

Changing the Finish Line: Implications of new graduation requirements in the School District of Philadelphia

Sean Vannata, Anna Shaw-Amoah, Molly Pileggi and Alyn Turner
Research for Action

Molly Schlesinger, Theodore Wills and Roland Reyes
School District of Philadelphia

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About PERC

The Philadelphia Education Research Consortium is a partnership between the School District of Philadelphia's Office of Research and Evaluation and Research for Action, a nonprofit education research organization. Launched in August 2014, PERC conducts research that is community-informed, equity-focused, and based on a critical analysis of District needs. We engage in longer-term, sustained areas of investigation that can be leveraged at the right time by the right people for real change in Philadelphia. PERC is funded by the William Penn Foundation and is a member of the National Network of Education Research Practice Partnerships.

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Sean Vannata, Anna Shaw-Amoah, Molly Pileggi, Molly Schlesinger, Theodore Wills, Roland Reyes, and Alyn Turner • October 2022

Executive Summary

Beginning with the class of 2023, Pennsylvania high school students will need to demonstrate career or postsecondary preparedness to meet statewide graduation requirements and receive a high school diploma. The new graduation requirements were enacted in 2018 by Pennsylvania's Act 158. They are intended to codify high standards for all students and improve student achievement across Pennsylvania, while also taking into account student strengths, interests, and career goals.

As profiled in [PERC's recent related brief](#), Act 158 outlines **five pathways** to demonstrating career or postsecondary preparedness, two of which—**the Keystone pathways**—require demonstrating proficiency on Pennsylvania's end-of-course subject exams for Literature, Algebra, and Biology.

The remaining three pathways to graduation—**the alternative pathways**—require that a student (1) either earn a *Proficient* Keystone exam score or acceptable course grades in each Keystone subject area and (2) demonstrate college or career readiness through one or multiple alternative metrics, such as through an industry-based competency certification, successful completion of a service-learning project, or an internship or cooperative education program, among other metrics.

In December 2020, in anticipation of this policy shift and the need for additional Keystone performance monitoring and support, the School District of Philadelphia's School Board [adopted the goal](#) to increase the share of students who are proficient on all three state high school assessments (Algebra, Literature, and Biology) by the end of their 11th-grade year to 52% by August 2026.

This report examines historical performance on Keystone exams to explore the potential impact of the policy on students in the School District of Philadelphia's high schools. While data to understand the impact on graduation outcomes through each of the five pathways are not yet available, existing data on Keystone proficiency can provide insights into the Keystone proficiency and composite pathways. Thus, in this report, we use pre-pandemic administrative data for students in the classes of 2018 and 2019 who took Keystone exams while enrolled in District middle or high schools to see how many and which students *would have met or almost met* Keystone-associated requirements for graduation as defined by Act 158, had the policy been in effect at that time.

Pennsylvania's Graduation Pathways in brief

Keystone Proficiency Pathway requires a *Proficient* or *Advanced* score (1500 or better) in all three Keystone exams.

Keystone Composite Pathway requires that students take all three Keystone exams with at least one proficient or advanced score, a composite score of at least 4452, and no *Below Basic* scores.

Career and Technical Education (CTE) Concentrator Pathway involves requirements around attaining an Industry-Based Competency Certification related to the CTE concentrator's program of study or otherwise demonstrating industry-based competency.

Alternative Assessment Pathway involves attaining an established score on an alternative assessment (e.g., AP or IB exam), completion of a pre-apprenticeship program, or completion of a concurrent course.

Evidence-Based Pathway involves providing three pieces of evidence from a list of more than 10 acceptable options, with specific parameters for which combinations of evidence will satisfy the requirements.

Details can be found here: [Act 158 Pathways to Graduation Toolkit](#)

Key Findings

Just over one-third of students in the historical sample achieved Keystone scores sufficient to pass the Keystone graduation pathways under the new policy. Of students from the classes of 2018 and 2019 who attempted at least one exam or associated course, just 35% would have met 2023 graduation requirements through Keystone pathways, suggesting that many students would have had to pursue alternative pathways to graduate if Act 158 had been in place.

An additional 10% of students would have almost met graduation requirements through Keystone pathways, needing to earn a *Basic* on only one additional exam, had the requirements been in place. Among students who almost met the requirements, about half (54%) did not qualify because they only took two of the three exams.

Students who would have almost met Keystone graduation requirements would have needed an additional Keystone exam score of 1484 (a high *Basic* score) to pass one of the Keystone graduation pathways.

For future cohorts of District students, we estimate that over half will need significant support to meet Keystone pathway requirements or will need to successfully pursue alternative graduation pathways in order to graduate. This estimate takes into account the expectation that students who, absent this policy, might not have planned to take all three Keystone exams or to retake the exams to boost their scores will be encouraged and motivated to do so in order to graduate. On average, the data suggest that this anticipated increase in Keystone exam completion would raise the expected share of students meeting Keystone pathway requirements from 35% to 45%. Consequently, at least in the short term, we expect that 55% of District students will likely need more significant support to pass Keystone exams or will need to successfully pursue alternative pathways in order to graduate.

