THE SCHOOL DISTRICT OF PHILADELPHIA

Trends in Math PSSA Performance in the School District of Philadelphia: 2015-16 to 2018-19

Key Findings

- From 2015-16 to 2018-19, the share of School District of Philadelphia (SDP) students scoring Below Basic on the PSSA decreased by 5.8 percentage points, and the share scoring Proficient or Advanced increased by 3.4 percentage points.
- PSSA scores varied significantly across student groups. Groups with lower Proficiency/Advanced rates included:
    - Black/African American and Hispanic Latino students,
    - English Learners, and
    - Students with IEPs.

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Key Findings

This report summarizes Math PSSA performance across four years (2015-16 through 2018-19). Throughout the report, we present analyses of District performance level trends in performance levels and scaled scores. In general, performance across the four years was characterized by incremental year-to-year improvements.

- From 2015-16 to 2018-19, the percentage of SDP students scoring Below Basic decreased by 5.8 points and the percentage scoring Proficient or Advanced increased by 3.4 points.
- PSSA scores varied significantly across student groups. Groups with lower Proficiency/Advanced rates include:
    - Black/African American and Hispanic Latino students,
    - English Learners, and
    - Students with IEPs.

Background

The Pennsylvania System of School Assessment (PSSA) comprises a set of high-stakes standards-based, criterion-referenced standardized tests administered to all Pennsylvania students in grades 3-8. The purpose of the PSSA is to measure how well students acquire the knowledge and skills described in the Pennsylvania Assessment Anchor Content Standards as defined by the Eligible Content for Mathematics, English and Language Arts (ELA), and Science (for students in grades 4 and 8).[1]

When a student completes any of these tests, they are assigned a *scaled score* based on the number and difficulty of the questions they answer correctly. The PSSA is based on an item response theory model, which means that its scaled scores adjust for item difficulty.[2] Using cut-points on the score scale, which can vary across grade and academic year, students are then assigned one of four *performance levels* (Below Basic, Basic, Proficient, or Advanced).[3] Schools are held accountable for the percentage of students who score at the Proficient or Advanced level.

[1] See https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/PSSA/Pages/Assessment-Anchors.aspx for more formation about eligible PSSA content.
[2] See https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/PSSA/Pages/PSSA-Technical-Reports.aspx for more formation about PSSA scale score calculations.
[3] See https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/PSSA/Pages/DescriptorsCutScores.aspx for links to more information about cut scores and a description of performance levels at each grade level.

About this Report

This report summarizes results of the Mathematics PSSA in the School District of Philadelphia (SDP) during the 2015-16 through 2018-19 school years (see Box 1 for details about the sample).[4]

The purpose of this report is not to follow cohorts of students from year to year, but rather to describe the performance of key student groups during each of the years under investigation. These groups include students belonging to different grade levels, races/ethnicities, and genders, as well as English Learners (ELs) and non-English Learners (non-ELs) and students who are and are not receiving special education services. For this reason, the specific set of students in the sample changes in each of the four years that are summarized in this report. Students entered or exited the sample through advancement beyond eighth grade (e.g., eighth-graders in 2015-16 were not in the sample in the following years if they were promoted to ninth grade in 2016-17), entered the sample through advancement into third grade (e.g., students in third grade in 2018-19 were not in the sample in the earlier years), entering or leaving the District (e.g., moving in or out of the District in between school years or mid-year), or any other reason that a student might have a score attributed to SDP in one year, but not in another.

Box 1. Students in the Sample

Students were included in the analytic sample for this report if:

- They took a Math PSSA during any year between 2015-16 through 2019-20 (in each year they took the test)* *and*
- Their test was attributed to an SDP school (excluding Charters).

*Students might be included in anywhere from one to four years of data.

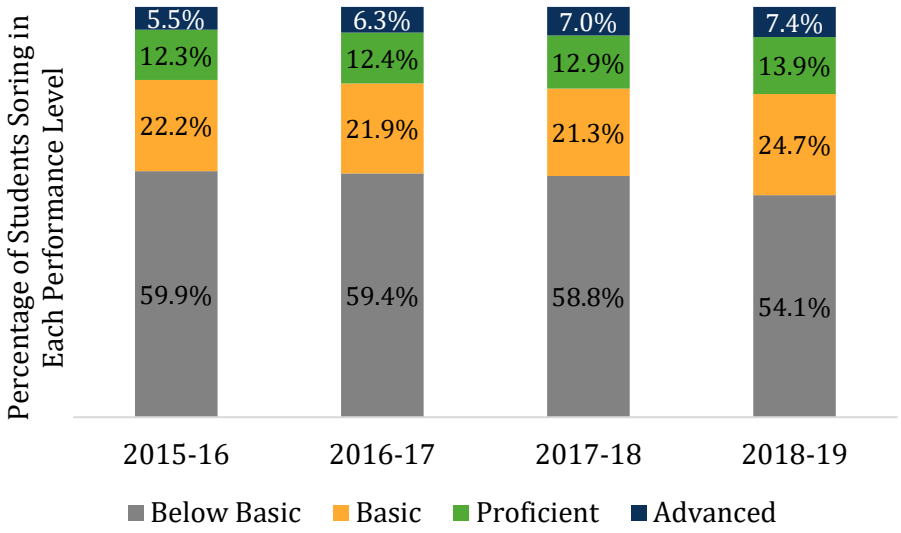
[4] All PSSA assessments were canceled during the 2019-20 school year, due to disruptions caused by the Covid-19 virus and associated school closures.

Trends in Math PSSA Performance

Overall Patterns

Across four years, the percentage of students scoring Advanced, Proficient, or Basic has incrementally increased, with percentage point gains of 1.8, 1.6, and 2.4, respectively (Figure 1).[5] In the same period, the share of students scoring Below Basic has decreased by 5.8 percentage points. Together, these small changes mean that for every 20 students who scored in the Below Basic category in 2015-16, one of their peers scored, instead, in one of the other three performance categories in 2018-19 (see Box 2 for some context on state-wide results).

Figure 1. Overall SDP Performance Levels on the Math PSSA Exam, by Year, 2015-16 through 2018-19

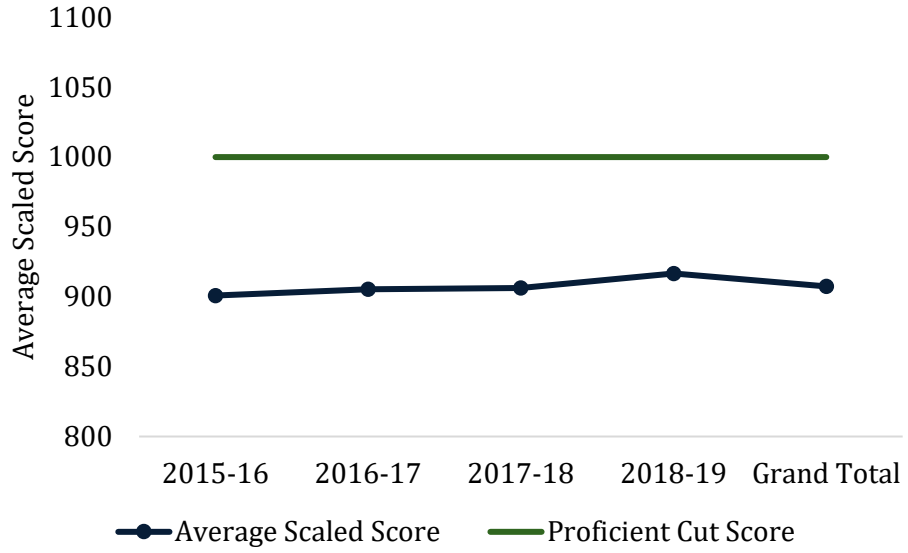


Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Performance level gains aligned with a small increase in the average scaled score (Figure 2). From 2015-16 to 2018-19, the average scaled score increased across the District increased by 16 points, from 901 to 917.

[5] Throughout the report, discrepancies between values stated in the text and values implied by the figures are due to rounding in the figures, and the value in the text is more precise. For example, in this case the text specifies a 1.8 percentage point gain in the rate of students scoring Advanced, while the values in the figure imply a difference between 5.5% and 7.4%, or 1.9 percentage points. In fact, the values for the two years are 5.54% and 7.36%, for a difference of 1.82 percentage points.

Figure 2. Overall SDP Scaled Scores on the Math PSSA Exam, Grades 3-8 Combined, by Year, 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

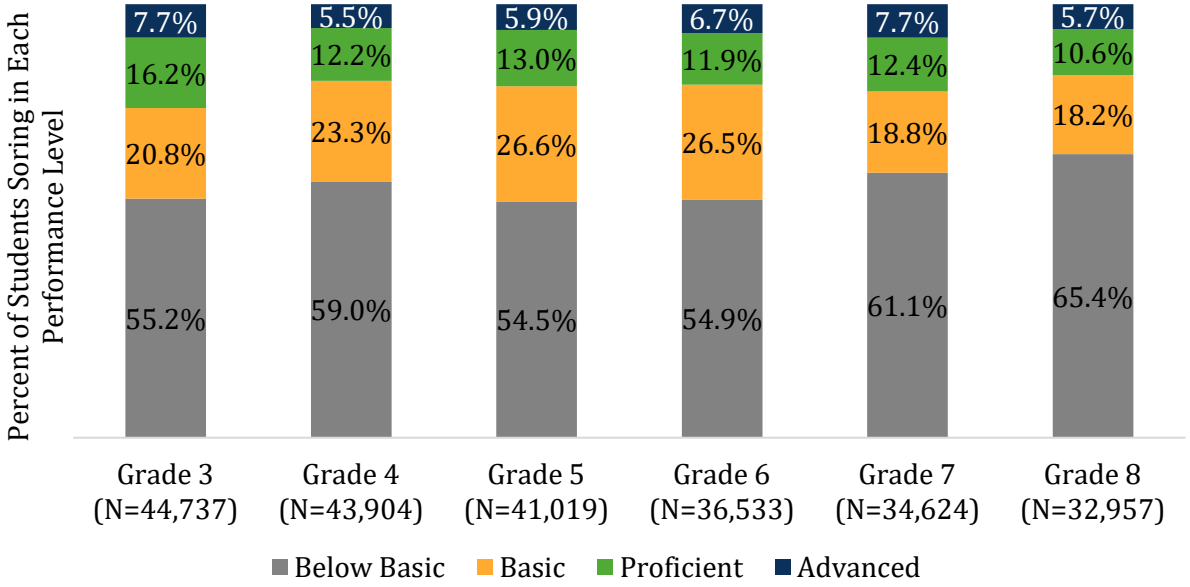
Box 2. How Did SDP PSSA Trends Compare to the Rest of Pennsylvania between 2015-16 and 2018-19?

- SDP's gains in overall Proficient/Advanced (P/A) rates (+3.4 percentage points) were greater than state-wide gains (no change).
- SDP and Pennsylvania both have the highest P/A rates in third grade, and in each subsequent grade the rate is lower.
    - An exception to this pattern is that fourth-grade P/A rates in SDP were lower than in grades 5 and 6; but this pattern did not occur at the State level.

Grade Level

Aggregating across all four years (2015-16 through 2018-19), performance levels were similar, but not identical, for students in different grades (Figure 3). Grade 3 had the highest percentage of students scoring Proficient or Advanced (24.0%), and Grade 8 had the lowest (16.4%). The remaining grades had very similar Proficient/Advanced rates, ranging narrowly from 17.7% (Grade 4) to 20.1% (Grade 7). Further, in these same grades there was variation among the remaining students in how they were distributed between Basic and Below Basic performance levels, with Grade 7 standing out as having an especially high Below Basic rate (61.1%).

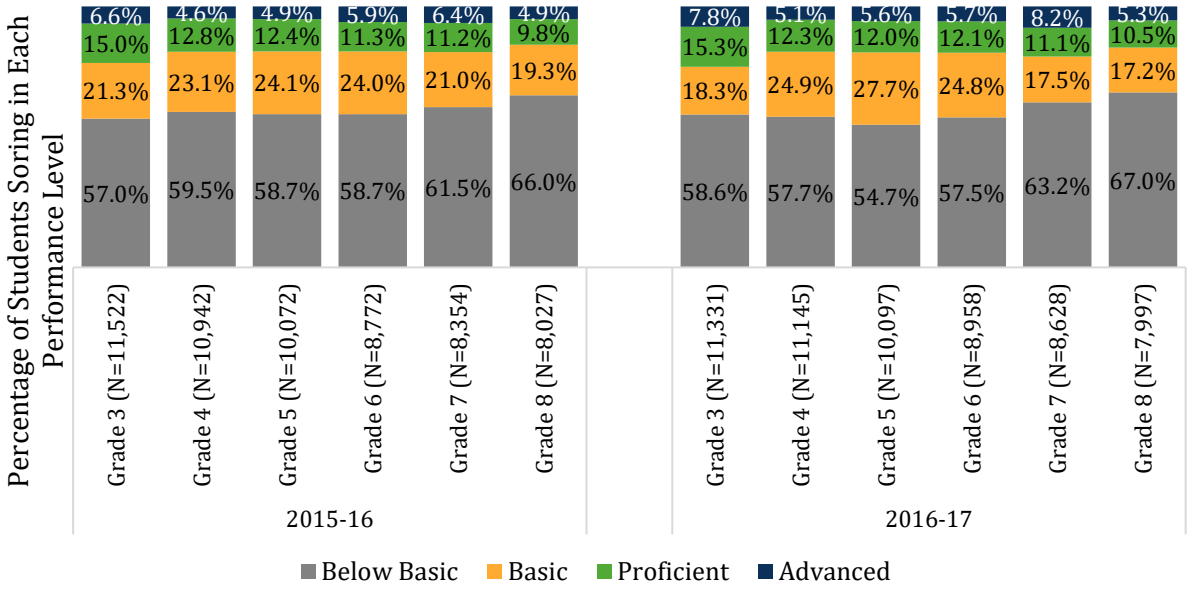
Figure 3. Performance Levels by Grade, Combined 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Across years, there was some variation in the grade-by-grade distributions of performance levels. In 2015-16 and 2016-17, performance generally declined as the grade level increased; a pattern that also occurred state-wide (Figure 4; also see Box 2).

