

Keystone Performance Trends in SDP: 2018-19 to 2022-23

Roland Reyes, Senior Statistician

Key Findings

- 44.1% of students in grades 9-11 scored Proficient or Advanced on the Literature Keystone in 2022-23, compared to 41.8% in 2021-22 and 41.1% in 2018-19.
- 15.1% of students in grades 8-11 scored Proficient or Advanced on the Algebra I Keystone in 2022-23, compared to 17.5% in 2021-22 and 19.7% in 2018-19.
- 22.9% of students in grades 9-11 scored Proficient or Advanced on the Biology Keystone in 2022-23, compared to 25.5% in 2021-22 and 27.9% in 2018-19.

Overview

The Keystone exams are end-of-year standardized state assessments typically administered to Pennsylvania students in grades 8-11 as they near completion of the associated English, Algebra, or Biology course.¹ The Algebra I Keystone is usually administered for the first time in 9th grade, and the Literature and Biology Keystones are usually administered for the first time in 10th grade (though there are exceptions—8th grade students who take Algebra I typically take the Algebra I Keystone in 8th grade, for example). Students can score in one of four performance levels: Advanced, Proficient, Basic, or Below Basic. Retakes are permitted throughout high school, and students' best scores are used to determine eligibility on the Pennsylvania Department of Education's pathways to graduation.²

This brief describes annual Keystone exam performance trends between the 2018-19 (pre-Covid) and 2022-23 school years. Note that data in this brief reflect annual Keystone performance, and results will differ from reports that use students' best scores by the end of the 11th grade. See Box 1 for more details.

¹ For more information on the Keystone Exams see: <https://www.philasd.org/era/keystone-information/>

² For more information on graduation pathways see: <https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/GraduationRequirements/Pages/default.aspx>

Box 1: Notes on Keystone Exam Data Presented in this Data Brief

Administration of the Keystone exams was affected by the Covid-19 pandemic. In 2019-20, the typical winter and spring administration of the Keystone exams was disrupted, with the spring administration cancelled due to school closures. Students who were scheduled to take one or more Keystone exams in 2019-20 were exempt from taking the exam if they passed the associated course. These students were automatically awarded a score of 'proficient' (also called a non-numeric proficient). Therefore, Keystone exam results are not available for the 2019-20 school year.

The 2020-21 Keystone administration was delayed until the fall of 2021-22, and participation was lower than in a typical school year. Results are presented for 2020-21 from this delayed administration, but readers should exercise caution in interpreting the results because they may not fully represent the population of Keystone test-takers in the School District of Philadelphia (SDP or District).

Data in this brief reflect annual Keystone performance and will differ from sources that report students' best Keystone exam scores by the end of the 11th grade (sometimes called Best by 11th) which are used for accountability purposes. Importantly, students awarded a non-numeric proficient are included in Best by 11th metrics, whereas data presented in this brief *do not* include students with a non-numeric proficient score.

References:

For more information on the 2019-20 and 2020-21 administration of the Keystone exams at SDP see:

<https://www.philasd.org/research/2022/02/18/summary-of-district-wide-assessments-administered-to-sdp-students-during-the-2020-21-school-year/>

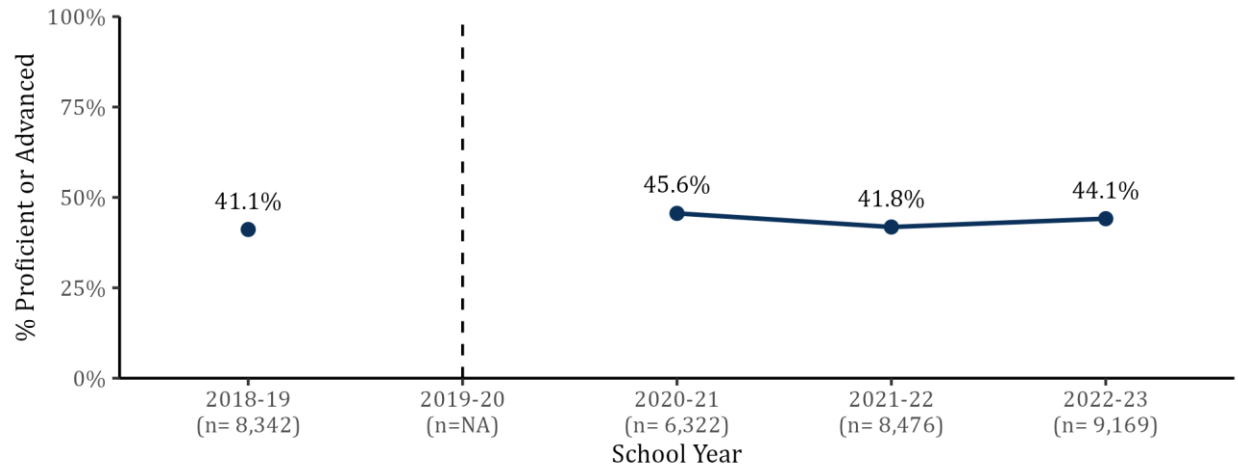
For more information on Keystone exam exemptions see:

<https://www.legis.state.pa.us/cfdocs/Legis/LI/uconsCheck.cfm?txtType=HTM&yr=2020&sessInd=0&smthLwInd=0&act=136>

Literature Keystone

In the 2022-23 school year, the percentage of students in grades 9-11 scoring Proficient or Advanced on the Literature Keystone was 44.1% (Figure 1). This was an increase over the 2021-22 (41.8%) and 2018-19 (41.1%) school years. While the proficiency rate in 2020-21 was highest, fewer students took the exam that year due to changes in test administration. The percentage of students scoring Below Basic in 2022-23 was 19.9%, the lowest across all years examined (Figure 2).