Keystone scores vary based on race/ethnicity, economically disadvantaged status, and other student characteristics, reflecting local, state, and nationwide historical inequities in educational outcomes. Standardized tests often reflect systemic inequities based on race, economic status, and other student characteristics. The data in this report show these inequities are reflected in Keystone performance rates, finding that Black and Hispanic students, economically disadvantaged students, English learners, special education students, and those attending alternative schools are least likely to meet the requirements of the Keystone graduation pathways. Because Act 158 provides three alternative pathways to graduation intended to account for student strengths, interests, and career goals that are not measured by Keystone performance, future research will be needed to understand the impact of these provisions on all students, which will allow us to understand the impact of the policy as a whole.

With the exception of a few criteria-based schools, our analyses suggest that most schools in the District would see low rates of students graduating through Keystone pathways if the historical trends presented in this report persist. This includes nearly 50 District high schools with less than 25% of their students with Keystone proficiency rates sufficient to have met or almost met Act 158 requirements to graduate through either of the two Keystone pathways. While it is reasonable to anticipate that some share of these schools' students will meet graduation requirements through Act 158's alternative pathways, data are not yet available for estimating those shares nor their potential impact on overall graduation rates.

Implications for Policy and Practice

Act 158 is being implemented following a period of steady improvement in the District's graduation rate. While still below state and national averages, the past decade has seen improving rates of high school graduation in the District. While not necessarily predictive of what's to come, the findings in this report make clear how critical it will be for the District and the Philadelphia community as a whole to work together to maintain these successes. Below we summarize the implications of these findings for policy and practice. Each of these is further described in the concluding section of this report, including information on District strategies that are already underway.

- **Coordinating and collaborating with the District will be critical for partners to stay informed of the many nuances of the District system and protocols in place.** The District is preparing a *Partner Toolkit* to promote and guide effective coordination and collaboration for supporting pathways to graduation.
- To support data-driven strategies for navigating Act 158, Philadelphia education stakeholders as well as families and students should have **access to publicly-available, school-level data related to all five graduation pathways.**
- In the short term, schools and community partners can support graduation outcomes for all students by **executing a dual strategy** to support students to graduate, aimed at supporting both Keystone and alternative graduation pathways.
- This school year (2022-23), school and community supports could immediately target improving Keystone performance **for 11th-grade students** who are close to meeting the Keystone-associated graduation pathways (potentially using the “almost met” metric introduced in this report). Students who will likely need to pursue alternative pathways should also be identified and supported.
- **Seniors in the graduating class of 2023** who are not on track to meet Keystone graduation requirements should be identified early on in the year. Many students may be able to take advantage of COVID-specific waivers and/or adjusted Keystone requirements. Others will need to be connected to supports that will allow them to pursue alternative pathways.
- **Moving forward, it will be critical to provide guidance on the timing for pursuing the alternative pathways.** Students typically take Keystone exams after each associated course, but retakes are permitted through the end of 11th grade, with the best score used to determine Keystone pathway eligibility. Clarity is needed on when schools should start to identify opportunities for students to pursue alternative pathways when needed or desired.

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Why This Study

Beginning with the class of 2023, Pennsylvania high school students will need to demonstrate career or postsecondary preparedness in order to graduate from high school, in addition to any locally-determined requirements. Pennsylvania's Act 158 of 2018 outlines five pathways through which students can demonstrate that preparedness. This legislation is complex (and still being refined by the Pennsylvania Department of Education) and will have broad implications for all Pennsylvania students and schools.¹

This report is the second in PERC's Keystone series about the implementation of new graduation pathways under Pennsylvania's Act 158 of 2018, following our policy brief, "[Changing Requirements in Pennsylvania for High School Graduation: A Research Brief on Pennsylvania Act 158](#)." **This study uses historical data to see how many and which students would have met the Keystone-associated requirements for graduation set forth by Act 158.** While these data can inform the timely mobilization of strategies and supports for students, assessing the full impact of the policy on graduation outcomes for students will only be possible once we have data on all five pathways.

Graduation pathway details

Details describing the pathways can be found here: [Act 158 Pathways to Graduation Toolkit](#). We have also included a two-page visual description of the pathways published by the PA Department of Education in summer 2022 in Appendix B.

Under the newly implemented policy, the Keystone-associated pathways leverage systems that are already familiar for schools and students in the District, since the exams have been administered since 2012-13. The Keystone exams are standardized tests designed to be end-of-course evaluations that assess a student's knowledge of Biology, Algebra I, and Literature.² Students can retake exams to achieve proficiency and improve their scores. The two graduation pathways that rely on these exams require demonstrating proficiency on each exam individually or demonstrating a mix of proficiencies on individual exams while still meeting a threshold composite score. To meet the Keystone Proficiency graduation pathway, students must receive a *Proficient* or *Advanced* score on

each Keystone (1500 or higher). In order to meet the Keystone Composite graduation pathway, students must receive at least one *Proficient* or *Advanced* score, have a composite score of at least 4452, with no scores of *Below Basic*. If they do not satisfy one of the two Keystone graduation pathways, alternative requirements must be met.