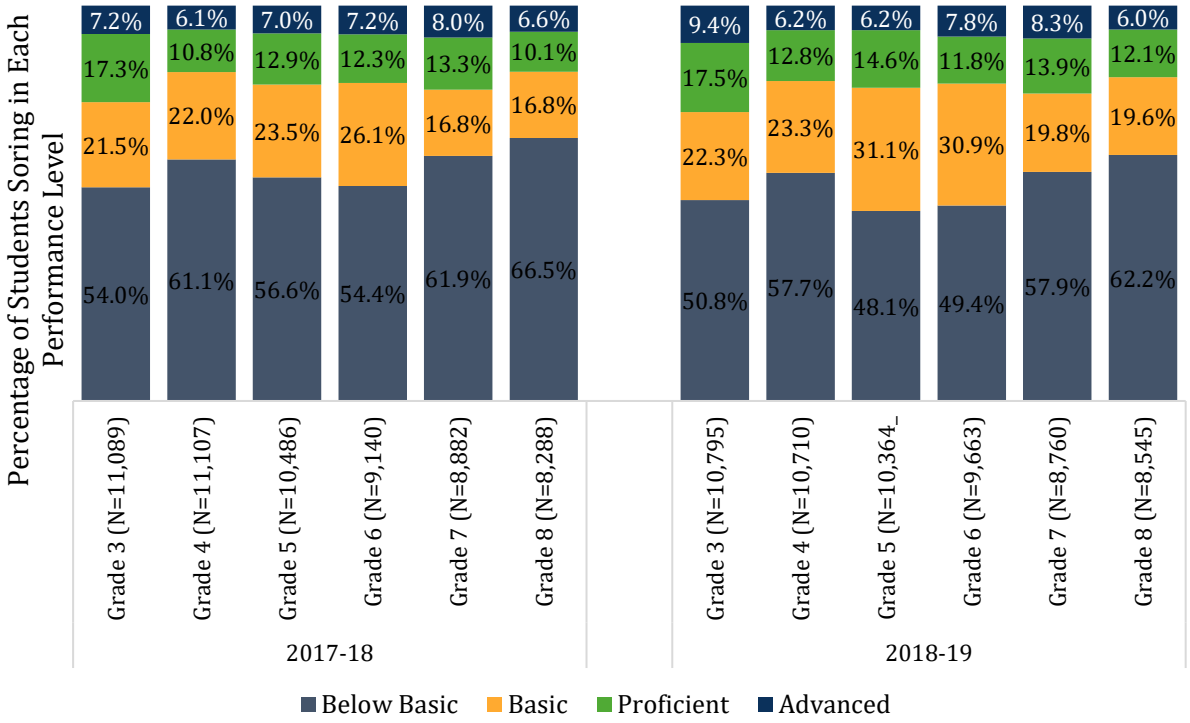
Figure 4. Performance Levels by Grade, by Year, 2015-16 and 2016-17



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

In 2017-18 and 2018-19 this pattern was less straightforward, and differed from State patterns, as Grade 4 performance was not as strong as Grades 5 and 6 (Figure 5; also see Box 2).

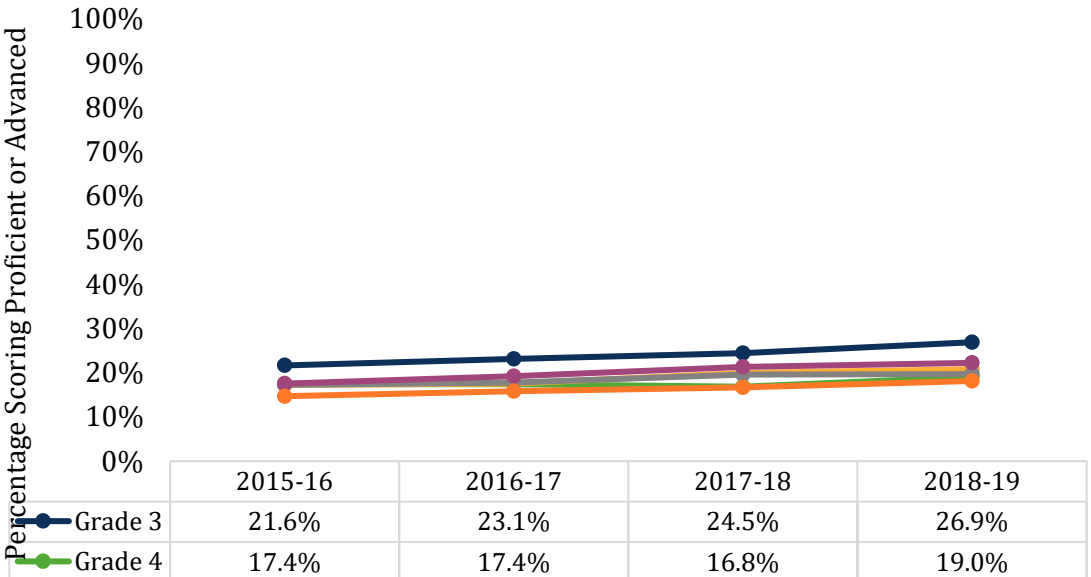
Figure 5. Performance Levels by Grade, by Year, 2016-17 and 2017-18



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Focusing on Proficient/Advanced (P/A) rates, all grades saw increases over the course of the four years (Figure 6). These gains ranged from 1.7 percentage points in Grade 4 to 5.2 percentage points in Grade 3.

Figure 6. Percentage of Students Scoring Proficient or Advanced on the Math PSSA Exam, by Grade; 2015-16 to 2018-19

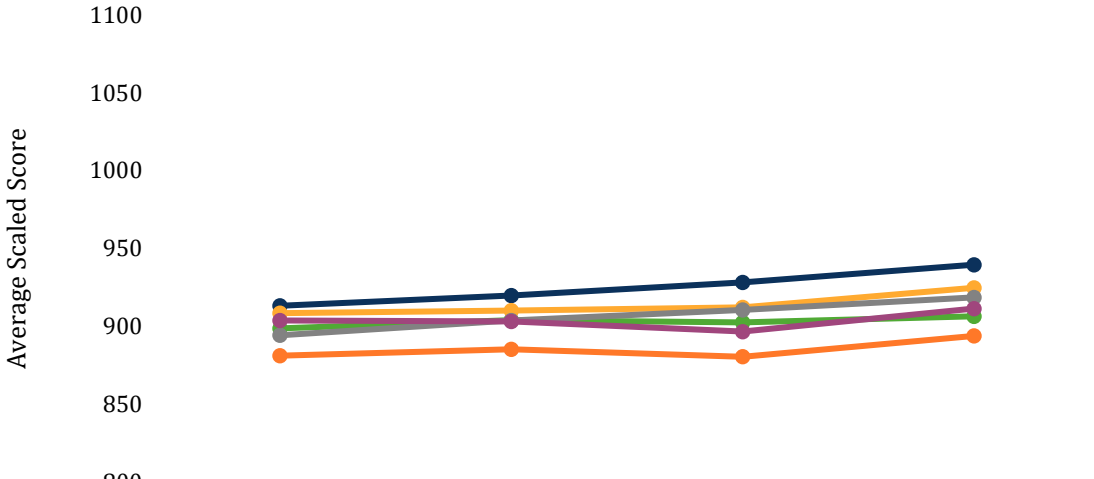


	2015-16	2016-17	2017-18	2018-19
Grade 3	21.6%	23.1%	24.5%	26.9%
Grade 4	17.4%	17.4%	16.8%	19.0%
Grade 5	17.2%	17.6%	19.9%	20.8%
Grade 6	17.3%	17.7%	19.6%	19.7%
Grade 7	17.5%	19.2%	21.3%	22.2%
Grade 8	14.7%	15.8%	16.7%	18.1%

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Across years, scaled scores also increased for all grades (Figure 7). These increases ranged from about 8 scaled score points in Grades 4 and 8 to about 24 in Grade 6 and 26 in Grade 3.

Figure 7. Math PSSA Scaled Scores, by Grade; 2015-16 to 2018-19



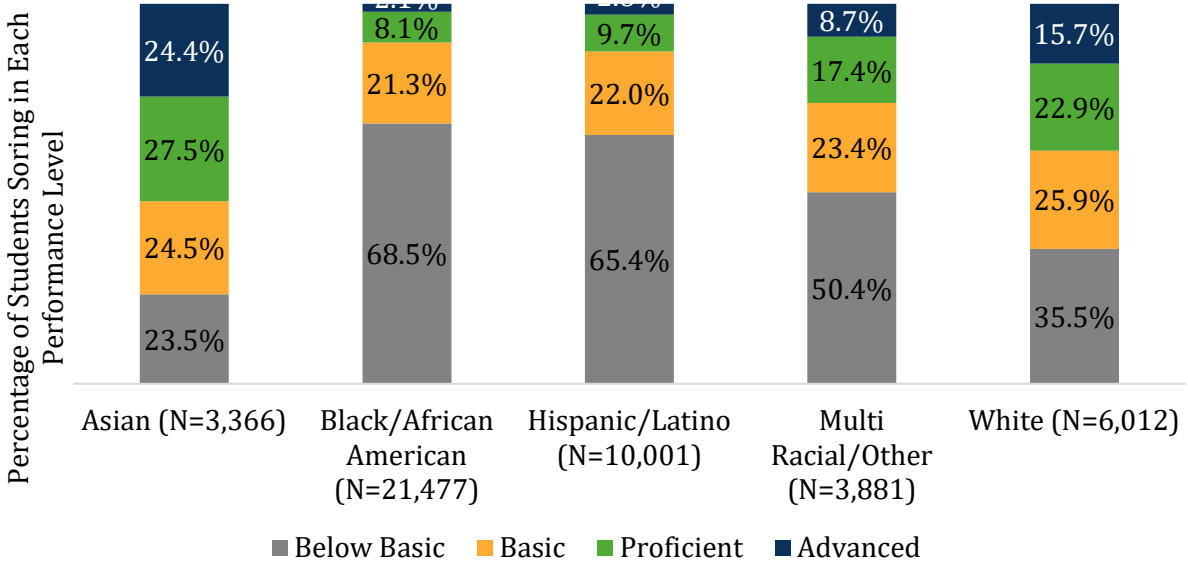
	2015-16	2016-17	2017-18	2018-19
Grade 3	913	920	928	940
Grade 4	899	904	903	906
Grade 5	908	910	912	925
Grade 6	894	904	911	919
Grade 7	904	903	897	911
Grade 8	881	885	880	894

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Race/Ethnicity

There were wide differences in performance levels across students of different races/ethnicities (Figure 8). Over half of Asian students scored either Proficient or Advanced (51.9%), compared with 10.2% of Black/African American students and 12.5% of Hispanic/Latino students.

