



2023 PSSA and Keystone Accountability Trends

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Introduction

The Pennsylvania System of School Assessment (PSSA) and Keystone exams represent the Commonwealth's primary tools to measure student proficiency in English Language Arts (ELA), Math, and Science. This report analyzes the 2023 PSSA and Keystone accountability results for School District of Lancaster. Given the impact of the Covid-19 pandemic on students and learning outcomes, this report also analyzes longer term trends stretching back to 2019. This provides important context on not just year over year changes from 2022 to 2023, but where those changes fit within the larger educational landscape. This year's data shows improvements across each of the three subject areas. This is encouraging, but performance still falls below pre-pandemic proficiency rates.

Methodology

This report draws data from the 2019-2023 Pennsylvania Department of Education (PDE) accountability datasets. This represents the span of 2018-2019 to 2022-2023 school years with the exception of 2019-2020 where state assessments were cancelled due to the Covid-19 pandemic. The primary data utilized is from the 2023 assessment. Only students attributed to School District of Lancaster are included in this sample. PSSA testing is offered to grades 3-8 and Keystone accountability is reported once students reach 11th grade. This report does not take into account individual building attribution or participation data that is applied retroactively by PDE as part of Future Ready PA Index public reporting. At times throughout this report subject areas are grouped together as ELA, Math, and Science. Explicit notation is provided when referring to a specific assessment within the subject area. This report is primarily concerned with the percent of students scoring Proficient or Advanced. PDE sets cut points to categorize student proficiency on assessments. These categories are Below Basic (lowest), Basic, Proficient, and Advanced (highest). References to percentage improvement throughout this analysis refer specifically to a *percentage point* change (i.e. 8% to 16% would be an 8% change).

Descriptive Summary

Test takers mirror the student enrollment statistics for School District of Lancaster at large. Test participation is highest for ELA and Math assessments given that PSSA Science is only required for grades 4 and 8. The largest racial groups are Hispanic, Black/African-American, and White.



Gender participation is extremely similar across each assessment. The majority of test takers are economically disadvantaged, approximately 22% of them have an Individualized Education Plan (IEP) with the same percent being English Language Developers. Few test takers participate in honors classes within their tested subject.

2023 PSSA and Keystone Test Takers Descriptive Summary

	ELA	Math	Science
Total Test Takers	4,577	4,592	1,891
Asian	199	208	76
Black/African-American	739	759	315
Hispanic	2,804	2,834	1,144
Multi-Racial	266	259	97
Other	5	4	4
White	564	528	255
Male	2,254	2,354	939
Female	2,323	2,238	952
Economically Disadvantaged	4,171	4,206	1,710
ELD	964	1,014	433
Students with IEP (excluding gifted)	1,018	1,027	409
Enrolled in Subject Honors Course	235	234	75

Overall Trends

PSSA English Language Arts & Keystone Literature

The percentage of students scoring proficient or advanced on the PSSA English Language Arts (ELA) and Keystone Literature assessments increased by three percentage points from 2022 to 2023. Growth was strongest with high school students for Keystone Literature (11%) followed by elementary school (3%) and middle school (2%). 32% of district test takers are identified as Proficient or Advanced, an improvement over the most recent COVID-19 impacted test years of 2021 (25%) and 2022 (29%). This indicates an encouraging rise of eight percentage points since 2021's low. That said, performance still has not yet returned to pre-COVID-19 levels in 2019 where 39% of students scored Proficient or Advanced. While district rates have not returned, high school rates of proficiency (46%) nearly match 2019 performance (49%).



English Language Arts Percentage Proficient or Advanced

Level	2019	2021	2022	2023	2019-2023 Trend
Elementary (PSSA)	41%	28%	29%	32%	
Middle (PSSA)	34%	22%	28%	30%	
High	49%	26%	35%	46%	
District	39%	25%	29%	32%	

PSSA Math & Keystone Algebra I

Math assessments have traditionally had the lowest percentage of students scoring Proficient or Advanced in the district. The percentage of students scoring proficient or advanced on the PSSA Math and Algebra I assessments increased by two percentage points from 2022 to 2023. Growth was strongest amongst elementary and middle school students who saw a four percentage point increase. High school students were the lowest performing, though this is partially due to the testing cohort still being impacted by the timing of Covid-19 school closures and test requirements. This year’s assessment shows an increase over the past two years, but still falls below 2019 assessment results. Middle school students have, however, nearly matched their 2019 results.