The remaining three alternative pathways will require new systems to ensure schools and students understand what is required and have access to opportunities to meet the requirements. Each alternative pathway requires that a student (1) either earn a *Proficient* Keystone exam score or acceptable course grades in each Keystone subject area and (2) demonstrate college or career readiness through one or multiple alternative metrics, such as through an industry-based competency certification, successful completion of a service-learning project, or an internship or cooperative education program, among other metrics.³

¹ Pennsylvania has adopted this policy at the same time as many states are backing away from "high stakes" graduation exit exams. The number of states requiring high school graduation exams, including end-of-course tests, has declined over time from nearly 30 in the late 1990s to 11 as of 2019 (The National Center for Fair & Open Testing, 2019).

² Pennsylvania Department of Education. *Keystone Exams*. [Keystone Exams \(pa.gov\)](#)

³ Pennsylvania Department of Education (2018). *Statewide High School Graduation Requirement*. [Graduation Requirements \(pa.gov\)](#) Pennsylvania Senate Bill 1095.

Short-term policy modifications to Act 158

While Act 158 is set to be the standard for all Pennsylvania high-school graduating classes moving forward, there are some considerations for students whose exams were impacted by COVID. These modifications to the graduation policy are not permanent and will primarily impact the upcoming graduating class of 2023.

First, in September of 2021, the Pennsylvania State Board of Education approved the addition of the COVID-19 pandemic to the list of extenuating circumstances for which school administrators can waive pathway-specific graduation requirements for students in the graduating classes of 2023, 2024, and 2025.

What does this mean? This allows schools to cite the pandemic as a reason to waive the new graduation requirements for students. However, if waivers exceed more than 5% of the graduating class within a school, that school may be required to submit an improvement plan or be subject to an audit.

Second, in July of 2022, the Pennsylvania Legislature passed Act 55, which amends the Keystone Composite pathway to allow students who received Keystone exam waivers in the Spring of 2020 due to the pandemic to obtain a “Two Score Keystone Composite.”

What does this mean? Students can meet the Act 55 requirement if they (1) successfully completed a Keystone-associated course in a school year in which the federal government has waived testing and accountability requirements in a Keystone and (2) achieved a Keystone Composite score of 2939 or greater for two Keystone exams.

Details about the modifications can be found here: [Act 158 Pathways to Graduation Toolkit](#)

Previous research raised concerns that Keystone exam requirements would significantly impact graduation rates in Philadelphia and elsewhere, which motivated the inclusion of alternative pathways in Act 158.⁴ Keystone exams that were previously only used for federal accountability for schools will now become *high stakes* for individual students with the potential to determine whether or not they will graduate. A 2016 commissioned report by the PA Department of Education to assess the potential impact of requiring exit exams for graduation showed that nearly half of Pennsylvania high school students scored below proficient on at least one Keystone Exam, potentially significantly threatening the graduation rates in many PA districts, including Philadelphia.⁵

Districts and schools serving more non-white, economically disadvantaged, English learner, and special education populations have historically had lower rates of Keystone proficiency,⁶ thus we can expect, at least in the short term a larger share of these students to pursue the alternative pathways under the new policy.

High stakes tests are those that have real-world implications for students, such as determining whether or not they will graduate.

⁴ Senator McGarrigle, T.J. Pennsylvania Senate Bill 1095. (March 8, 2018) Graduation Requirements. Senate of Pennsylvania, Session of 2017-2018 Regular Session. Senate Co-Sponsorship Memoranda - PA State Senate

⁵ Pennsylvania Department of Education. (August 2016) Findings and Recommendations Pursuant to Act 1 of 2016. A Report Submitted to the General Assembly of Pennsylvania by the Pennsylvania Department of Education. Findings and Recommendations Pursuant to Act 1 of 2016 (pa.gov)

⁶ McGlynn, A. (2016) Higher Standards and Lower Achievement? An Evaluation of Pennsylvania's Keystone Exams. *Commonwealth: A Journal of Pennsylvania Politics and Policy*, Vol. 18 No. 1. <https://doi.org/10.15367/cjppp.v18i1.83>; Shaw, K. Norton, M. H. Sludden, J. Long, D. Barnes, M. (2015) PA Keystone Exams: Analysis of 2013-14 Publicly-Available Data. Research for Action. https://www.researchforaction.org/wp-content/uploads/2021/07/RFA_PACER_Analysis_13-14_Keystones_June_2015.pdf

Act 158 is being implemented following a period of steady improvement in the District’s graduation rate. While still below state and national averages, the past decade has seen improving rates of high school graduation in the District to 80% in 2021.⁷ Earning a high school diploma improves life outcomes for individuals, including higher employment rates, better health outcomes, lower rates of poverty, and lower rates of incarceration, among others.⁸ Additionally, better community rates of high school graduation benefit everyone, for example by increasing tax revenues and lowering costs of public health, crime, and public assistance payments.⁹ It is critical for schools and Philadelphia community as a whole to work together to support Keystone proficiency and access to opportunities to meet the requirements of alternative pathways to maintain these improvements in the graduation rate.