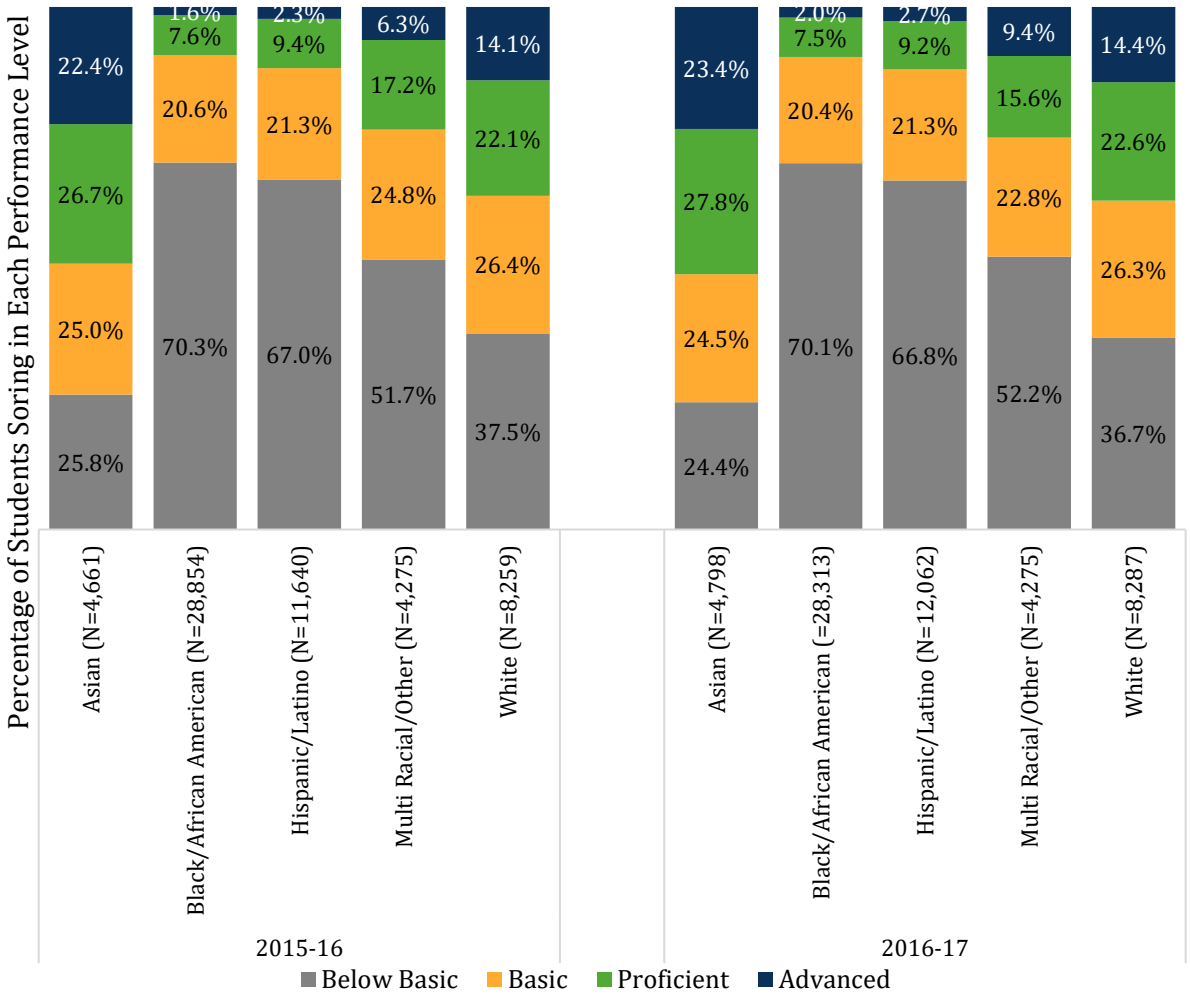
Figure 8. Performance Levels by Race/Ethnicity, Combined 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

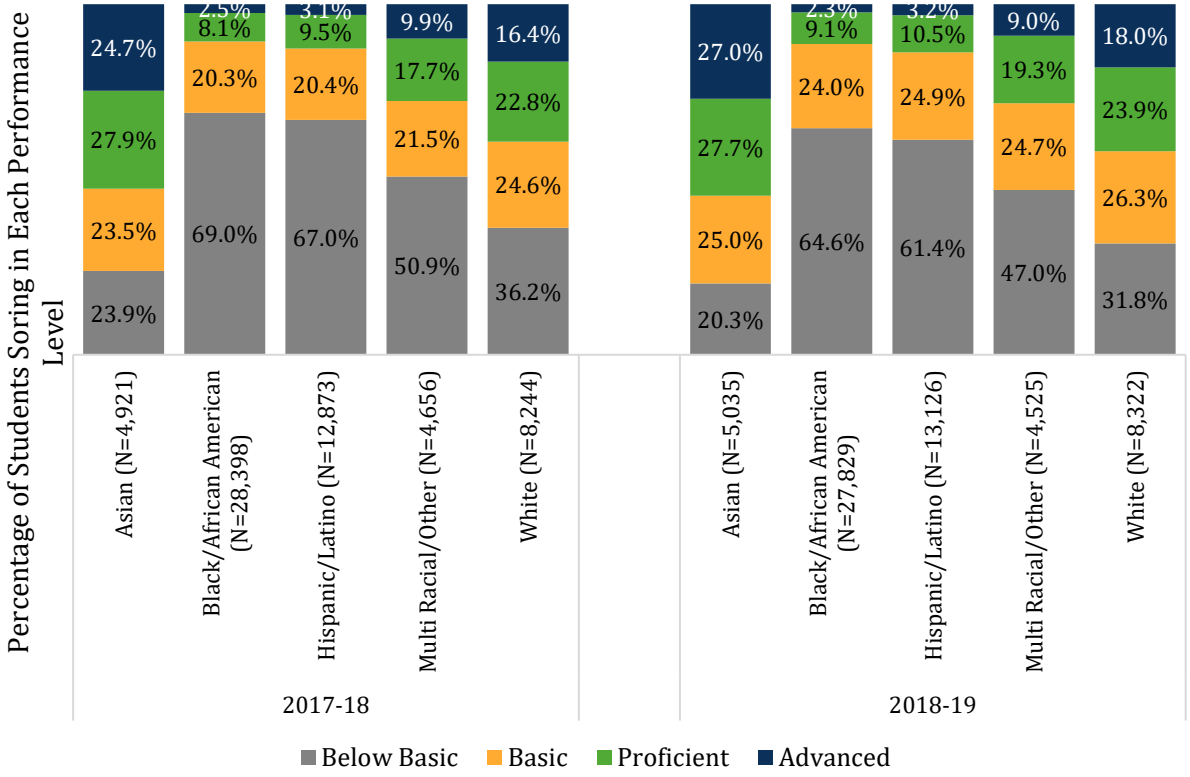
The stark performance disparities were observed in all four years (Figures 9 and 10). White and Asian students consistently had the highest proficient/advanced rates, while Black/African American and Hispanic/Latino students had the lowest.

Figure 9. Performance Levels by Race/Ethnicity, by Year, 2015-16 and 2016-17



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

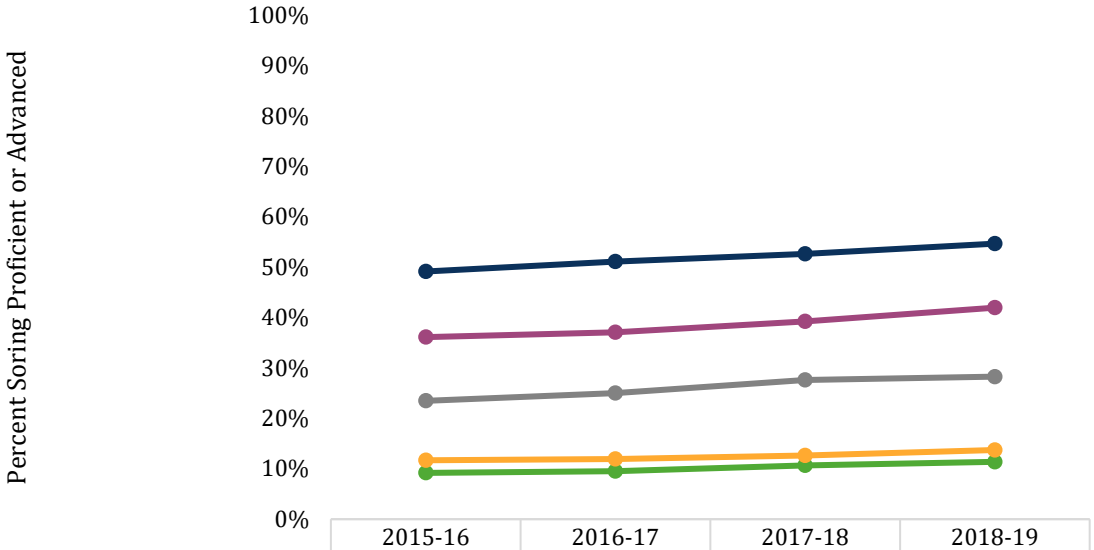
Figure 10. Performance Levels by Race/Ethnicity, by Year, 2017-18 and 2019-20



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

The percentage of students who scored Proficient or Advanced increased for all subgroups (Figure 11). However, these increases were small and widened existing disparities. The percentage of Black/African American and Hispanic/Latino students scoring Proficient or Advanced increased by about 2 percentage points, compared with increases of about 6 percentage points for both Asian and White students.

Figure 11. Percentage of Students Scoring Proficient or Advanced on the Math PSSA Exam, by Race/Ethnicity; 2015-16 to 2018-19



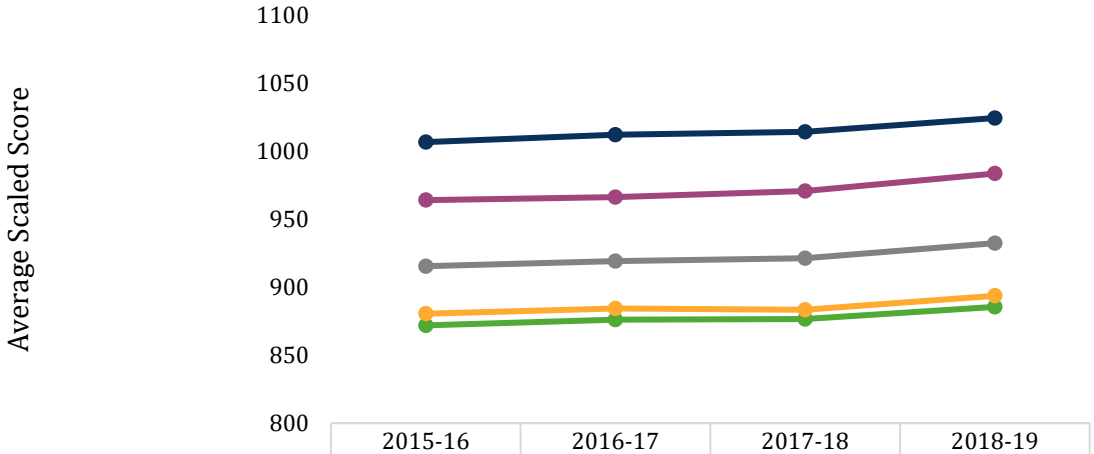
	2015-16	2016-17	2017-18	2018-19
Asian	49.2%	51.1%	52.6%	54.7%
Black/African American	9.2%	9.5%	10.6%	11.4%
Hispanic/Latino	11.7%	11.9%	12.6%	13.7%
Multi Racial/Other	23.5%	25.0%	27.6%	28.3%
White	36.1%	37.1%	39.2%	42.0%

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Analysis of scaled scores provides some added context for the findings regarding performance levels. Again, we find that Asian students had the highest average scaled scores, followed by White students, with Black/African American and Hispanic/Latino students having the lowest averages (Figure 12). Further, we see again that all subgroups showed gains across the four years, from a maximum gain of 19.6 scaled score points among White students and minimum gains of 13.2 and 13.6 percentage points among Hispanic/Latino and Black/Hispanic students.

This scaled score discrepancy can be reframed by saying that the gains in raw score made by Asian students were about one-and-a-half times the gains made by Black/African American and Hispanic/Latino students. However, the parallel comparison of gains in Proficient/Advanced rate was three times as large. This makes sense when we consider that the cut-point for scoring Proficient is 1,000. The closer a subgroup's average is to this cut-point, the greater the likelihood that a gain in scaled score will result in crossing that threshold, which is necessary for increasing the Proficient/Advanced rate.

Figure 12. Average Scaled Score, by Race/Ethnicity; 2015-16 to 2018-19



	2015-16	2016-17	2017-18	2018-19
Asian	1007	1012	1014	1024
Black/African American	872	876	877	885
Hispanic/Latino	880	884	883	894
Multi Racial/Other	915	919	921	932
White	964	966	971	984

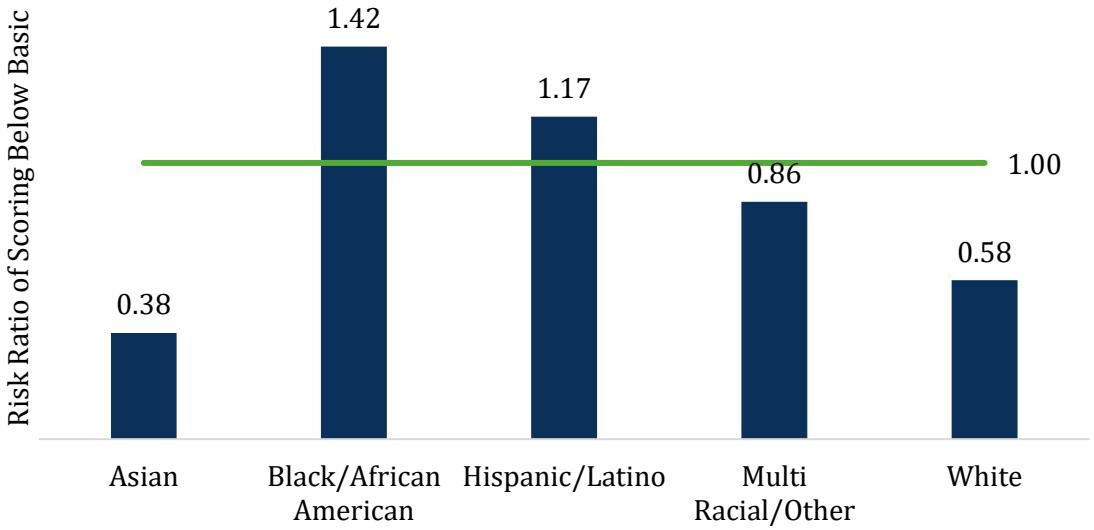
Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Another way to look at race/ethnicity is with risk ratios. A risk ratio is intended to capture the extent to which each subgroup is "at risk" of experiencing a specific outcome. **In this case, the risk ratios express the *comparative* likelihood that a student belonging to a specific racial/ethnic group will obtain a score of Below Basic on their math PSSA.** A risk ratio of 2.00, for example, means that subgroup is exactly twice as likely to score Below Basic (compared with all other subgroups combined), while a value of 0.50 indicates that they are half as likely.