PSSA Math & Algebra I Percentage Proficient or Advanced

Level	2019	2021	2022	2023	2019-2023 Trend
Elementary (PSSA)	28%	14%	19%	23%	
Middle (PSSA)	12%	5%	7%	11%	
High (Keystone)	43%	48%	26%	6%	
District	23%	13%	14%	16%	

PSSA Science & Keystone Biology

PSSA Science and Keystone Biology assessments represent the largest year-over-year increases in the percentage of students scoring Proficient or Advanced. Growth was strongest for high school students (18%), though the 2022 low point was partly due to irregularities in testing groups due to the Covid-19 pandemic. Elementary students increased by four percentage points, followed by middle school students with two percentage points. Overall, the district added six percentage points in proficiency from 2022 to 2023. While the percentage of students scoring



Proficient or Advanced remains below 2019 numbers, it is closer to pre-pandemic numbers than the two other assessment subjects. Middle school students, encouragingly, matched their 2019 performance.

PSSA Science & Keystone Biology Percentage Proficient or Advanced

Level	2019	2021	2022	2023	2019-2023 Trend
Elementary (PSSA)	63%	48%	54%	58%	
Middle (PSSA)	26%	16%	24%	26%	
High (Keystone)	37%	58%	8%	26%	
District	44%	38%	35%	41%	

Subgroup Trends

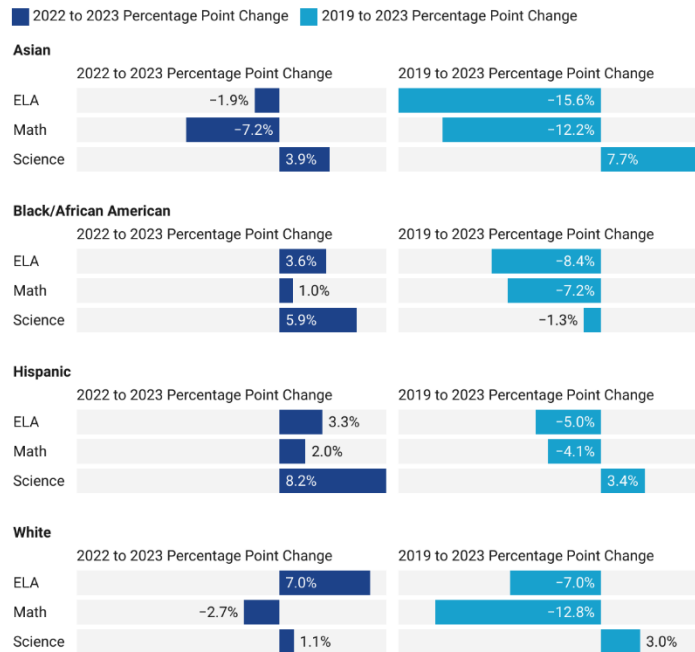
Race/Ethnicity

Racial disparities persist in School District of Lancaster assessment results. The majority of race/ethnic groups improved from 2022 to 2023. The percentage of Black/African-American students scoring Proficient or Advanced on English Language Arts related assessments jumped 3.6 percentage points, along with Science increases of 5.9% and Math increases of 1%. Hispanic students showed strong increases in Science at 8.2%, with increases of 3.3% in English Language Arts, and 2% in Math. White students had more varied results with a 7% increase in English Language Arts, a 1.1% increase in Science, but a 2.7% decrease in Math. Asian students, while a smaller sample size, increased by 3.9% in Science but decreased by 1.9% in English Language Arts and 7.2% in Math.