This report explores Keystone exam performance in the School District of Philadelphia’s classes of 2018 and 2019 and is not necessarily predictive of what we might see moving forward. This pre-pandemic data reflects an era when Keystone exams were not high stakes. This analysis provides a baseline understanding of Keystone exam achievement in the District as we enter a high-stakes testing environment. The extent to which these trends in Keystone performance continue will depend on many factors. While student outcomes in terms of achievement and graduation rates have mostly *not* increased with the use of high school exit exams in other states,¹⁰ it is possible that we will see higher rates in Keystone proficiency following the implementation of Act 158. In addition, the alternative pathways to graduation were intentionally created with this policy to offer opportunities for students to have their strengths, interests, and career goals recognized in their educational achievements. It will be important to examine all pathways moving forward to understand the full impact of Act 158.

What the Study Examined

This study explores the Keystone exam performance of two cohorts of SDP high school students, the graduating classes of 2018 and 2019, to understand how many and which students would have met the Keystone graduation pathways if the new graduation requirement policy had been in effect. While the alternative pathways may be especially viable for many students, the Keystone-associated pathways are particularly valuable as they offer students a familiar path with established infrastructures of support - in part because Keystone exams are required for federal accountability purposes.

Historically students have rarely taken Keystone exams in their senior year, thus this study includes students in their expected third year of high school within these cohorts. The analysis primarily focuses on students who attended one of SDP’s traditional high schools¹¹ but also includes some findings on students who attended SDP alternative schools. See Box 1 for the research questions guiding this study and data

⁷ Erdem-Akay, E. (2020) “School District of Philadelphia Graduation Rates: Definitions and Trends,” School District of Philadelphia Office of Research and Evaluation; Pylvainen, H. (2022) “2020-21 High School Graduation Rates in Philadelphia,” School District of Philadelphia Office of Research and Evaluation.

⁸ Wilkins, J & Bost, Loujeania W. Dropout Prevention in Middle and High schools: From Research to Practice.; Belfield, C., & Levin, H. M. (2007). *The price we pay: Economic and social consequences of inadequate education.* Washington, DC: Brookings Institution.; Sanford, C., Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2011). *The post-high school outcomes of young adults with disabilities up to 6 years after high school. Key Findings From the National Longitudinal Transition Study-2 (NLTS2)(NCSE 2011-3004).* Menlo Park, CA: SRI International. Neild, R. C. & Balfanz, R. *Unfulfilled Promise: The Dimensions and Characteristics of Philadelphia’s Dropout Crisis, 2000-2005.* (2006).

⁹ Levin, Henry & Belfield, Clive & Muennig, Peter & Rouse, C.. (2006). *The Costs and Benefits of an Excellent Education for America's Children.*

¹⁰ Holme, J. J., Richards, M. P., Jimerson, J. B., & Cohen, R. W. (2010). Assessing the effects of high school exit examinations. *Review of Educational Research*, 80(4), 476-526. doi: 10.3102/0034654310383147. Reardon, S. F., & Kurlaender, M. (2009). Effects of the California High School Exit Exam on student persistence, achievement, and graduation. Berkeley, CA: *Policy Analysis for California Education*, University of California, Berkeley. Baker, O. & Lang, K. (2013). The effect of high school exit exams on graduation, employment, wages and incarceration. Working Paper 19182. Cambridge, MA: *National Bureau of Economic Research*. <http://www.nber.org/papers/w19182>

¹¹ [The School District of Philadelphia High School Directory Fall 2021 Admissions \(philasd.org\)](http://philasd.org)

details. Appendix A includes a sample description, graduation pathway data for traditional and alternative schools, by cohort and student groups and Keystone subject-specific performance. Additional supplemental tables can be accessed here: <https://phledresearch.org/changing-the-finish-line>.

This report also takes a more in-depth look at students who we classify as “almost” meeting a Keystone graduation pathway, examining how many students were close to crossing the finish line, and identifying how these students can reach those pathways. These findings highlight the expected impact of efforts and interventions needed for more students to reach Keystones graduation pathways and could be of interest to school staff, administrators, and community-based education organizations as they look to support students in meeting the new graduation requirements.

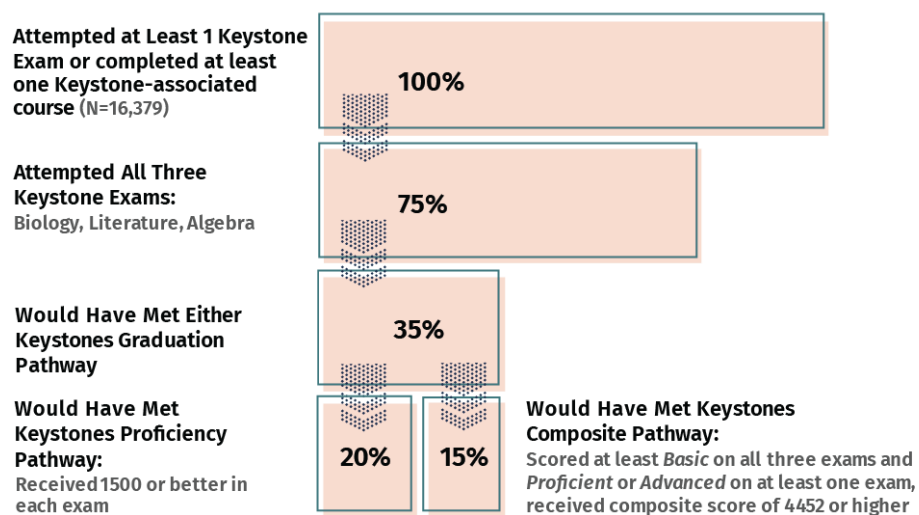
We also examine Keystone graduation pathways by student subgroups and individual SDP schools. Keystone exams are not unique among standardized tests for reflecting systemic inequities based on race, economic status, and other student characteristics, a concern that motivated the inclusion of alternative pathways to graduation in the policy. Future research will be helpful in exploring the impact of alternative pathway requirements for all District students.

