

3. Evaluation. The Department will provide funds to support evaluation of this exploratory project.

Waterloo CSD will collaborate with the Department and experts to establish and implement a strategic plan. The goal will be to build an effective MTSS framework that includes: leadership, infrastructure, universal tier, supplemental or intensive tiers, and assessment and data-based decision-making. The district will ensure all appropriate staff are trained to criterion in evidence-based core or interventions and engage in booster sessions if needed. More specifically, the key to any successful project is to implement evidence-based core or interventions with fidelity to make a difference in student learning with the intended purpose of closing achievement gaps.

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