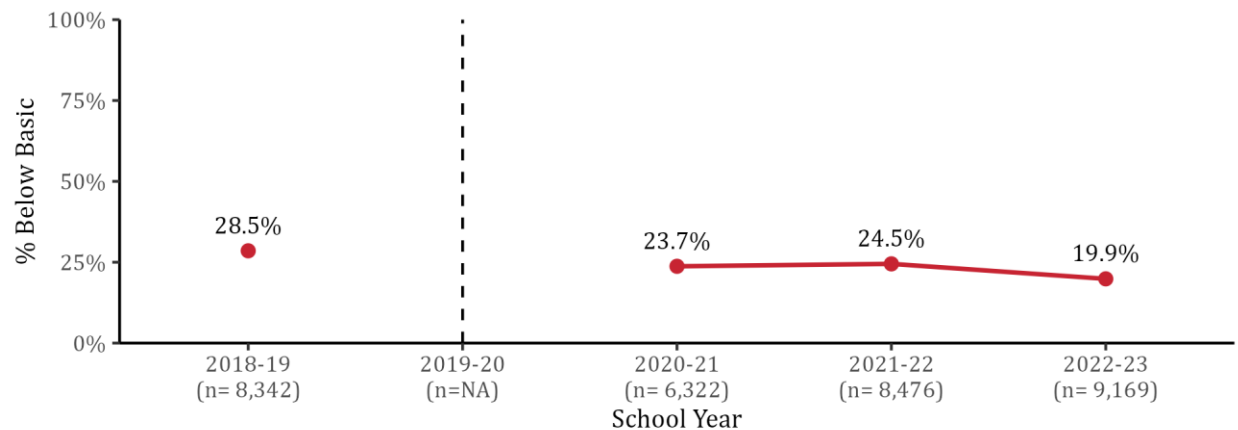
Figure 1. Percentage of students in grades 9-11 scoring Proficient or Advanced on the Literature Keystone from 2018-19 to 2022-23



Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Figure 2. Percentage of students in grades 9-11 scoring Below Basic on the Literature Keystone from 2018-19 to 2022-23



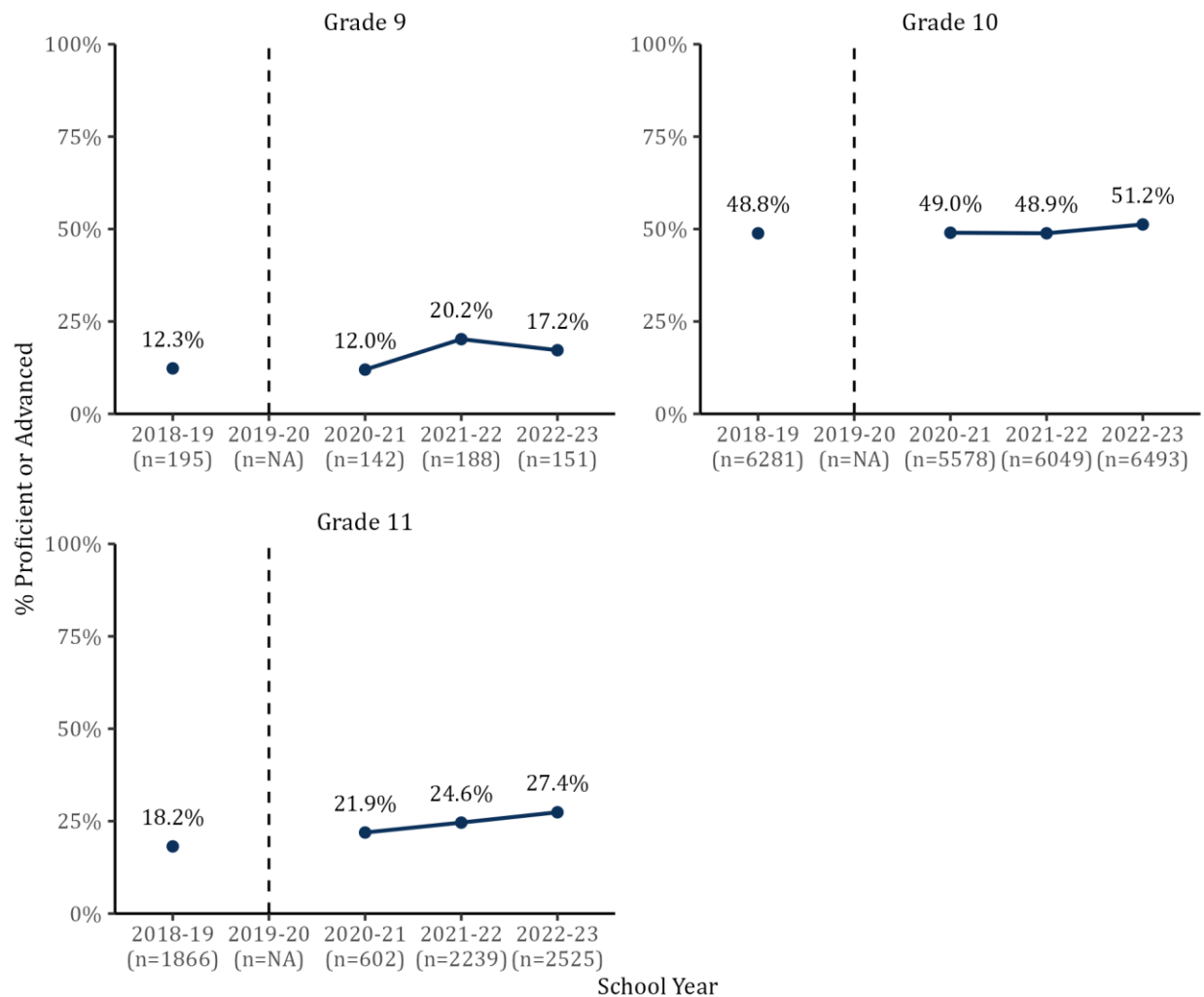
Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

By grade level, trends showed that the percentage of students scoring Proficient or Advanced on the Literature Keystone was consistently highest for grade 10 compared to grades 9 and 11 (Figure 3). This group was also the largest given that the exam is typically administered at the end of 10th grade. Note that the number of 9th grade test-takers is small, and results for this group should be interpreted with caution.