What the Study Found

Nearly two-thirds of the high school classes of 2018 and 2019 would not have met the requirements to graduate through Keystone pathways.

Figure 1 shows the Keystone graduation pathway results from the students in our pre-policy research sample attending SDP traditional education schools. These results reflect outcomes for students who were not subject to the graduation requirements under Act 158, but whose outcomes can be thought of as a benchmark for future cohorts.

Figure 1. Percent of School District of Philadelphia students in the classes of 2018 and 2019 who would have met the requirements for Act 158 Keystone pathways to high school graduation



Note: Figure includes 16,379 students in their third year of high school who took at least one Keystone exam or associated course. An additional 1,896 students not represented in this figure were in their 3rd year of high school and in SDP schools but did not take any Keystone exams or courses. The analysis includes students in SDP traditional K-12 schools only, excluding students in SDP alternative schools.

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY2018-19

Box 1: Research Questions, Study Sample, and Data

➤ Research Questions

1. If the graduation policy that is going into effect for the Class of 2023 were in place for the classes of 2018 and 2019, what share of students would have met either of the two Keystones graduation pathway requirements?
2. What share of students were close to meeting either of the Keystone pathway requirements?
3. How do Keystone graduation pathway rates vary across schools and student subgroups?

➤ Study Sample

This study uses de-identified student-level data for students in their third year of high school (based on their 9th grade cohort) enrolled in the School District of Philadelphia in the expected graduating classes of 2018 and 2019. The study sample includes students who took at least one Keystone associated course or attempted at least one Keystone exam (Biology, Literature, or Algebra). The sample was restricted in this way because students who either took a Keystone exam or a Keystone associated course are expected candidates who would have pursued Keystones graduation pathways if Act 158 had been in effect. Our sample consists of **16,379 third-year high school students**, 8,174 from the 2017-18 cohort and 8,205 from the 2018-19 cohort. This excludes 1,896 students who had not taken a Keystone exam nor an associated course. All identifying information was removed before the research team received the data.

➤ Contextual Data

In addition to the student-level data, as part of this study, we gathered contextual data on perceptions of the new graduation requirement by hosting a workshop in May 2022 that convened stakeholders from organizations who support high school students in the Philadelphia area. The workshop aimed to share out some relevant recent PERC research and then allow attendees to react to the five pathways to graduation described by Act 158.

➤ Key variables are:

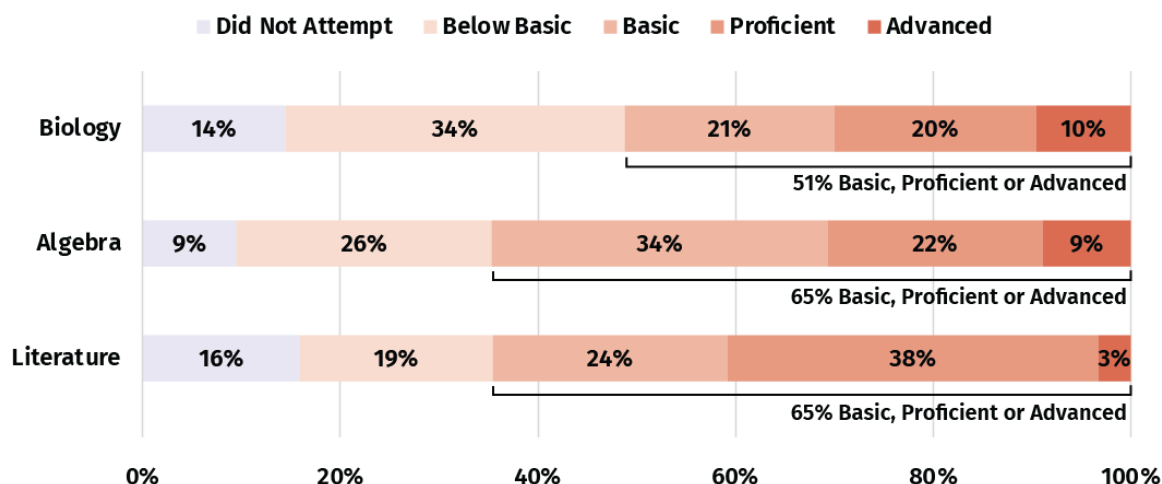
- **Keystone Proficiency (Pathway 1):** Indicator for if a student would have passed this pathway under the graduation policy, which requires a *Proficient* score (a scaled score of 1500 or higher) in each of the three Keystone Exams.
- **Keystone Composite (Pathway 2):** Indicator for if a student would have passed this pathway under the graduation policy, which requires a composite score of 4452, at least one Keystone Exam score of *Proficient* or *Advanced* (a scaled score of 1500 or higher), and no scores of *Below Basic*. (Excludes students who also would have met Keystone Proficiency)
- **Either Keystone Pathway:** Indicator for if a student would have passed either of the two Keystone pathways under the graduation policy.
- **Attempted All Exams:** Specifies if a student attempted all three Keystone exams (Algebra, Biology, and Literature).
- **“Almost” Met Keystone Pathway:** The research team created an indicator to identify students who almost met Pathway 2 under the graduation policy. Students in this category would have met the Pathway 2 requirements if their lowest score was replaced with 1484. This means that before replacement, they scored *Basic* or above on at least 2 Keystone exams, scored *Proficient* or *Advanced* on at least one Keystone exam, and the 1,484 replacement score would have made their composite score equal to or higher than 4,452. (The threshold *Basic* score of 1484 or higher is derived from the composite score of 4452 divided by three. The composite score of 4452 is defined in Act 158.)