For each subgroup, the numerator of the risk ratio is the percentage of students in the subgroup who experience the outcome (in this case scoring Below Basic); the denominator is the percentage of students of all other subgroups who experience that outcome. This comparison to "all other students" means that a researcher's choice about the number of subgroups to select can have a significant impact on the ratios (and the impression) that result. Therefore, for both completeness and for transparency, we present this data in two different ways.

First, we look at each race/ethnicity subgroup individually. Doing so, we find that Black/African American students and Hispanic/Latino students are about 1.4 and 1.2 times as likely to score Below Basic as all other groups combined. In contrast, Asian students are less than half as likely (.38) to score Below Basic.

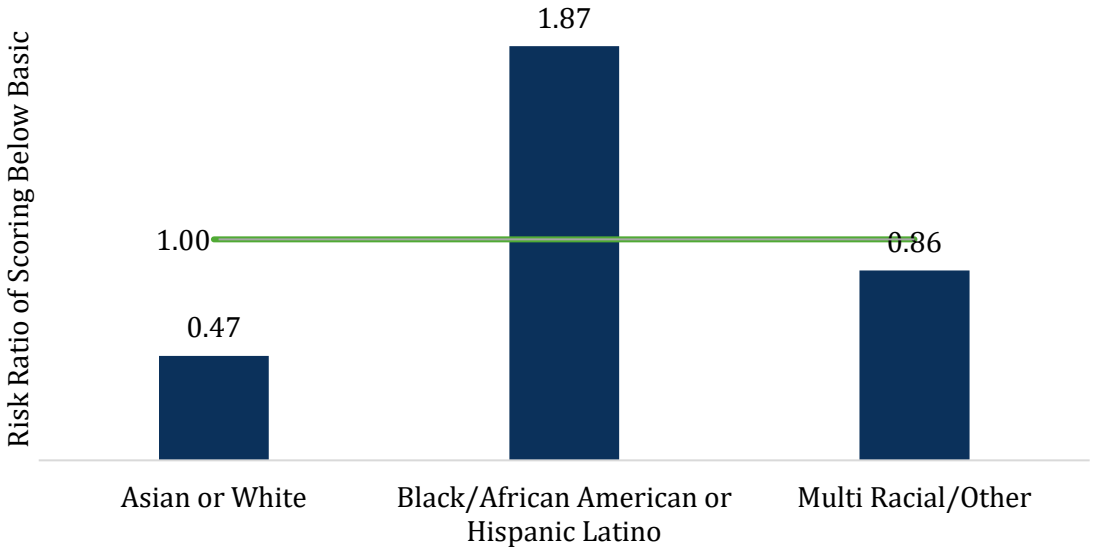
Figure 13. Risk Ratios for Scoring Below Basic on the Math PSSA, by Race/Ethnicity; 2015-16 to 2018-19 Combined



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Secondly, If the two highest-risk groups are combined, and so are the two lowest-risk groups, the differences become more pronounced (Figure 14). With this framing, students who are Black/African American or Hispanic/Latino are almost twice as likely (1.87) to score Below Basic as their peers.

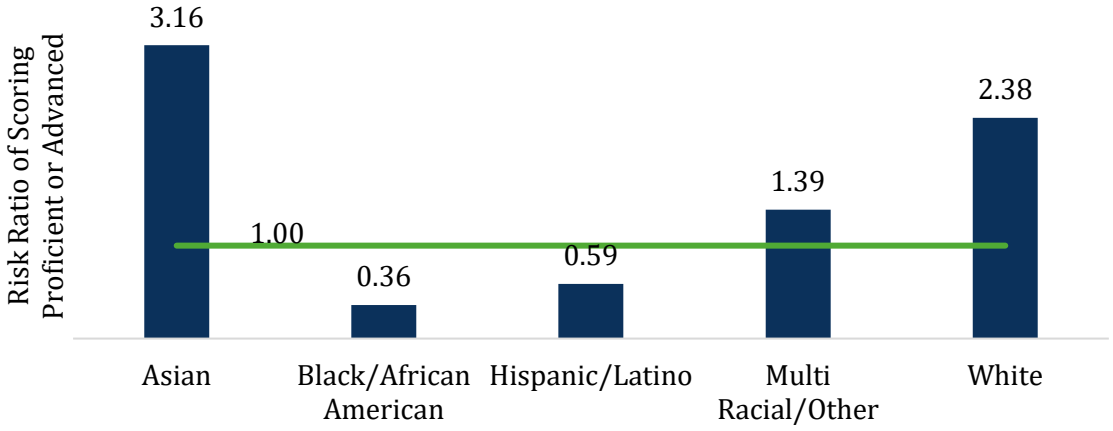
Figure 14. Risk Ratios for Scoring Below Basic on the Math PSSA, by consolidated Race/Ethnicity Groupings; 2015-16 to 2018-19 Combined



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

In contrast, students who are Asian are about three times as likely (3.16) as their peers to score Proficient or Advanced, and students who are White are almost two-and-a-half times as likely (2.38; Figure 15). Conversely, Black/African American and Hispanic/Latino students are roughly a third (.36) to a half (.59) as likely to score Proficient or Advanced.

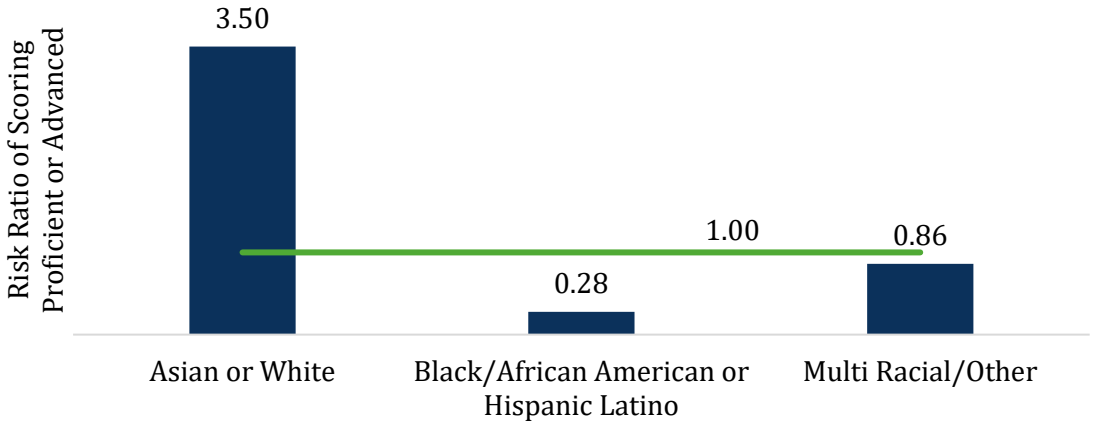
Figure 15. Risk Ratios for Scoring Proficient or Advanced on the Math PSSA, by Race/Ethnicity; 2015-16 to 2018-19 Combined



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

If highest- and lowest-risk groups are combined, we find that the P/A rate of Asian and White students is three-and-a-half times (3.50) that of their peers, while the P/A rate of Black/African American and Hispanic/Latino students is about one-quarter (.28) that of students in other race/ethnicity subgroups (Figure 16).

Figure 16. Risk Ratios for Scoring Proficient or Advanced on the Math PSSA, by consolidated Race/Ethnicity groupings; 2015-16 to 2018-19 Combined

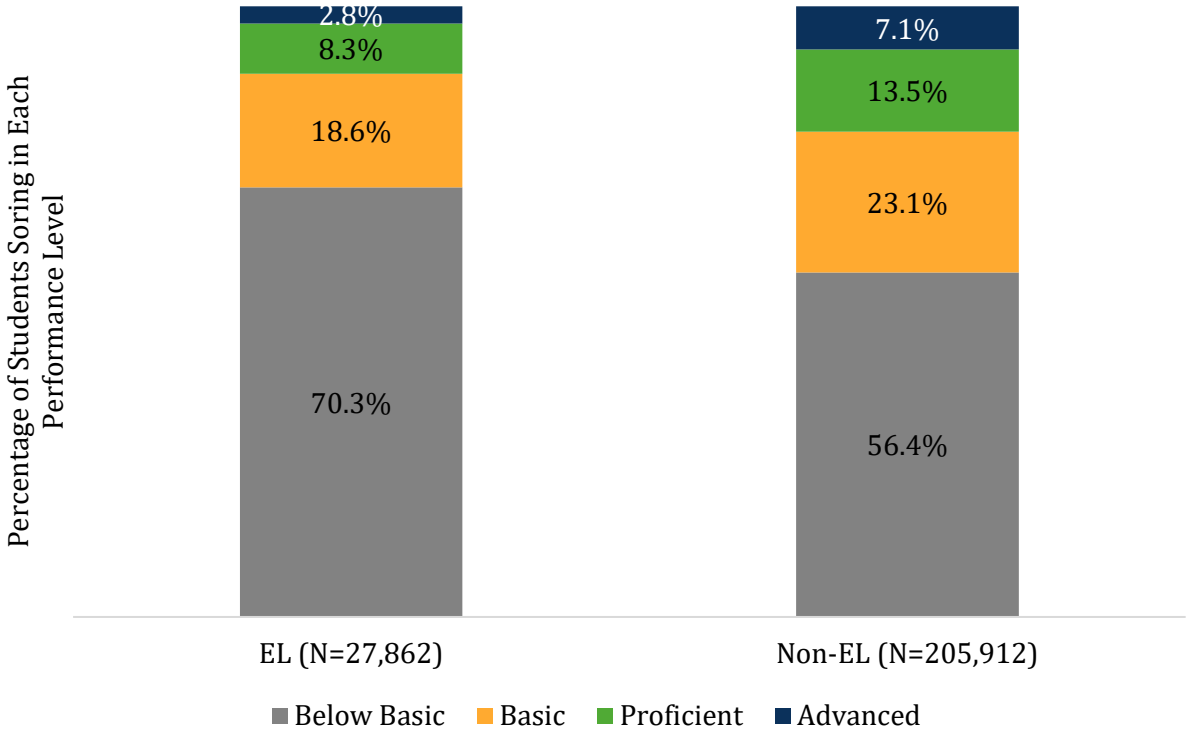


Source: SDP PSSA Accountability File, downloaded 10/20/2020.

English Learners

Across four school years (2015-16 through 2018-19), higher percentages of English Learners (ELs) scored Below Basic or Basic, and lower percentages of ELs scored Proficient or Advanced than non-ELs (Figure 17).

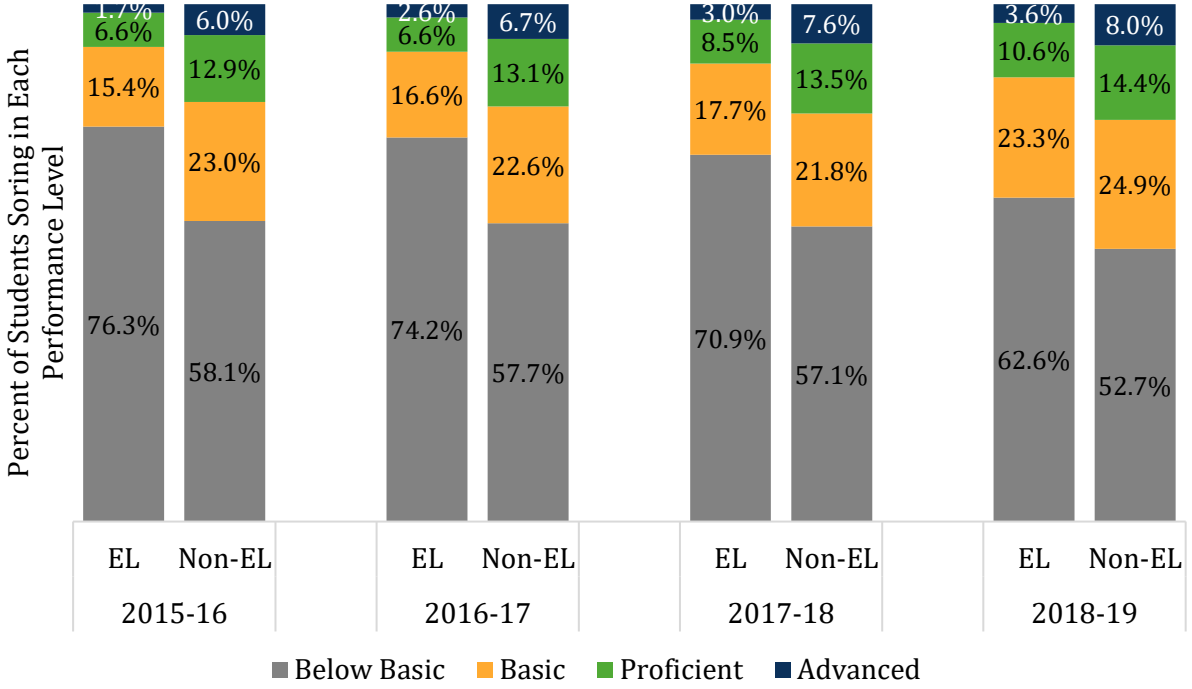
Figure 17. Performance Levels by EL Status, 2015-16 through 2018-19 Combined



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Further, this pattern was observed in each of those four years, with only small variations (Figure 18).