Trends also showed that Literature Keystone proficiency rates increased for all grade levels from 2018-19 to 2022-23. For grades 10 and 11, the 2022-23 proficiency rate was the highest across all years examined. For grade 9, the proficiency rate peaked in 2021-22 at 20.2%, and despite a drop in 2022-23, remained nearly five percentage points higher than the 2018-19 rate. Again, note that the number of 9th grade test-takers is small, and results for this group should be interpreted with caution.

Figure 3. Percentage of students in grades 9-11 scoring Proficient or Advanced on the Literature Keystone from 2018-19 to 2022-23, by grade level



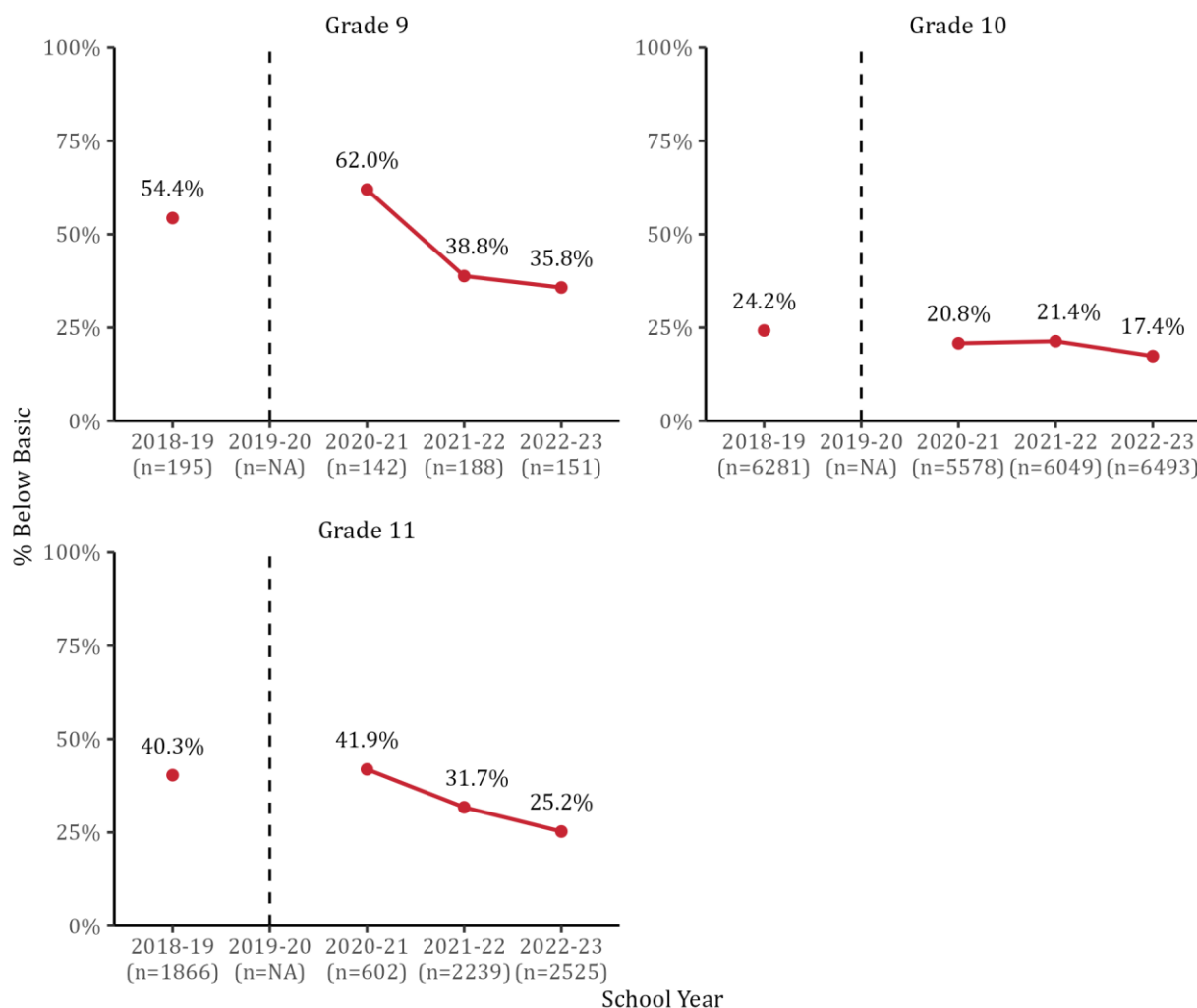
Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Below Basic rates for the Literature Keystone decreased for all grade levels from 2018-19 to 2022-23 (overall net decrease ranged from 6.8 to 18.6 percentage points; Figure 4). For grade 10, the trend mirrored that of the District, with a decrease between 2018-19 and 2020-21 followed by another in 2022-23, resulting in an overall net decrease of 6.8 percentage points from 2018-19 to

2022-23. For grades 9 and 11, Below Basic rates increased between 2018-19 and 2020-21, then decreased in 2021-22 when more students took the test; in 2022-23, Below Basic rates for both grades were below 2018-19 rates.