Of students in traditional SDP high schools who took at least one Keystone-associated course or exam, 75% attempted all three exams, but only 35% of students would have met either Keystone graduation pathway (20% who would have met the Keystone Proficiency pathway and 15% who would have met the Keystone Composite pathway). The data in Figure 1 can also be interpreted to mean that nearly two-thirds of these students would have needed support in taking additional Keystone exams, improving their existing Keystone scores, or pursuing alternative pathways in order to graduate, had Act 158 been in effect for them. The Pennsylvania Department of Education’s initial research on Keystone Exams estimated that statewide, 50% of students would have reached a Keystone graduation pathway.¹² Our finding that only 35% of students in SDP’s traditional high schools would have met these same requirements suggests that students in the District may pursue alternative pathways at higher rates than other Pennsylvania districts.¹³

Across subjects, students were least likely to attempt the Literature exam, and exam takers were least likely to pass the Biology exam.

The Keystone exams are end-of-course subject exams for Literature, Algebra, and Biology. Figure 2 below shows Keystone exam results by the three subjects for our pre-policy, pre-pandemic sample. The data show the share of students in the research sample who received an *Advanced*, *Proficient*, *Basic*, or *Below Basic* score, or did not attempt the exam. All students in the sample attempted at least one exam.

Figure 2. Percent of Students by Subject, Among Students Who Took At Least One Keystone Exam



Note: The sample for each bar above (N=16,379) is all students in the main study sample, thus those who were in their third year of high school and who took at least one Keystone-associated course or attempted at least one Keystone exam (Biology, Literature, or Algebra). Students may or may not have taken the course or exam associated with each individual subject. An additional 1,896 students not represented in this figure were in their 3rd year of high school and in SDP schools but did not take any Keystone exams or courses. The analysis includes students in SDP traditional K-12 schools only, excluding students in SDP alternative schools.

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY 2018-19.

¹² Pennsylvania Department of Education. (August 2016) Findings and Recommendations Pursuant to Act 1 of 2016. A Report Submitted to the General Assembly of Pennsylvania by the Pennsylvania Department of Education. Findings and Recommendations Pursuant to Act 1 of 2016 (pa.gov).

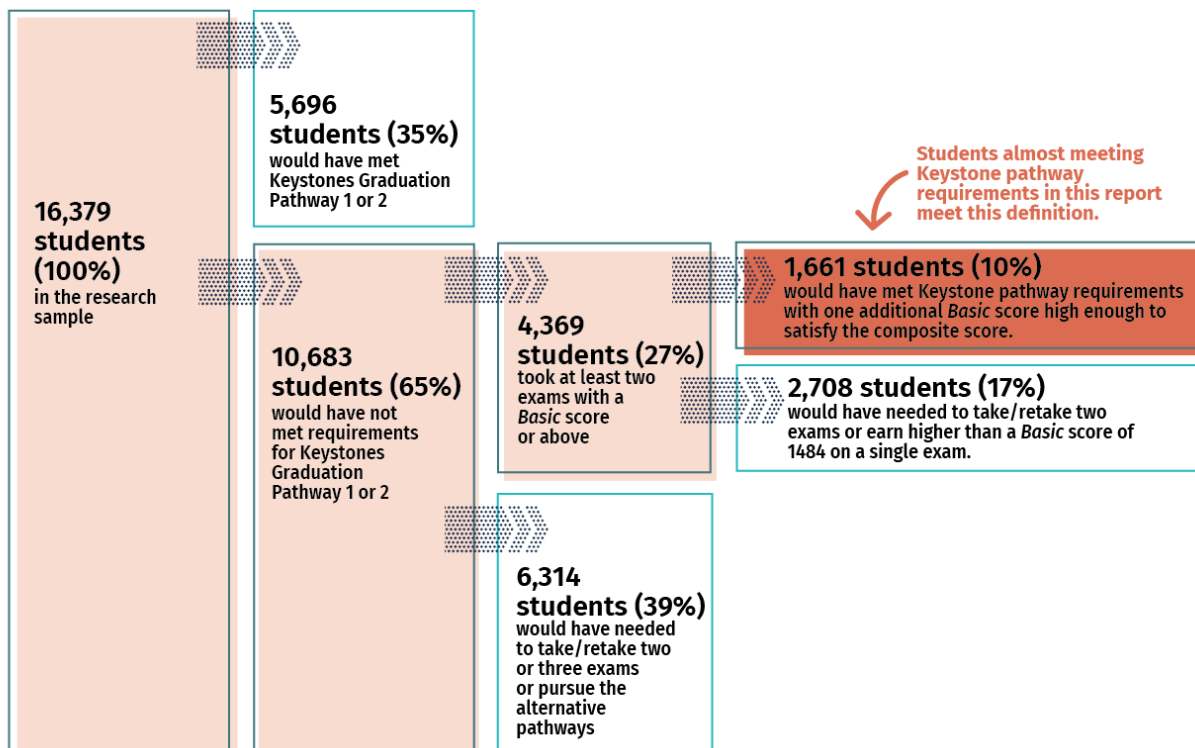
¹³ Appendix A presents these data separately for each graduating class as well as for students in alternative high schools (N=1,392).