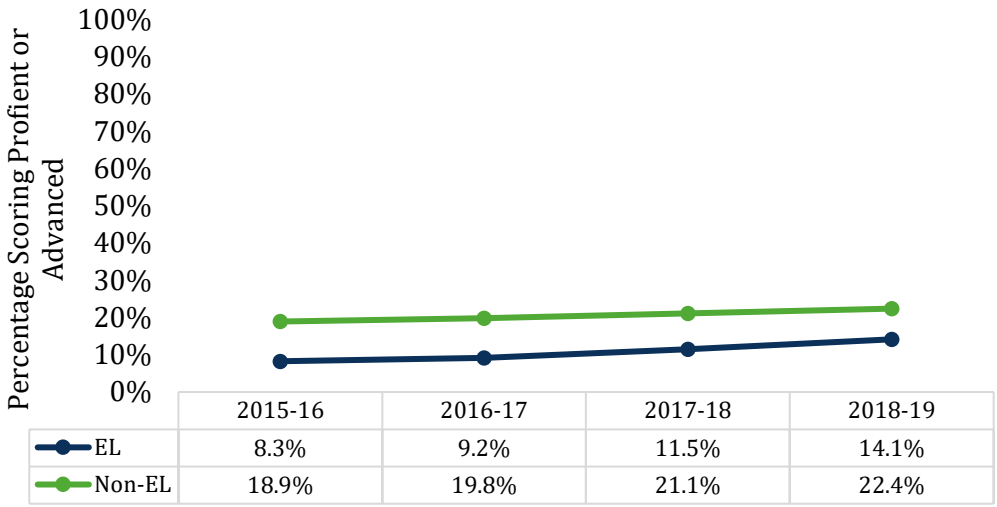
Figure 18. Performance Levels of ELs and Non-ELs, by Year, 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

P/A rates for both ELs and non-ELs increased from 2015-16 to 2018-19 (Figure 19). Further, the gap between these groups decreased from 11 percentage points in 2015-16 to 8 percentage points in 2018-19.

Figure 19. Percentage of Students Scoring Proficient or Advanced on the Math PSSA Exam, ELs and non-ELs; 2015-16 to 2018-19

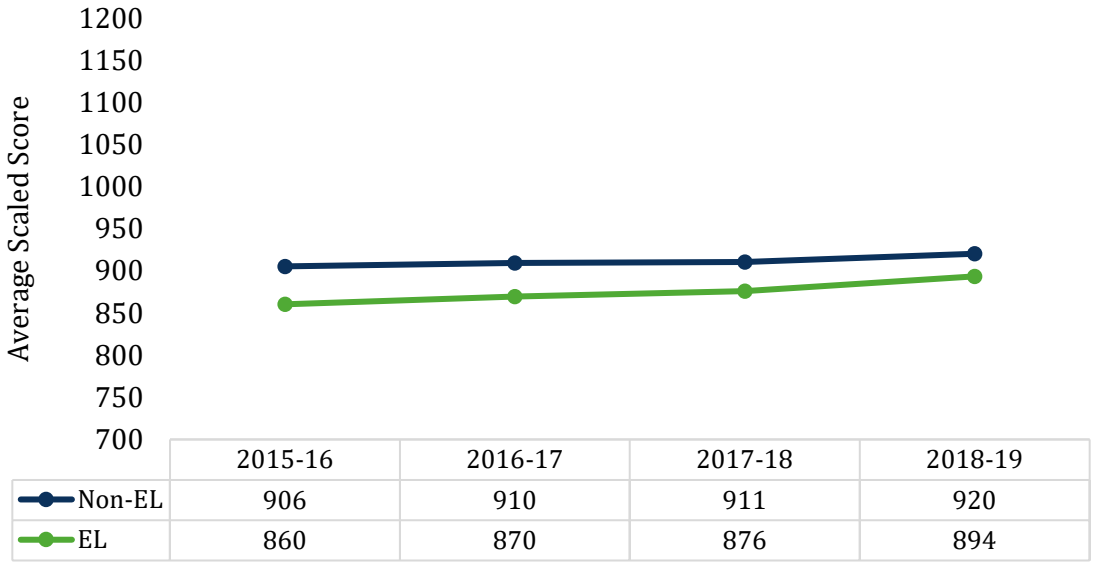


	2015-16	2016-17	2017-18	2018-19
EL	8.3%	9.2%	11.5%	14.1%
Non-EL	18.9%	19.8%	21.1%	22.4%

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

As with performance levels, non-ELs had higher scaled scores across all four years than ELs (Figure 20). The gap, however, narrowed from 45 points in 2015-16 to 27 points in 2018-19.

Figure 20. Average Scaled Score, for ELs and non-ELs; 2015-16 to 2018-19



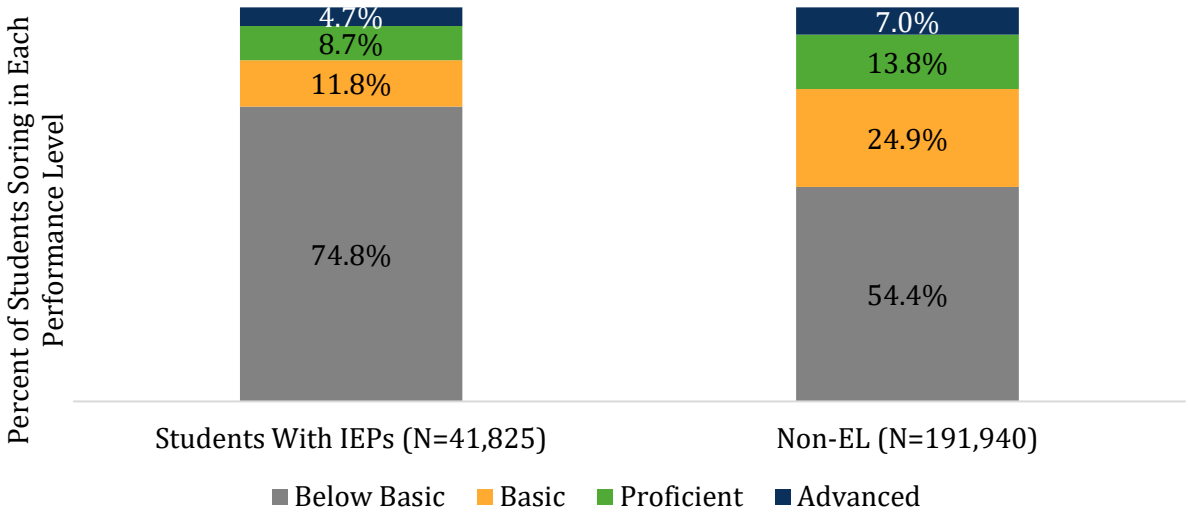
	2015-16	2016-17	2017-18	2018-19
Non-EL	906	910	911	920
EL	860	870	876	894

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Students With and Without IEPs

Aggregated across 2015-16 through 2018-19, a higher percentage of students with IEPs[6] scored Below Basic than their peers without IEPs, and lower percentages of students with IEPs scored Basic, Proficient, or Advanced (Figure 21). This pattern was also observed in each of those years, with only small variations (Figure 22).

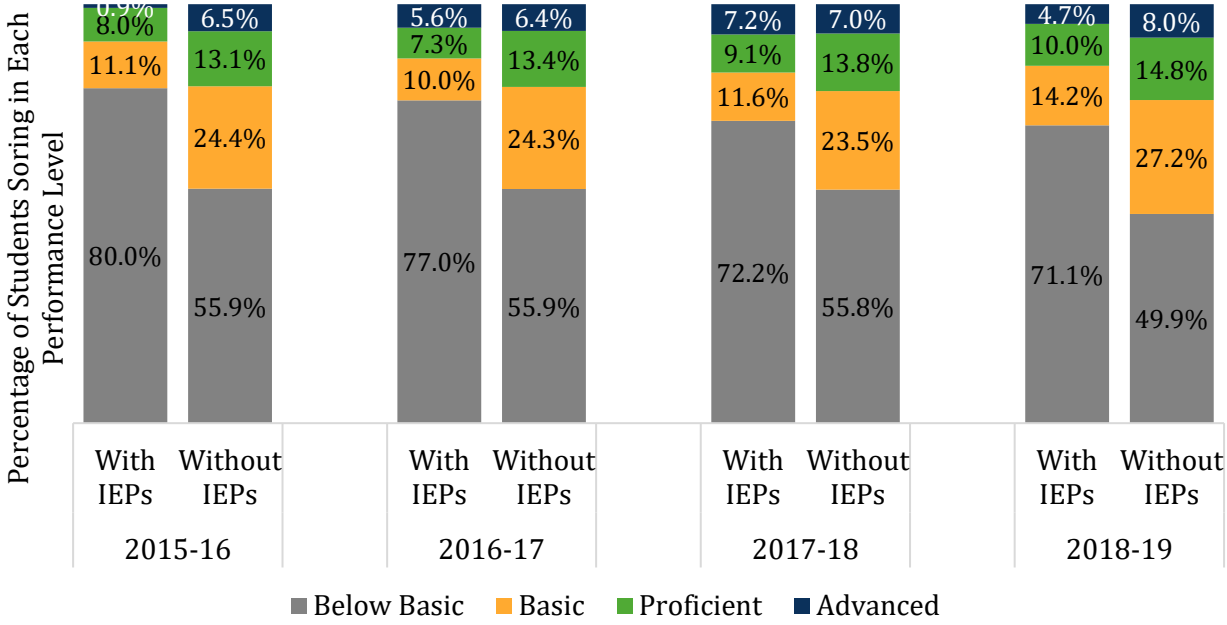
Figure 21. Performance Levels by IEP Status, Combined 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

[6] In this report, *students with IEPs* refers to any student with an Individualized Education Plan (IEP), except for students with Gifted IEPs.

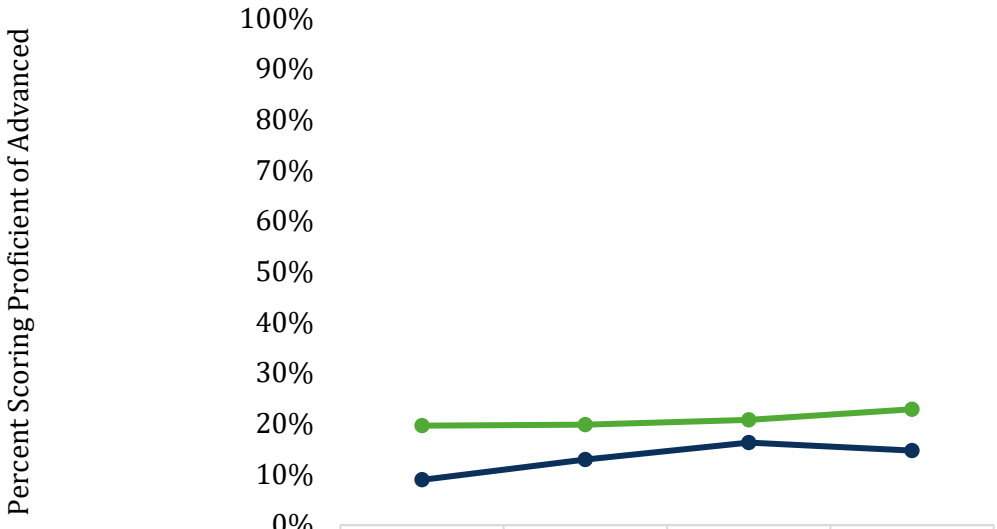
Figure 22. Performance Levels of Students with and without IEPs, by Year, 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

P/A rates for students both with and without IEPs increased from 2015-16 to 2018-19 (Figure 23). Further, the gap between these groups decreased from 11 percentage points in 2015-16 to 8 percentage points in 2018-19.