Figure 4. Percentage of students in grades 9-11 scoring Below Basic on the Literature Keystone from 2018-19 to 2022-23, by grade level



Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

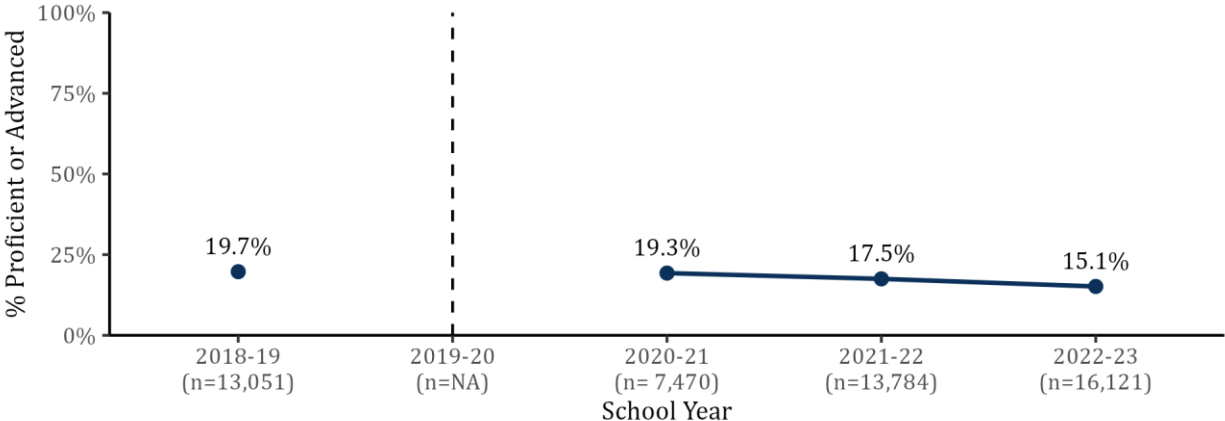
Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Algebra I Keystone

In 2020-21, about half the number of students took the Algebra I Keystone than in a typical year, and results for this school year should be interpreted with caution. Grades 8, 10, and 11 were particularly affected, with fewer than one quarter the number of students taking the test than in a typical year.

At the District level, the percentage of students in grades 8-11 scoring Proficient or Advanced on the 2022-23 Algebra I Keystone was 15.1% (Figure 5). This was a 2.4 percentage point decrease from 2021-22 and is part of an overall downward trend in the Algebra I Keystone proficiency rate. The percentage of students scoring Below Basic initially increased between 2018-19 and 2020-21 before gradually decreasing to 42.5% in 2022-23, returning to within 1 percentage point of the 2018-19 rate (Figure 6).

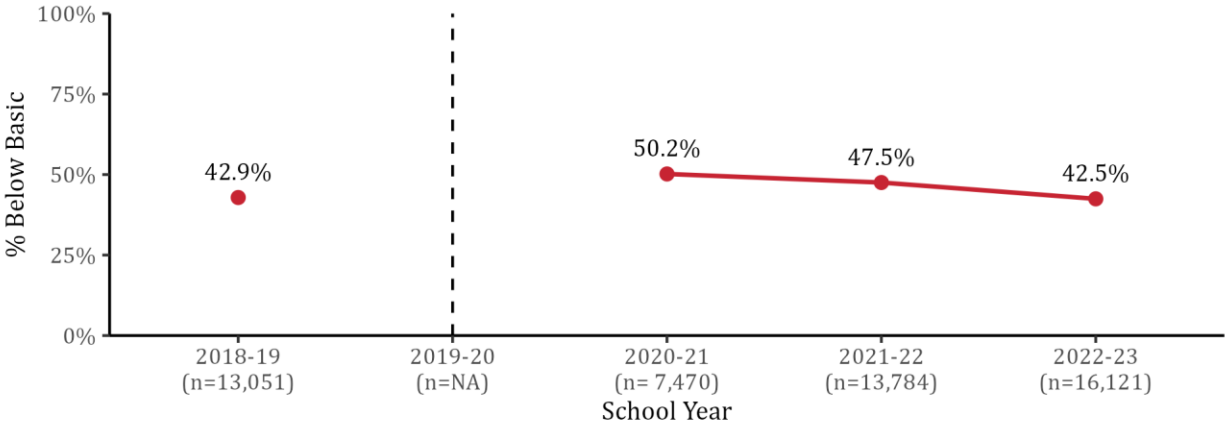
Figure 5. Percentage of students in grades 8-11 scoring Proficient or Advanced on the Algebra I Keystone from 2018-19 to 2022-23



Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 8-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Figure 6. Percentage of students in grades 8-11 scoring Below Basic on the Algebra I Keystone from 2018-19 to 2022-23