Most students in our research sample attempted the Keystone exams (between 84-91%), though a larger share of students did not attempt the Literature and Biology exams (16% and 14%, respectively) compared to the Algebra exam (9%). Compared to about two-thirds of students for Algebra and Literature, only about half of students received a *Basic* or above score on the Biology exam.

Under Act 158, focusing support for students on the cusp of meeting Keystone requirements could be expected to improve the overall graduation rate through Keystone pathways by 10 percentage points.

Students who do not score high enough on the Keystone exams to meet the graduation requirements can retake exams throughout high school to achieve their best score. Now that the high stakes policy is in place, we might expect that more Philadelphia students will take all three exams and retake exams with low scores, particularly those who are close to meeting the requirements for graduation. If many students would have *almost met* the requirements, increased efforts to support students who are close to passing via the Keystone pathways could be a strong piece of a larger strategy that supports students to meet graduation requirements.

Figure 3: Percent of School District of Philadelphia students in the classes of 2018 and 2019 who would have *met* or *almost met* the requirements for Act 158 Keystone pathways to high school graduation



Note: Figure includes 16,379 students who took at least 1 Keystone exam in SDP traditional K-12 schools only, excluding students in SDP alternative schools. An additional 1,896 students not represented in this figure were in their 3rd year of high school and in SDP schools but did not take any Keystone exams or courses. The threshold *Basic* score of 1484 or higher is derived from the composite score (4452) divided by three. Students almost meeting requirements would need to earn at least a *Basic* score to satisfy the Keystone Composite Pathway requirement of *no Below Basic* scores, and a score high enough to satisfy the Keystone Composite Pathway requirement of a composite score of at least 4452, but do not need to exceed the modest score of 1484 (one-third of the composite score).

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY2018-19.

To assess the potential mitigating impact of this strategy, we used historical data to define circumstances where students were close to meeting the Keystone pathway requirements: Students who would have “almost met” the requirements only needed one additional Keystone *Basic* exam score of 1484 or above, a threshold equivalent to a third of the required composite score (Figure 3).

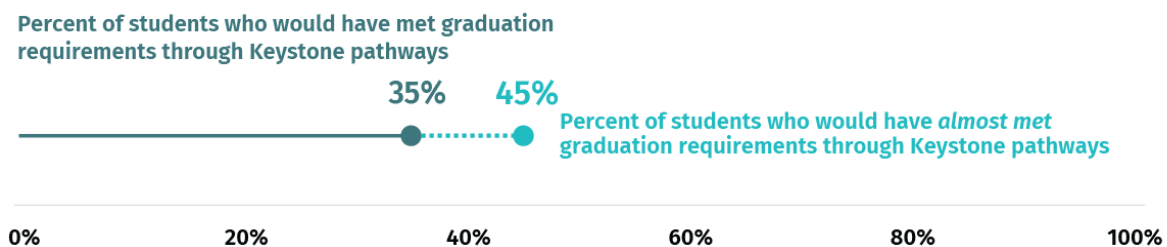
We find that:

- **Ten percent of all students in the research sample would have almost met Keystone graduation requirements**, meaning they would have only needed to take or retake one additional exam and earn *Basic* score.
- **Among the 1,661 students who would have almost met requirements, over half (892) did not qualify because they were missing at least one exam (not shown in the figure)**. Another 544 received a *Below Basic* score and would have needed to retake that exam, while the remaining 225 would not have qualified because they did not meet the composite score threshold and would have needed to retake one exam and receive a score high enough to meet or exceed the composite score of 4452.

For future cohorts of District students, we estimate that over half will need significant support to meet Keystone pathway requirements or will need to successfully pursue alternative graduation pathways in order to graduate.

If we count students in our pre-policy sample who would have almost met Keystone requirements as likely eligible for a Keystone pathway to graduation, we still find that less than half of students (45%) in traditional high schools would have graduated under Act 158 through the Keystone pathways (Figure 4). At least in the short term as the District invests in strategies to significantly improve Keystone performance, it will be critical for the Philadelphia community to understand and support students who need to pursue alternative pathways.