Figure 23. Percentage of Students Scoring Proficient or Advanced on the Math PSSA Exam, Students with and without IEPs; 2015-16 to 2018-19

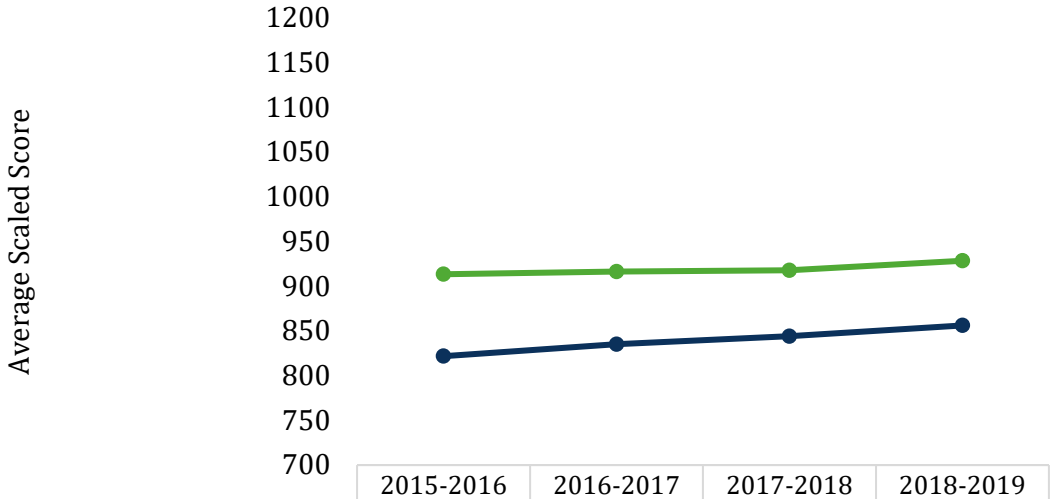


	2015-16	2016-17	2017-18	2018-19
Students With IEPs	8.9%	12.9%	16.3%	14.7%
Students Without IEPs	19.6%	19.8%	20.7%	22.8%

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Students with IEPs had lower scaled scores in all four years (Figure 24). However, the gap between the two groups narrowed from 92 points in 2015-16 to 72 points in 2018-19.

Figure 24. Scaled Scores of Students with and without IEPs, 2015-16 through 2018-19



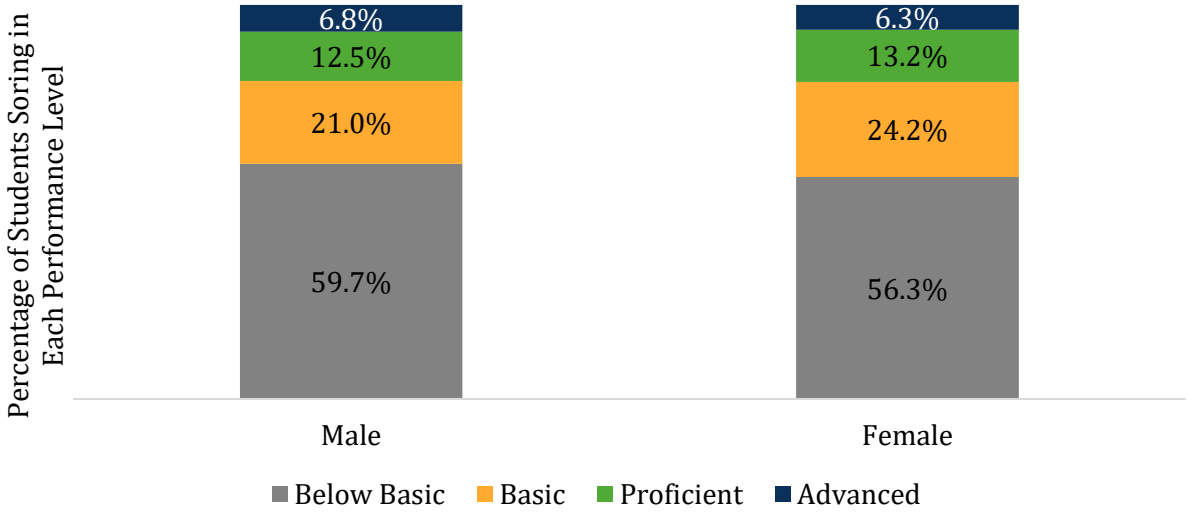
	2015-2016	2016-2017	2017-2018	2018-2019
Students With IEPs	822	835	844	856
Students Without IEPs	913	916	918	928

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Gender

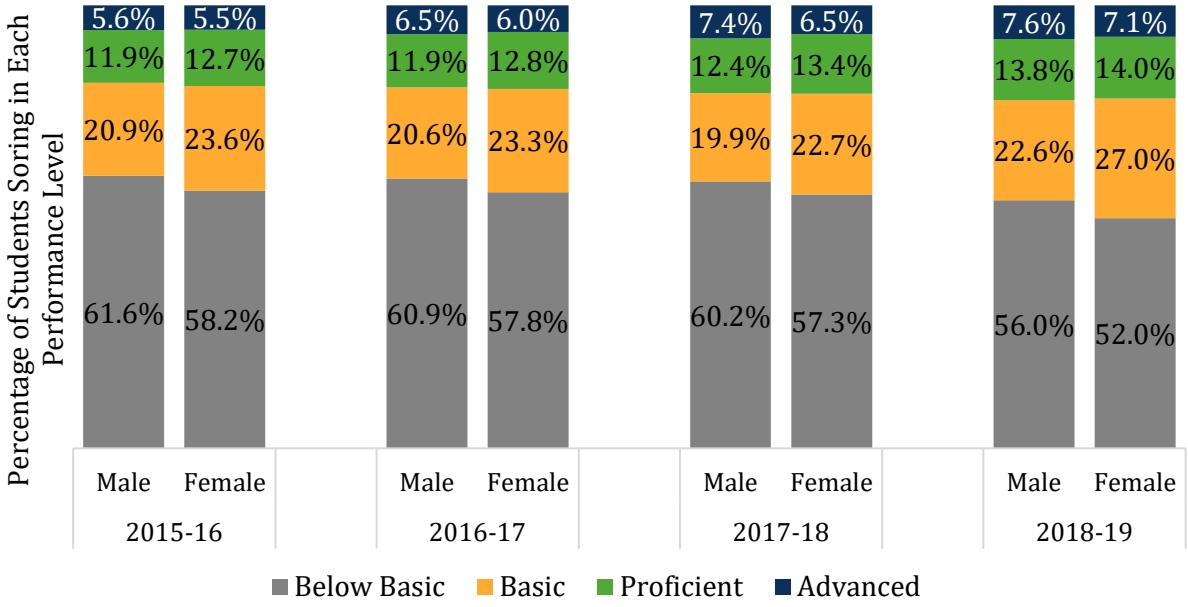
Across four school years (2015-16 through 2018-19), male and female students scored in each performance level at similar rates (Figure 25), especially in the Proficient and Advanced categories. Female students scored Basic slightly more frequently, and male students scored Below Basic more frequently (a 3 percentage point differences in each case). These overall patterns were observed in each of those four years, with only small variations (Figure 26).

Figure 25. Performance Levels by Gender, Combined 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

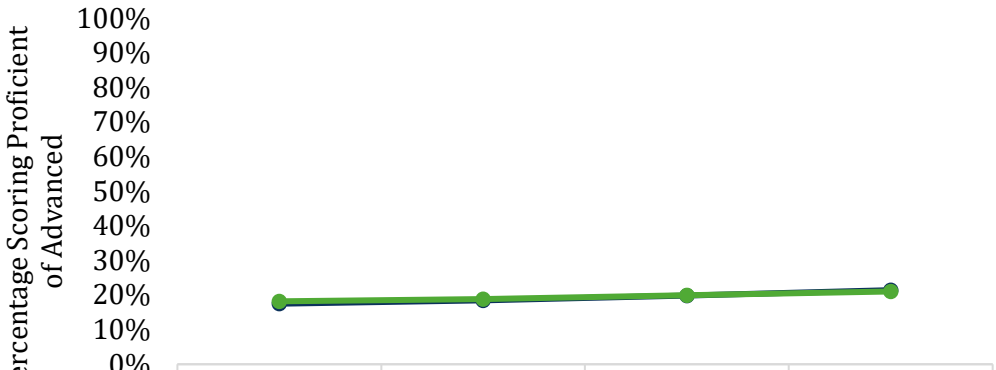
Figure 26. Performance Levels by Gender, by Year, 2015-16 through 2018-19



Source: SDP PSSA Accountability File, downloaded 10/20/2020.

P/A rates for both male and female students were within 1 percentage point in every year from 2015-16 to 2018-19 (Figure 23), and both groups of students saw increases of about 3 or 4 percentage points in their P/A rate.

Figure 27. Percentage of Students Scoring Proficient or Advanced on the Math PSSA Exam, by Gender; 2015-16 to 2018-19



	2015-16	2016-17	2017-18	2018-19
Male	17.5%	18.5%	19.8%	21.4%
Female	18.2%	18.8%	20.0%	21.0%

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

Female students had higher average scaled scores in all four years (Figure 24). In each year, the gap between the two groups was consistent (9 or 10 scaled score points).

Figure 28. Scaled Scores, by Gender, 2015-16 through 2018-19

	2015-16	2016-17	2017-18	2018-19
Female	906	910	911	922
Male	896	901	902	912

Source: SDP PSSA Accountability File, downloaded 10/20/2020.

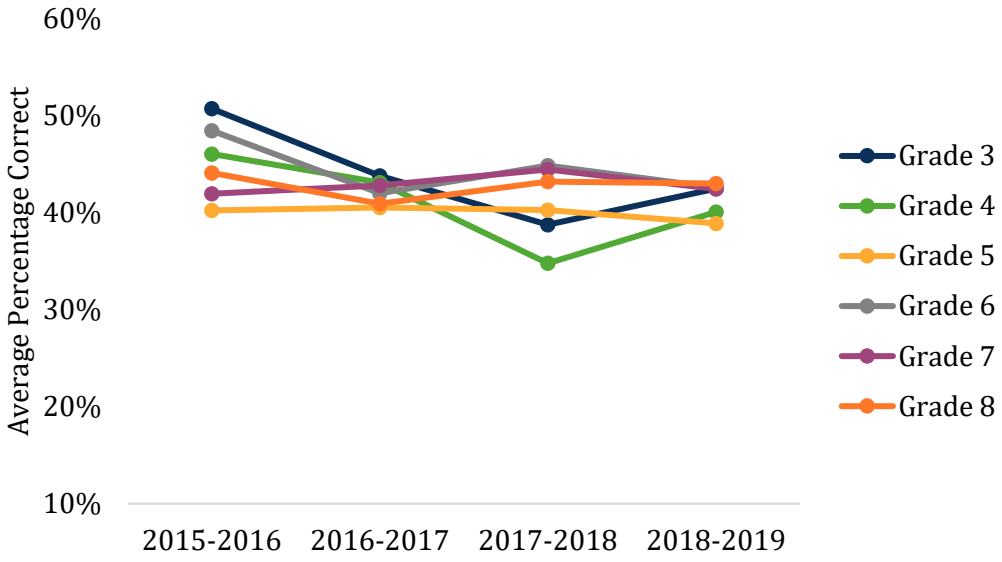
Appendix: Performance on Sub-Scores of the Math PSSA

In addition to the overall scoring metrics (scaled score and performance level), the PSSA also offers several sub-scores. These provide data that could, potentially, provide additional insight into whether struggling students are having uniform difficulty across the entire test, whether they struggle with specific item formats, or whether they may be proficient in some areas and in need of targeted support in other areas.

Item Format

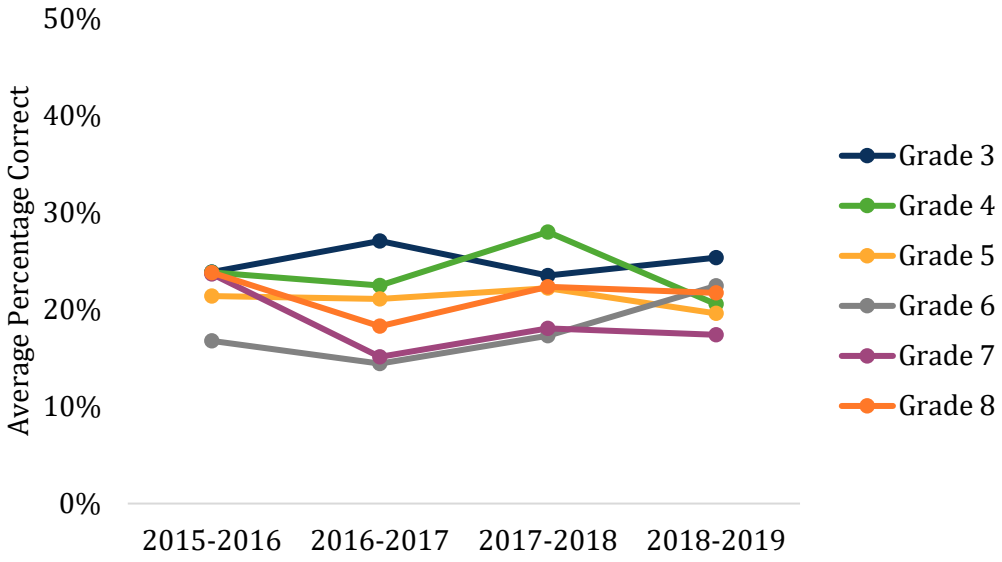
Two of the sub-scores concern the construction of the test. The test is divided into multiple-choice items and open-ended questions. From 2015-16 through 2018-19, there were no clear, stable patterns for student performance on the multiple-choice items, with no grade level consistently over- or under-performing the others. (Figure 25).