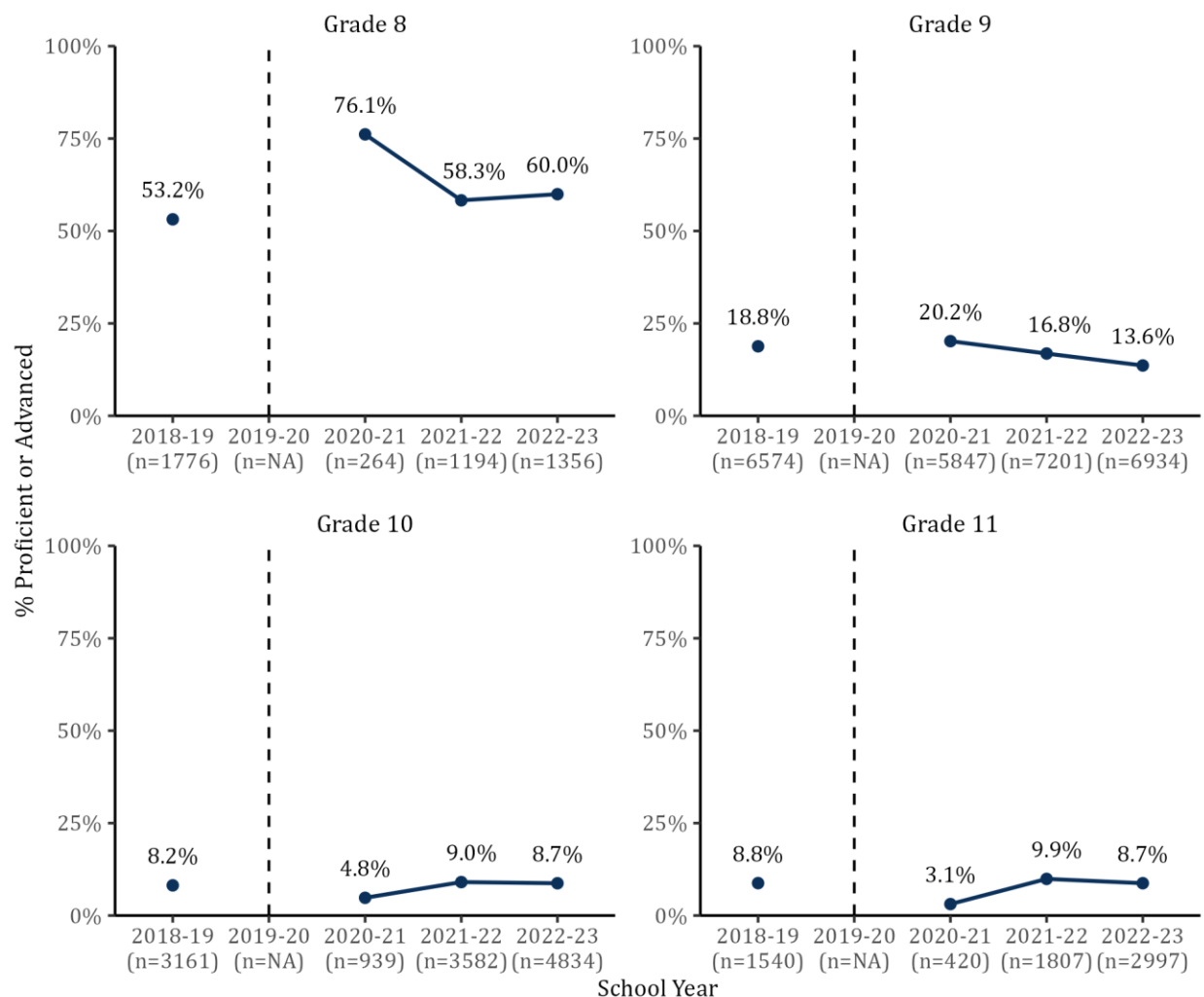


Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 8-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

By grade level, the percentage of students scoring Proficient or Advanced on the Algebra I Keystone was consistently highest for grade 8 compared to the other grade levels (Figure 7). The Algebra I Keystone is typically administered in 9th grade (the largest group), and the trend for this group mirrored that of the District: the proficiency rate declined annually from 2020-21 through 2022-23, resulting in an overall net decrease of 5.2 percentage points from 2018-19 to 2022-23. For grades 8, 10, and 11, there was a relatively large change in the proficiency rate between 2018-19 and 2020-21, but this should be interpreted with caution due to the sharp drop in test takers in the 2020-21 school year. For grade 8, the proficiency rate in the following school years remained above the 2018-19 rate; for grades 10 and 11, proficiency rates stabilized in 2021-22 and 2022-23 and were similar to 2018-19 levels.

Figure 7. Percentage of students in grades 8-11 scoring Proficient or Advanced on the Algebra I Keystone from 2018-19 to 2022-23, by grade level