While the majority of racial subgroups showed improvements in at least some subjects, score recovery since the pandemic is uneven. The percentage of Black/African American students scoring Proficient or Advanced has declined across each subject area; English Language Arts by 8.4%, Math by 7.2%, and Science by 1.3%. Hispanic students have declined 5% in ELA since 2019 and 4.1% in Math but increased in Science by 3.4%. White students have seen a deep decline in Math of 12.8% and a 7% decline in ELA. These are coupled with a slight 3% increase in Science. Asian students show a 15.6% decline in ELA, a 12.2% decline in Math, but a 7.7% increase in Science. Overall, Black/African-American students have seen the most sustained long-term impact with consistent declines since 2019 across each subject area.



Percent of Students Scoring Advanced or Proficient by Race/Ethnicity

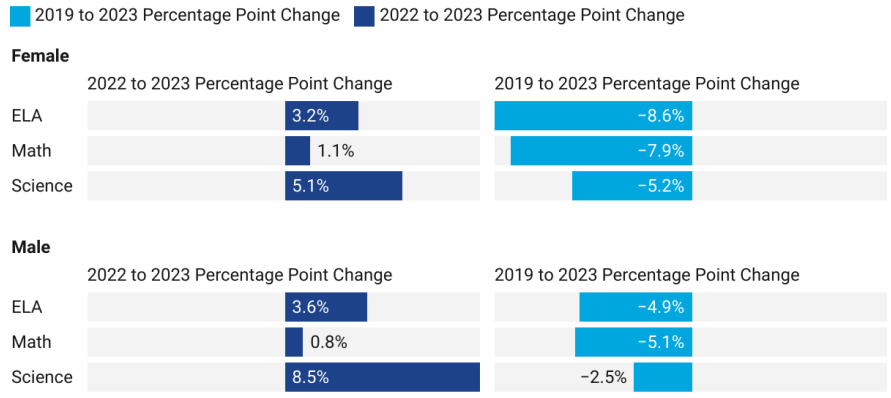


Gender

Female students have seen sharper declines in assessment performance compared to their male counterparts. Since 2019, the percentage of female students scoring Proficient or Advanced in Math dropped by 7.9% compared to 5.1% for their male counterparts. This past year female students increased 1.1%, just ahead of male students (.8%). A higher percentage of male students scored Proficient or Advanced in 2022, consistent with longer-term trends. This gap has widened since 2019, however. In 2019, there was only a 1.2% difference between male and female students. That gap is now 4%. Male students outpaced female students in ELA, with a 3.6% increase over the past year (compared to 3.2%). Female students have seen an 8.6% decline in ELA scores since 2019, while male students have only seen a 4.9% decline. Female students still, however, outperform male students in ELA. Significant gains were made in Science, with a 5.1% increase for female students and an 8.5% increase for male students over the past year. Overall male students slightly outperform female students, with male students declining 2.5% since 2019 and female students declining 5.2%.



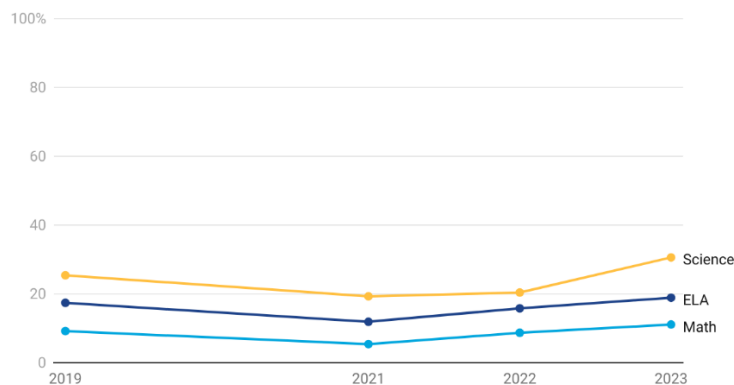
Percentage of Students Scoring Advanced or Proficient by Gender



English Language Developers

In contrast to many of the subgroups, English Language Developers (ELD) have actually made gains and currently outperform their 2019 assessment scores across each subject. Over the past year the percentage of ELD students scoring Proficient or Advanced on math increased 2.3%, 3.1% in ELA, and 10.1% in Science. Despite a dip of proficiency during the pandemic, it is impressive that ELD students have recovered and surpassed their 2019 assessment results.