Figure A1. Multiple-Choice Percentage of Max Score, by Grade; 2015-16 to 2018-19



Grade-level open-ended scores were also volatile (Figure 26). In this case, Grade 3 was consistently among the highest-performing grades, and grades 6 and 7 were generally among the lowest-performing.

Figure A2. Open-Ended Percentage or Max Score, by Grade; 2015-16 to 2018-19



Comparing across the two classes of items, SDP students generally performed better on the multiple-choice items (earning between 35 and 51 percent of available points), compared with open-ended items (between 14 and 28 percent of available points).

Strength Profiles

The remaining sub-scores concern specific mathematical content areas. PDE aligns content on the Math PSSA with 10 **reporting categories**, which are aligned, in turn, with one or more state standards. Each reporting category appears in some or all PSSA grade levels (Table 1). In addition to their overall performance level of Advanced, Proficient, Basic, or Below Basic, students are assigned a **strength profile** of High, Medium, or Low in each reporting category that pertains to their grade level.

Table A1. Math PSSA reporting categories and their applicable grades

Reporting Category Description	Applicable Grades
Numbers and Operations in Base Ten	3–5
The Number System	6–8
Ratios and Proportional Relationships	6–7
Numbers and Operations - Fractions	3–5
Expressions and Equations	6–8
Functions	8
Operations and Algebraic Thinking	3–5
Geometry	3–8
Measurement and Data	3–5
Statistics and Probability	6–8

Source: https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/PSSA/Pages/default.aspx

Strength profiles might, in principal, add important context and nuance to overall findings about SDP student performance. In practice, however, we do not find strong evidence that overall proficiency patterns are masking different patterns at the level of reporting categories. Certainly, there were small year-to-year fluctuations; and in a given year, with a given grade level, and a given Reporting Category once can find examples where the sub-score and the overall score diverged in a small way. However, these cases were isolated, did not occur with consistency, and did not manifest as actionable trends.

For example, the reporting category *Numbers and Operations in Base Ten* appears on the tests for grades 3 through 5. Across these three grades, and across four years, performance was consistent with between 75 and 83 percent of students earning a rating of Low (Figure 27). For these same grade levels, across these same years, the rate at which students earned an overall Performance Level of Basic or Below Basic ranged from 73 percent to 83 percent (see Figures 4 and 5 in the main body of the report).

Graphs for each Reporting Category follow.

Figure A3. Numbers and Operations in Base 10: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

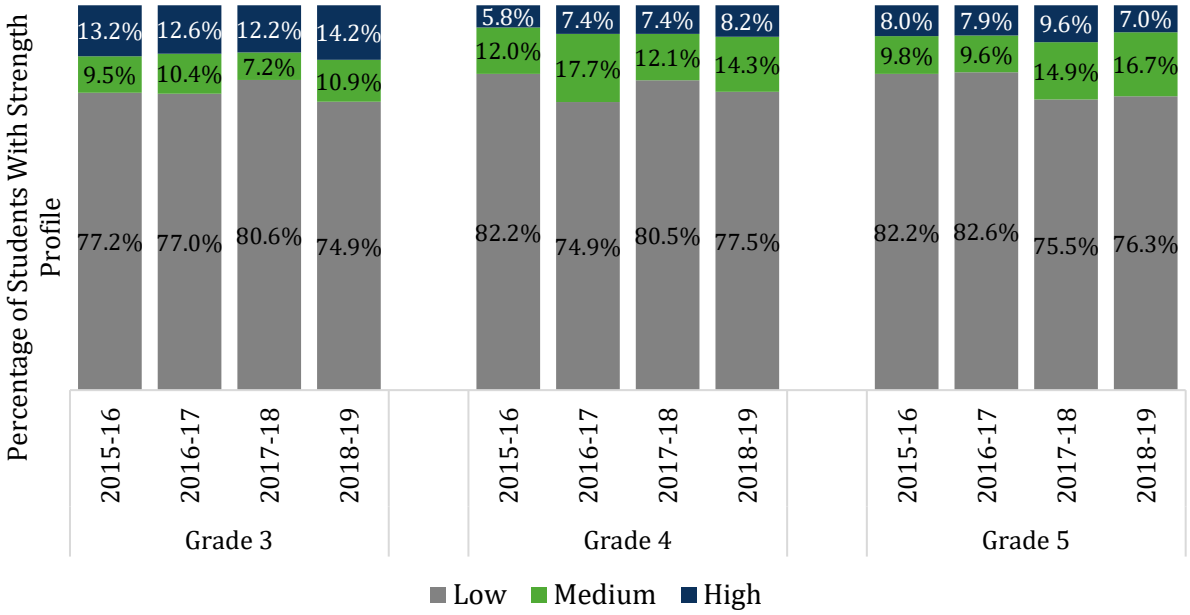


Figure A4. The Number System: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

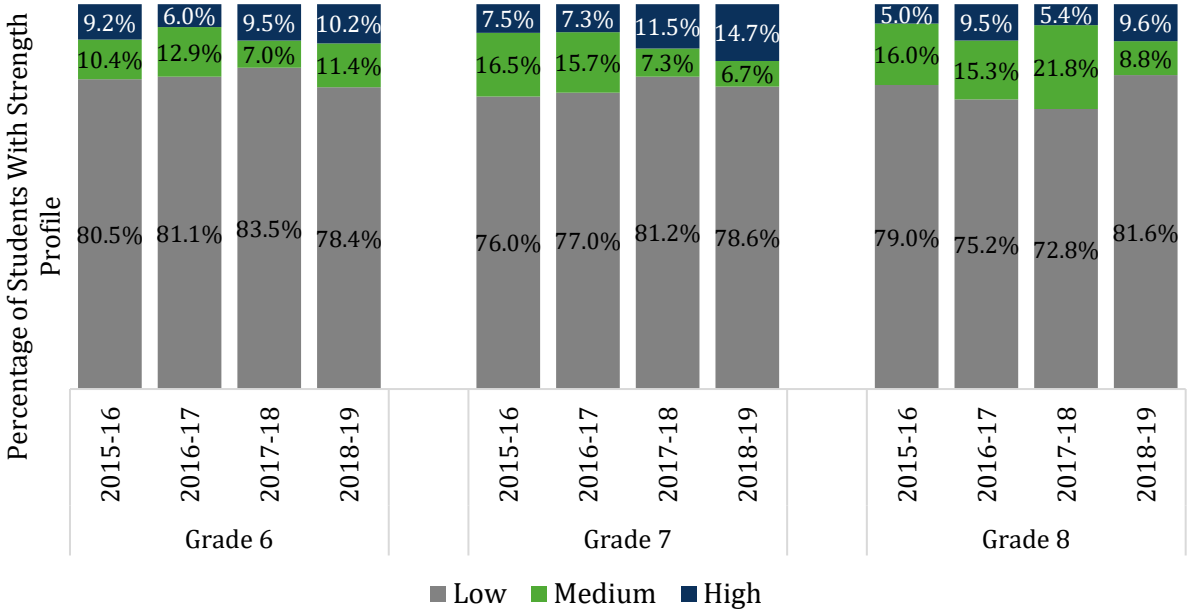


Figure A5. Ratios and Proportional Relationships: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

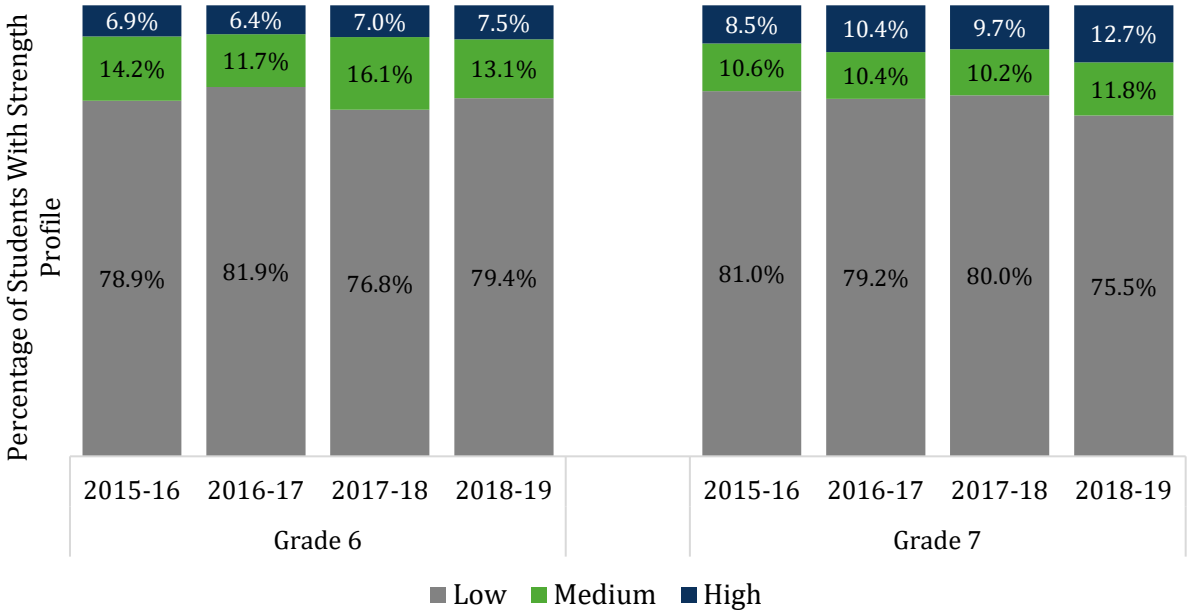


Figure A6. Numbers and Operations – Fractions: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

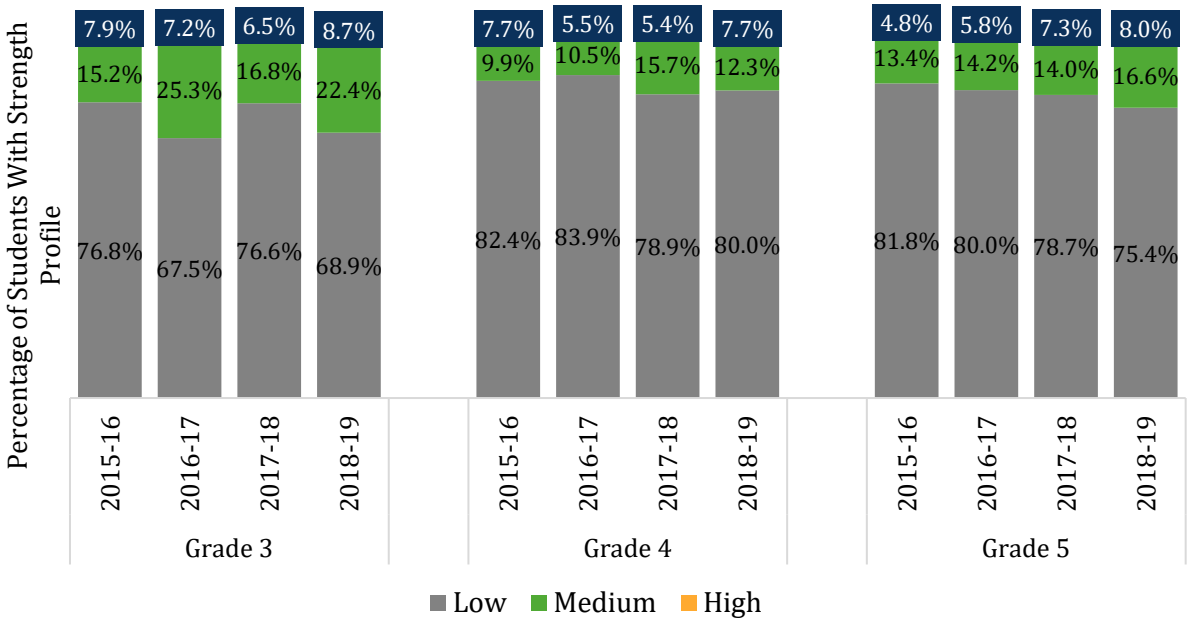


Figure A7. Expressions and Equations: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