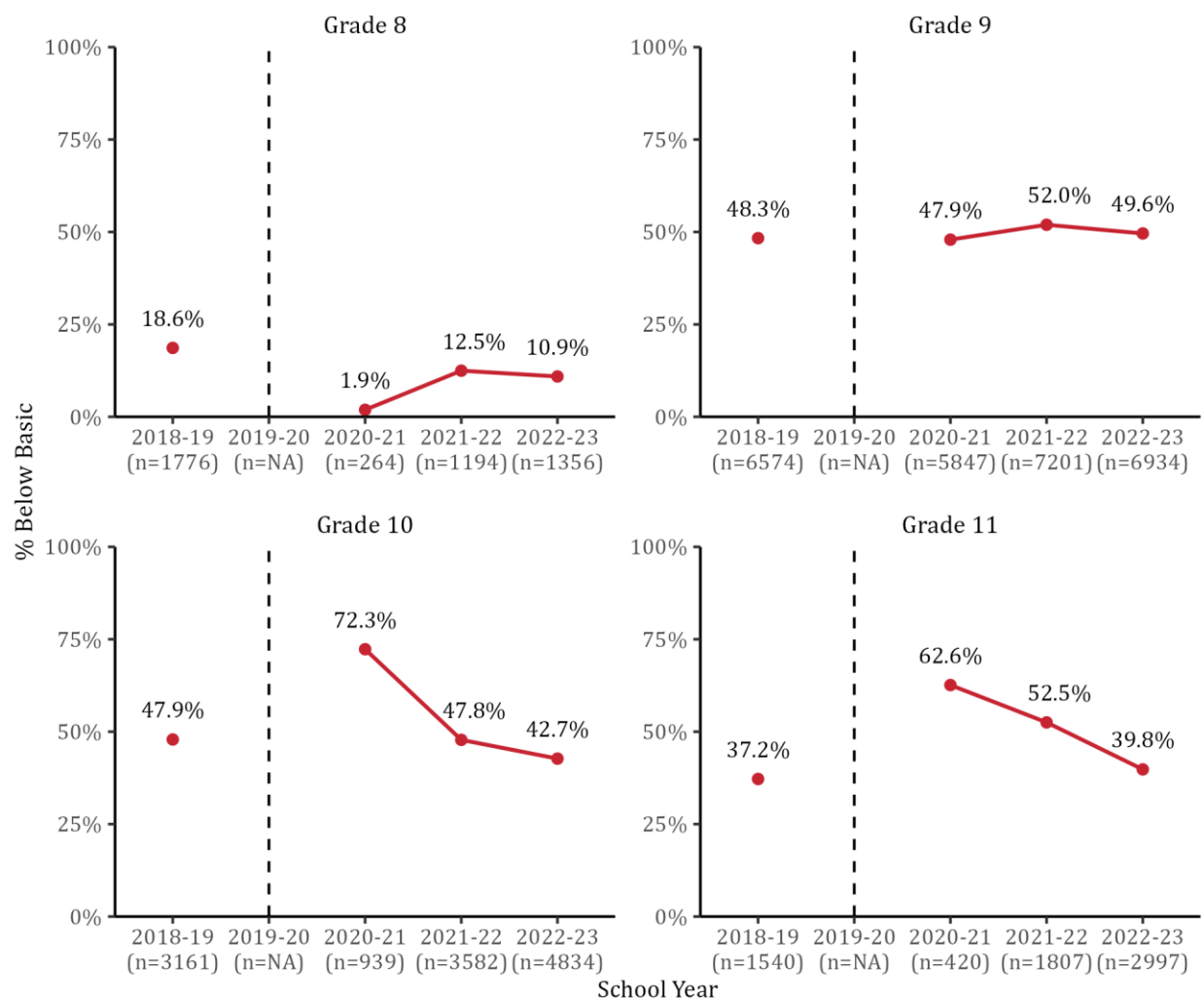


Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 8-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Grade-level trends for the percentage of students scoring Below Basic on the Algebra I Keystone also varied (Figure 8). For grade 9, the Below Basic rate had an overall net increase of 1.3 percentage points from 2018-19 to 2022-23. For grades 10 and 11, the Below Basic rate sharply increased between 2018-19 and 2020-21 before dropping in 2021-22 when more students took the test. For grade 10, the Below Basic rate returned to the 2018-19 level in 2021-22 and continued to decrease in 2022-23. For grade 11, the Below Basic rate also decreased in 2021-22 and 2022-23, but remained 2.6 percentage points higher than 2018-19; however, results suggest a possible return to the 2018-19 rate if the trend continues. For grade 8, the Below Basic rate was consistently lower than the 2018-19 rate throughout the 2020-21 to 2022-23 period.

Figure 8. Percentage of students in grades 8-11 scoring Below Basic on the Algebra I Keystone from 2018-19 to 2022-23, by grade level



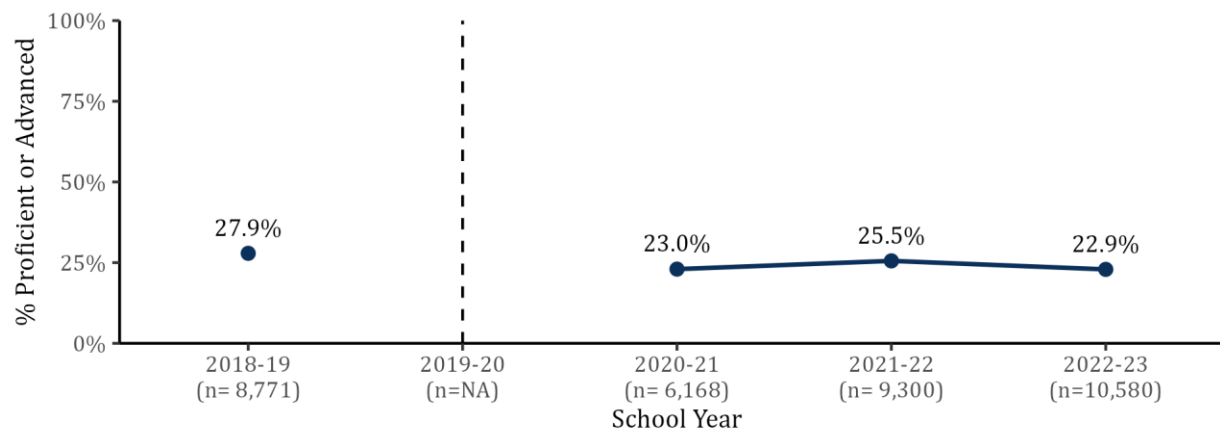
Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 8-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Biology Keystone

For the 2022-23 Biology Keystone, 22.9% of students in grades 9-11 scored Proficient or Advanced, a 2.6 percentage point decrease from 2021-22 and an overall net decrease of 5.0 percentage points since 2018-19 (Figure 9). The Below Basic rate in 2022-23 was 44.1% and remained stable (within 1 percentage point) across all years examined (Figure 10).

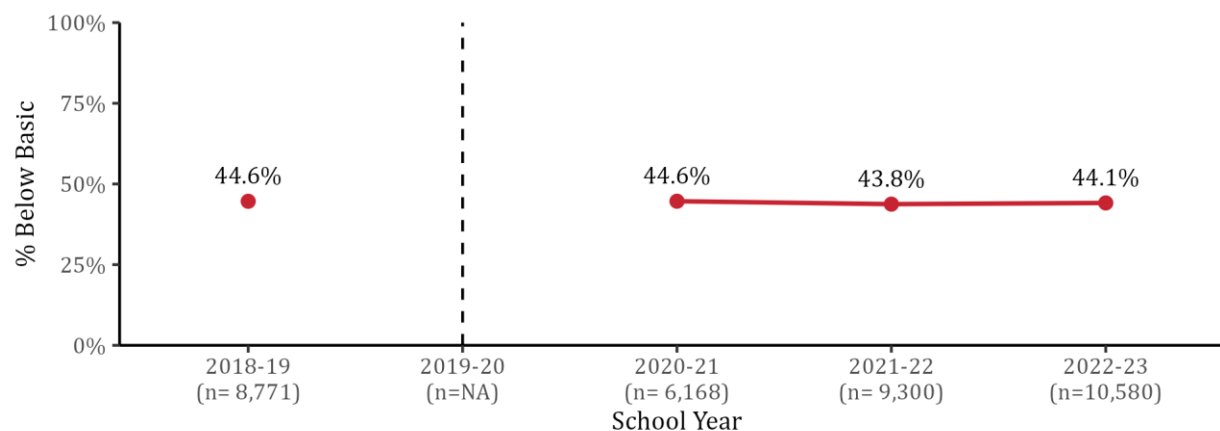
Figure 9. Percentage of students in grades 9-11 scoring Proficient or Advanced on the Biology Keystone from 2018-19 to 2022-23



Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Figure 10. Percentage of students in grades 9-11 scoring Below Basic on the Biology Keystone from 2018-19 to 2022-23

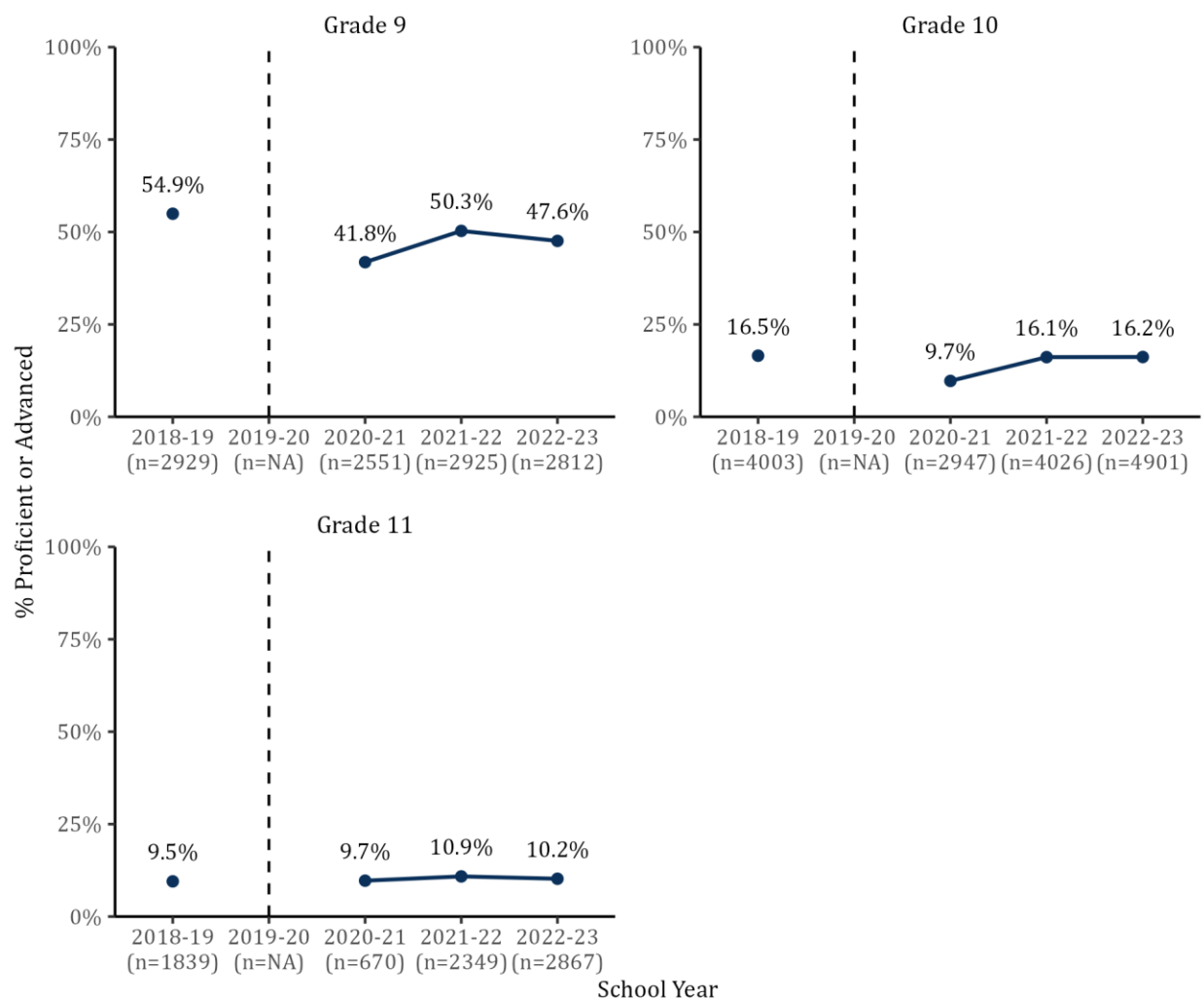


Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

By grade level, trends showed that the percentage of students scoring Proficient or Advanced on the Biology Keystone was consistently highest for grade 9 compared to grades 10 and 11 (Figure 11). However, the proficiency rate for grade 9 also showed the most change over time: grade 9 had a relatively large decrease of 13.1 percentage points between 2018-19 and 2020-21, and while there was an increase in 2021-22 when more students took the test, the proficiency rate dropped once more in 2022-23. Overall, there was a net decrease of 7.3 percentage points between 2018-19 and 2022-23. For grade 10, when students typically take the exam, the proficiency rate dropped between 2018-19 and 2020-21, and then returned to the 2018-19 level in 2021-22 and 2022-23. The proficiency rate for grade 11 was stable across all years examined.