Percentage of ELD Students Scoring Proficient or Advanced on PSSA/Keystone



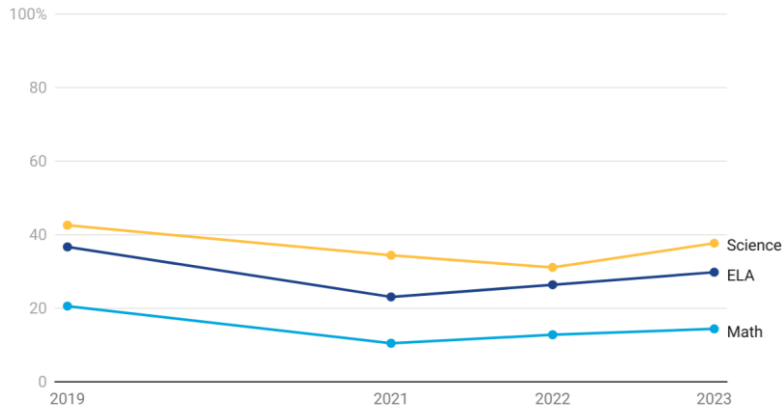
Economically Disadvantaged

Economically Disadvantaged students continue to score below their peers in each assessment area. While economically disadvantaged students improved their test scores in each area, they



remain at least twenty percentage points below their peers across each assessment type. These gaps widened slightly for ELA and Science, while slightly narrowing in Math.

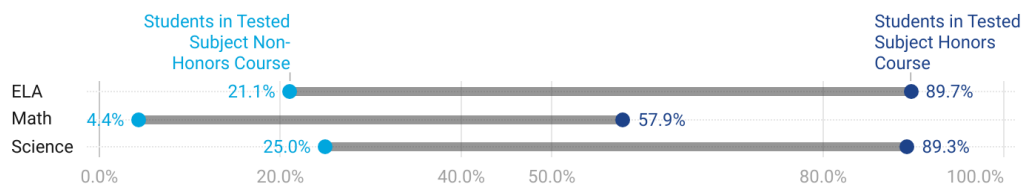
Percentage of Economically Disadvantaged Students Scoring Proficient or Advanced on PSSA/Keystone



Students Enrolled in Honors Classes

Middle school students have the opportunity to participate in honors classes in English Language Arts, Math, Science, and Social Studies. Given the focus of these classes, these students are expected to be prepared to perform well on their respective courses' PSSA assessment. This expectation appears to be met in the actual test performance. 89.7% of PSSA ELA test takers in an honors ELA course scored Proficient or Advanced. Only 24 students did not score Proficient, all at the Basic level. The gap between non-honors students was significant, only 21.1% of students in non-honors ELA courses scored Proficient or Advanced. The gap was less in Math where 57.9% of honors students scored Proficient or Advanced compared to 4.4% of their peers. This still represented a gap of more than 50% in performance. Finally, 89.3% of students in honors science courses scored Proficient or Advanced. In comparison, 25% of their peers scored Proficient or Advanced.

Percentage of Middle School Students Scoring Advanced or Proficient on PSSA by Honors Course Enrollment





Anchor Performance

Each PSSA subject includes assessment anchors that address a group of different test content. This enables educators to see on which specific areas students performed best, and where they struggled. ELA’s strongest performing anchor is Vocabulary Acquisition and Use with an average score of 49.2% correct, while the lowest performing is Conventions of Standard English (Writing) at 40.4%. The strongest performing anchor in Math is Numbers and Operations in Base Ten with 45.5% correct on average. In comparison, the lowest performing is Ratios and Proportional Relationships at 29.6%. Science did not provide as wide of a distinction with the strongest performing anchor, Biological Sciences, garnering 47.1% correct and the weakest, Earth and Space Sciences, 41.1%.