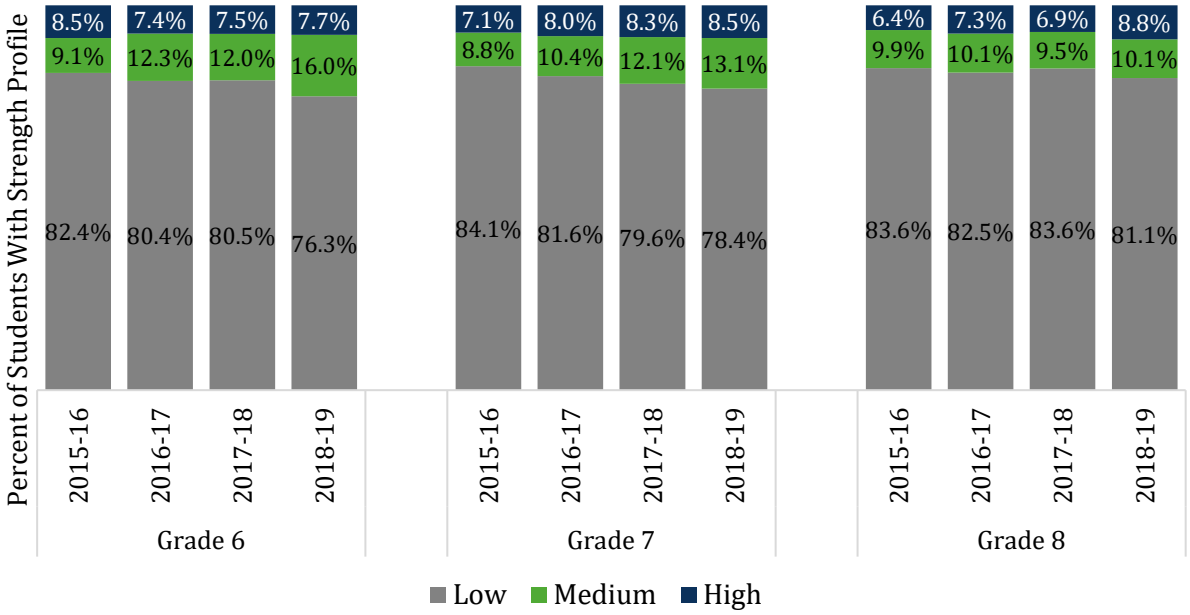


Figure A8. Functions: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

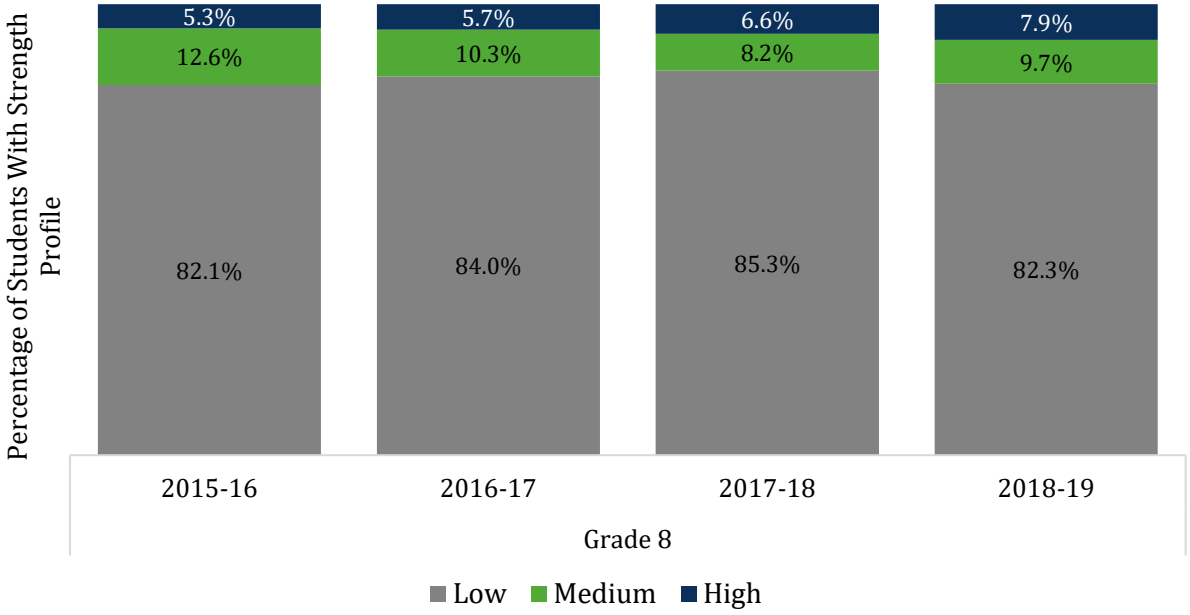


Figure A9. Operations and Algebraic Thinking: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

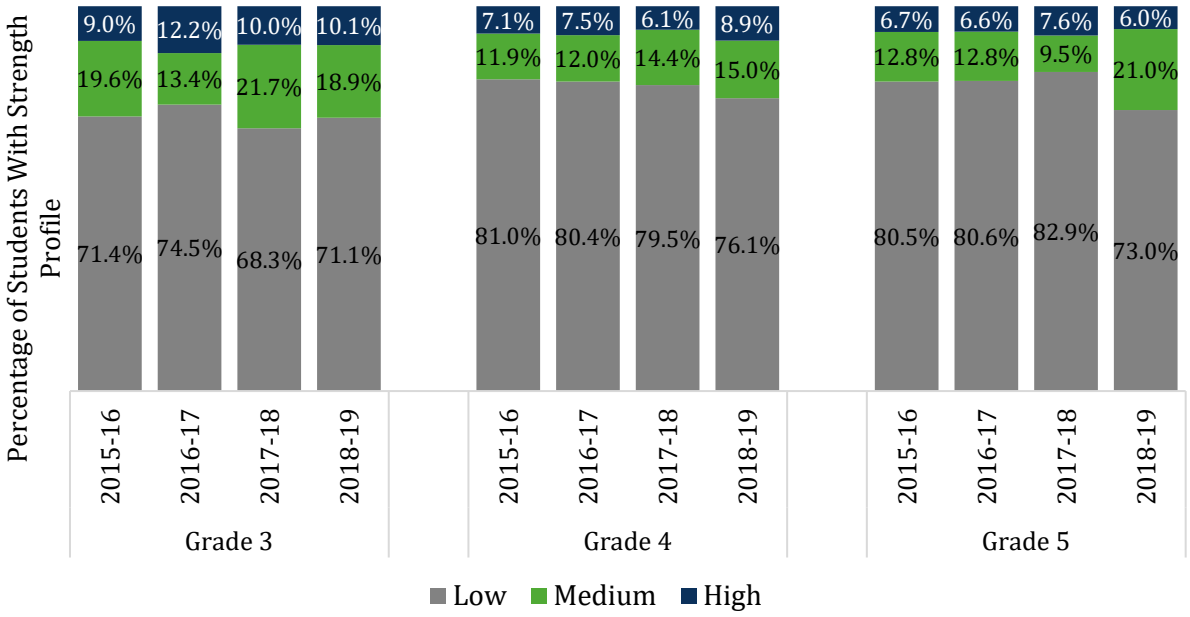


Figure A10. Geometry: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

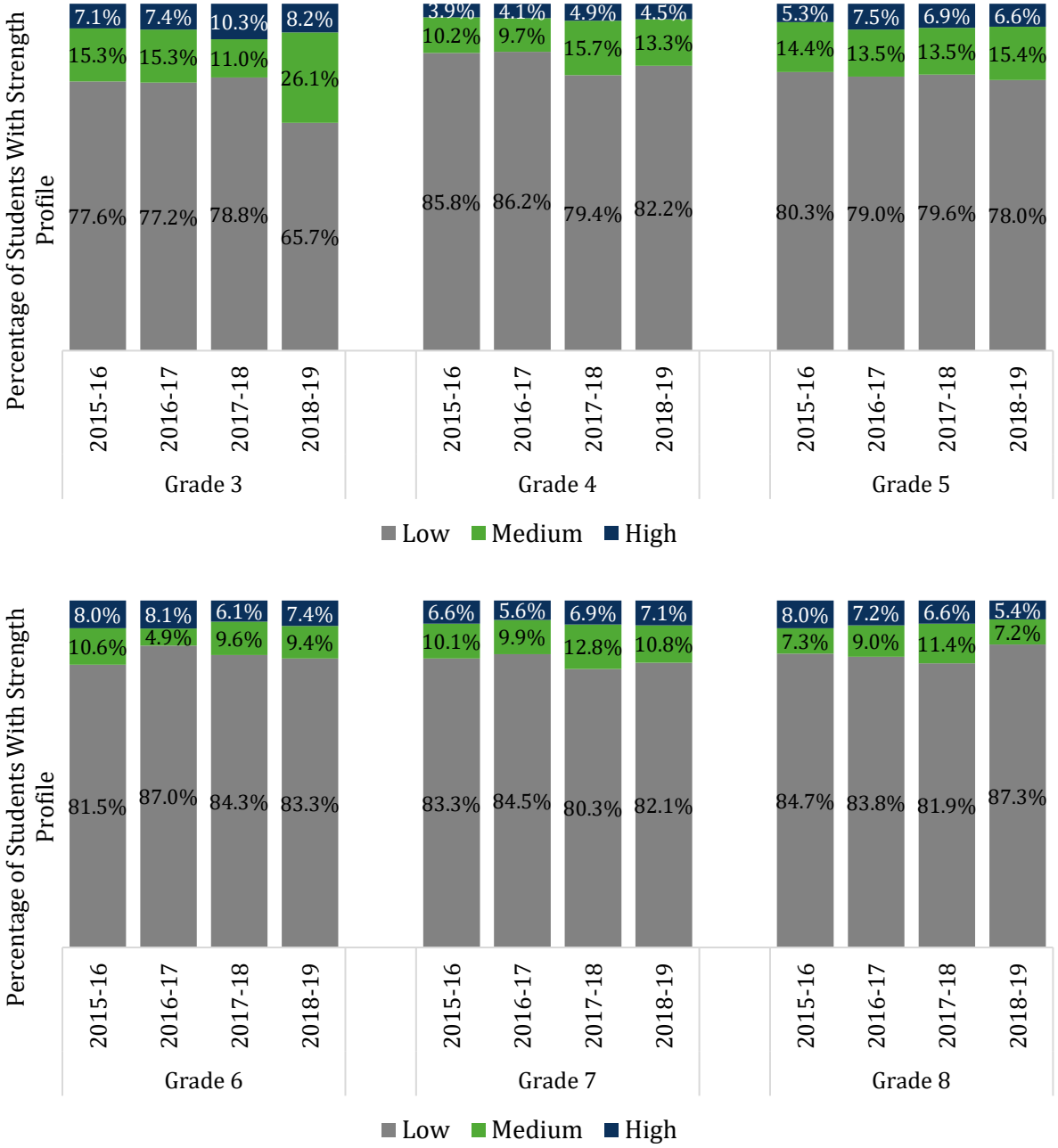


Figure A11. Measurement and Data: Strength Profile, by Grade and by Year, 2015-16 through 2018-19

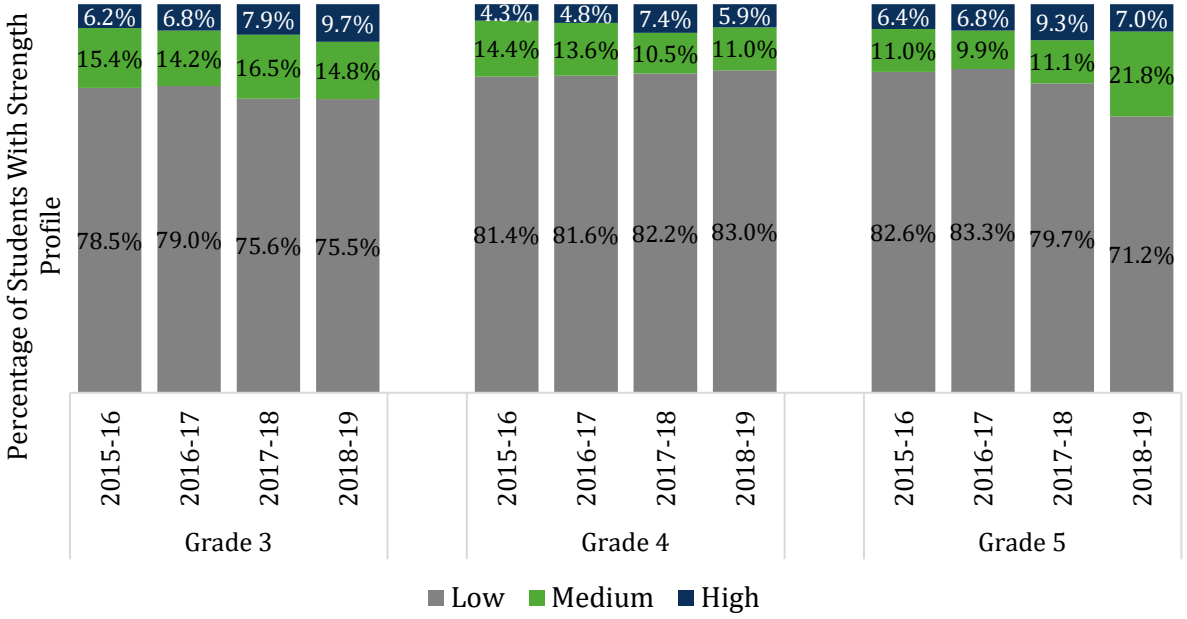


Figure A12. Statistics and Probability: Strength Profile, by Grade and Year, 2015-16 through 2018-19