Figure 11. Percentage of students in grades 9-11 scoring Proficient or Advanced on the Biology Keystone from 2018-19 to 2022-23, by grade level

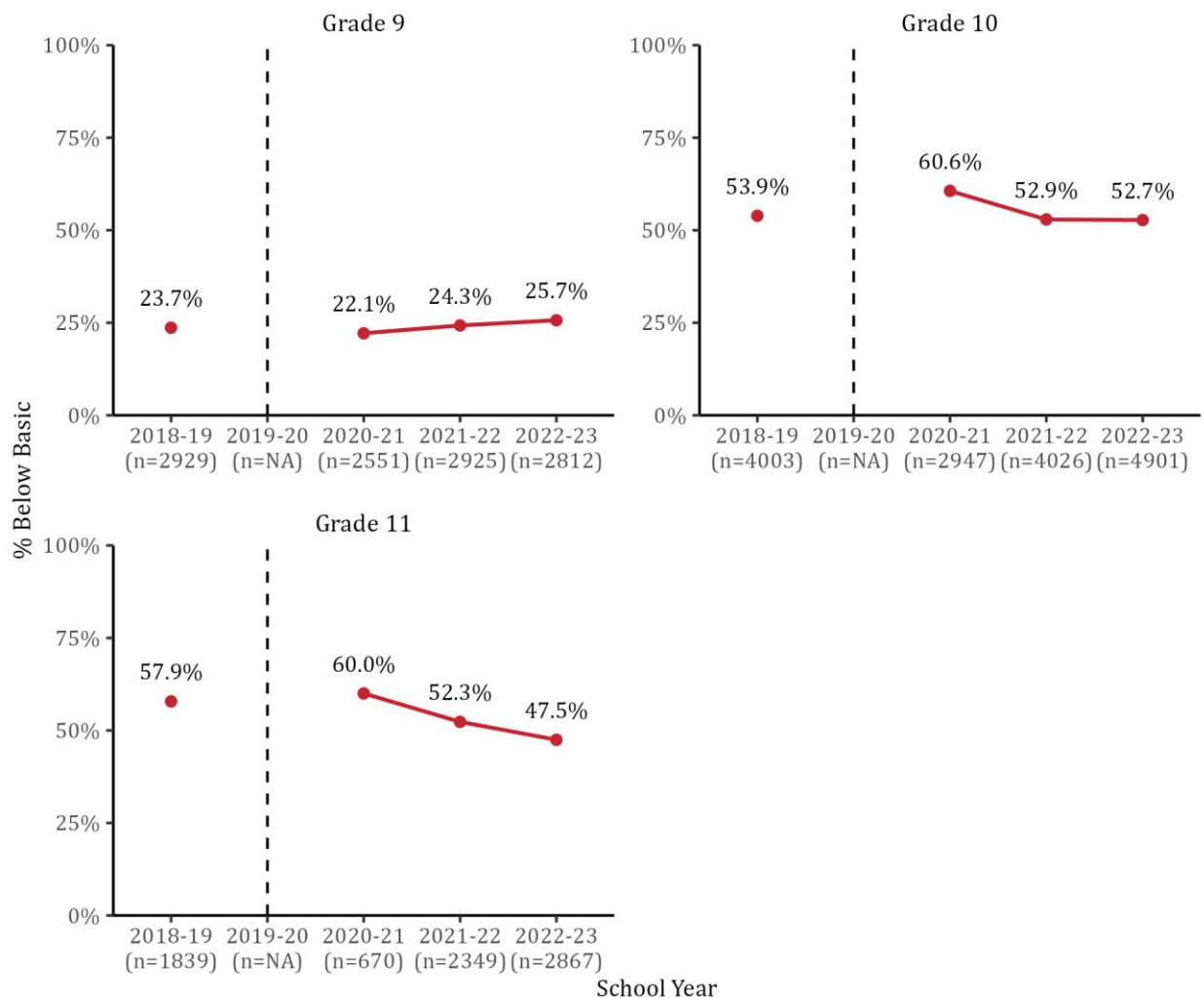


Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21, the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Grade-level trends for the percentage of students scoring Below Basic on the Biology Keystone were also mixed (Figure 12). For grade 9, an initial decrease in 2020-21 was followed by a steady increase in the Below Basic rate in subsequent school years, with an overall net increase of 2 percentage points from 2018-19 to 2022-23. Grades 10 and 11 both had an increase in the Below Basic rate between 2018-19 and 2020-21, but this should be interpreted with caution because fewer students took the test than in a typical year. The Below Basic rate for grade 10 returned to the 2018-19 level in 2021-22 and remained stable. For grade 11, the 2021-22 Below Basic rate was below the 2018-19 rate and continued to drop in 2022-23.

Figure 12. Percentage of students in grades 9-11 scoring Below Basic on the Biology Keystone from 2018-19 to 2022-23, by grade level



Note: NA = Not Available. Results for 2019-20 not available due to cancellation of the spring Keystone exams. In 2020-21 the Keystone exams were administered in the fall of 2021-22 and fewer students took the exams than in a typical year; therefore, results should be interpreted with caution. Results include all students in grades 9-11 who took the Keystone exam in the year referenced and were attributed to the School District of Philadelphia.

Source: Qlik PSSA & Keystones App, Performance Details, downloaded November 3, 2023

Conclusion

This data brief reviewed Keystone performance data from 2018-19 to 2022-23, with a focus on annual performance and *not* on students' Best by 11th scores (refer to Box 1 for details). District-level trends during this time showed overall improvement in the percentage of students scoring Proficient or Advanced on the Literature Keystone but also showed overall declines for the Algebra I Keystone and Biology Keystone. Trends for the Below Basic performance level showed that the Below Basic rate declined (i.e., showed improvement) for the Literature Keystone from 2018-19 to 2022-23 but remained at 2018-19 levels for the Algebra I Keystone and Biology Keystone. For the Algebra I Keystone, the Below Basic rate returned to 2018-19 levels in 2022-23 after an initial increase between 2018-19 and 2020-21. For the Biology Keystone, the Below Basic rate remained stable throughout the 2018-19 to 2022-23 period.

Grade-level trends showed that while overall performance tended to differ by grade level, all grades demonstrated improvement on the Keystone Literature from 2018-19 to 2022-23. Results were mixed for the Algebra I Keystone and Biology Keystone in 2022-23. Specifically, grade 9 performance on both tests did not return to 2018-19 levels, and the grade 11 Below Basic rate for the Algebra I Keystone lagged behind the 2018-19 rate.³

³ Additional information on School District of Philadelphia Keystone performance is available on our Open Data website: https://www.philasd.org/performance/programsservices/open-data/school-performance/#pssa_keystone