Anchor Chart Analysis

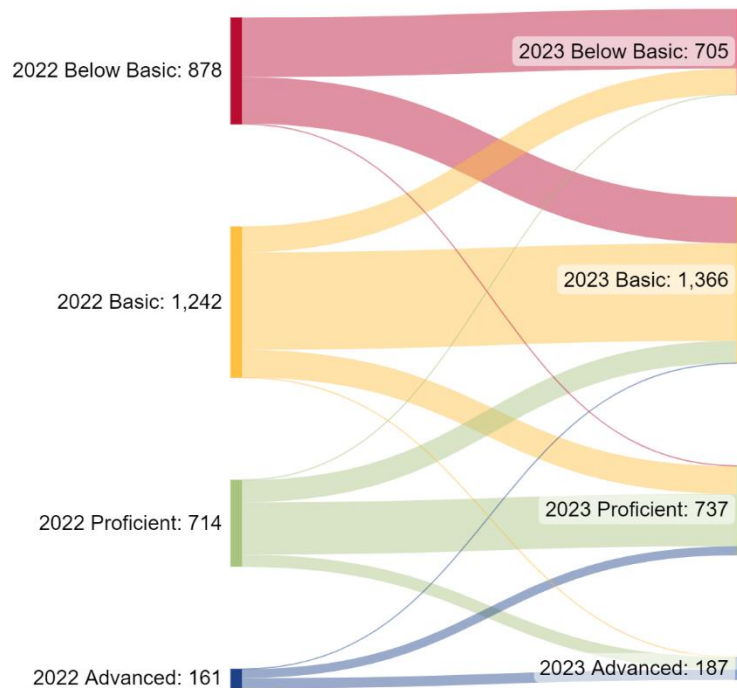
ELA Anchor	ELA Average % Correct	Math Anchor	Math Average % Correct	Science Anchor	Science Average % Correct
1: Key Ideas & Details	43.4%	1: Number & Operations in Base Ten	45.5%	1: Nature & Science	45.5%
2: Craft & Structure	43.7%	2: The Number System	34.6%	2: Biological Sciences	47.1%
3: Vocabulary Acquisition & Use	49.2%	3: Ratios & Proportional Relationships	29.6%	3: Physical Sciences	42.6%
4: Conventions of Standard English (Writing)	40.4%	4: Numbers & Operations-Fractions	39.9%	4: Earth & Space Sciences	41.1%
5: Text Dependent Analysis	44.6%	5: Expression & Equations	33.0%		
6: Literature Text	44.9%	6: Functions	41.4%		
7: Information Text	43.9%	7: Operations & Algebraic Functions	39.5%		
		8: Geometry	35.5%		
		9: Measurement & Data	37.6%		
		10: Statistics & Probability	37.1%		

Year to Year Student Trends

Ideally, School District of Lancaster hopes that students who score Proficient or Advanced retain that proficiency level in future assessments. Additionally, as students grow lower scoring students will ideally improve and reach proficiency from Below Basic and Basic levels. As

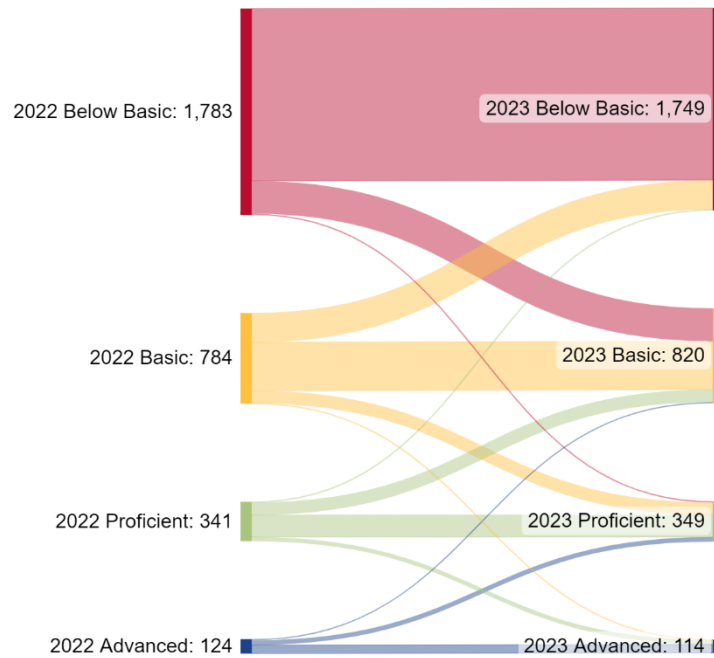


students recover from inconsistent schooling during the pandemic, this ideal growth was observed. The Sankey diagrams below track the path from students' 2022 to 2023 PSSA assessments. This only includes students tested in both years, which provides a limited sample, but tells a broader story about the improvements being made. Given that students do not take the PSSA Science assessment in consecutive years they are excluded from this analysis. In ELA, 878 students scored Below Basic in 2022. Yet of those, 43.4% improved to Basic and 1% to Proficient in 2023. Basic students were more evenly split with 17% decreasing their proficiency level and 18.5% increasing. Proficient students saw more decline than growth with 25.9% decreasing their proficiency level and 14% increasing. While 47.8% of Advanced students decreased, only 4 of the 77 dropped to Basic.



PSSA ELA Year to Year Trends

Within Math assessment scores there was less proficiency level improvement for Below Basic students. Only 16.5% of students scoring Below Basic improved, with the majority improving to Basic. Basic students showed a net decline in Math proficiency levels, with 32.4% dropping to Below Basic and 14.4% improving (though four students did improve to Advanced). 34% of students scoring Proficient in 2021 declined, while only 10.6% improved. The majority of Advanced students remained Advanced while 32.3% decreased to Proficient and 8% dropped to Basic.



PSSA Math Year to Year Trends

Over/Under Performance vs. Expectations

As students progress in their education, their assessment scores help to tell a story. The data gleaned from these assessments are included in the Pennsylvania Value-Added Assessment System (PVAAS). PVAAS provides a projection for the likelihood of each student scoring Proficient or higher on each assessment. This is extremely helpful in determining whether students over or under perform their expectations.

In the aggregate, the PVAAS models did a largely accurate job of predicting overall performance. Of ELA PSSA test takers with an ELA PVAAS projection, 31% scored Proficient or Advanced while PVAAS expected 37%. The difference for Math test takers was similar. Of Math PSSA test takers with a Math PVAAS projection, 15.7% scored Proficient or Advanced while PVAAS expected 20.3%. Finally, of Science PSSA test takers with a Science PVAAS projection, 47.3% scored Proficient or Advanced while PVAAS expected 50.2%.

There is some limited evidence of more underperformance than over performance at the margins. Probabilities are not destiny, and some students manage to defy expectations. Within students with a PVAAS likelihood of scoring Proficient or higher of 20% or lower, the majority of students scored Below Basic or Basic. 1.9% of those students managed to outperform expectations in ELA, 1% in Math, and 6% in Science. In comparison, a higher percentage of



students with an 80% likelihood of Proficiency or Higher failed to demonstrate proficiency. This accounted for 8.1% in ELA, 10.3% in Math, and 6.5% in Science.

PSSA Over and Under Performance

	Total # <20% Likelihood of Proficient or Higher	% Overperformed	Total # >80% Likelihood of Proficient or Higher	% Underperformed
ELA	1,312	1.9%	565	8.1%
Math	2,011	1.0%	243	10.3%
Science	334	6.0%	339	6.5%

Conclusion

The 2023 accountability data shows signs of improvement as School District of Lancaster students increase their performance. This represents a success for students, families, and staff. There is, however, still significant room for growth. Student proficiency rates has not yet returned to pre-pandemic levels where they already fell below the Commonwealth’s average. Continual work is needed to boost academic performance across all subject areas.