Figure 4. Percent of SDP Students in the classes of 2018 and 2019 would have met or almost met Keystone graduation pathways



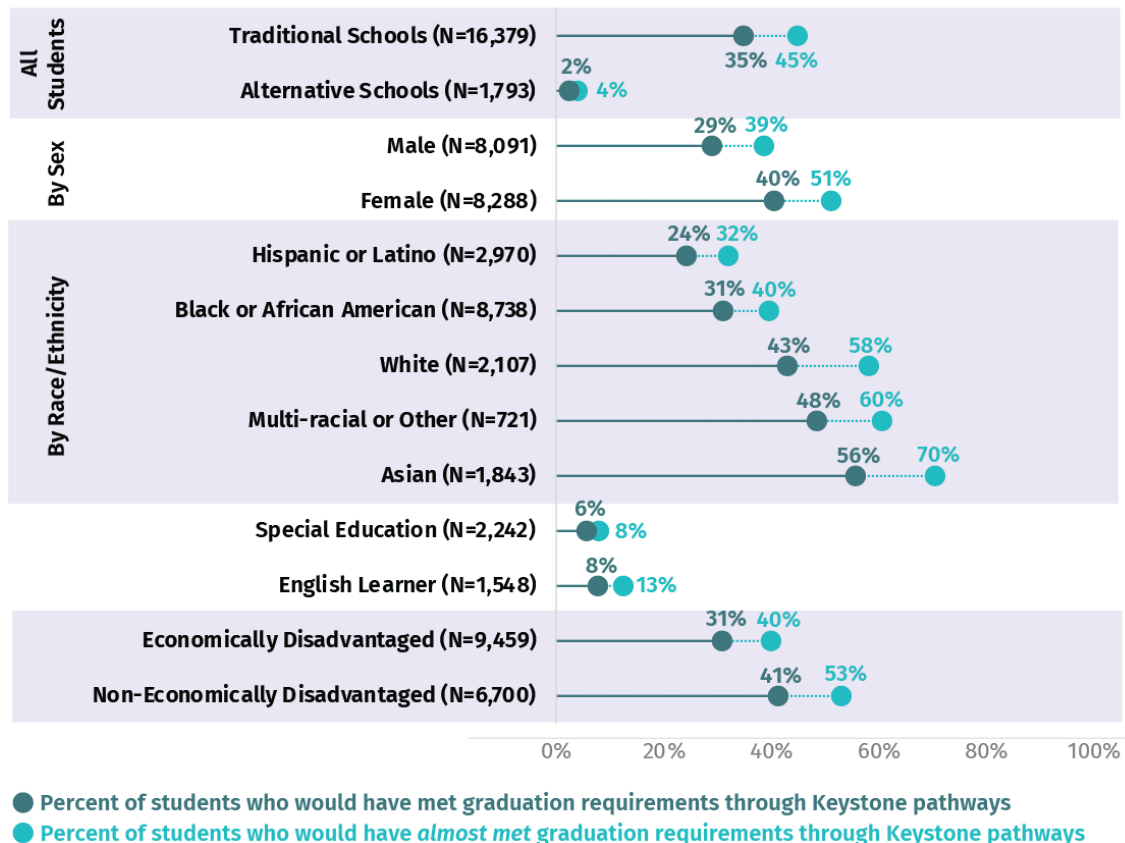
Note: Includes 16,379 students who took at least 1 Keystone exam in SDP traditional K-12 schools only, excluding students in SDP alternative schools. An additional 1,896 students not represented in this figure were in their 3rd year of high school and in SDP schools but did not take any Keystone exams or courses.

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY 2018-19.

The share of students who would have met or almost met the requirements to graduate through the Keystone pathways varied based on race/ethnicity, economically disadvantaged status, and other student characteristics, reflecting local, state, and nationwide historical inequities in standardized tests.

In Figure 5 above, we see that many students from all backgrounds did not attain the scores required to meet Act 158 Keystone pathway requirements.

Figure 5. Percent of SDP Students in the classes of 2018 and 2019 would have met or almost met Keystone graduation pathways, by student group



Note: With the exception of the estimate of students in alternative schools, these data includes 16,379 students who took at least 1 Keystone exam in SDP traditional K-12 schools only. An additional 1,896 students not represented in this figure were in their 3rd year of high school and in SDP schools but did not take any Keystone exams or courses. Data on sex pre-dates the District's policy to let students self-identify based on their gender identity. A student with a disability who is unable to satisfy pathway requirements but who satisfactorily completes a special education program is granted a diploma under Title 22 §4.24. Students who were formerly ELs prior to their 3rd year of high school are not considered EL students in this analysis.

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY2018-19

Notably:

- **For all subgroups, about half or fewer students would have met the requirements.** Yet, similar to what others have found state-wide, we see lower outcomes on Keystone exams for students of color, economically disadvantaged students, and English learner students.
- **A majority of Hispanic/Latino and Black/African American students would not have met Keystones graduation pathway requirements, had they been in place for these cohorts.**

Among race/ethnicity groups, just 24% of Hispanic/Latino students and 31% of Black/African American students would have met Keystone graduation pathway requirements.

- **When including those who would have almost met requirements, the share increases only slightly to 32% of Hispanic/Latino and 40% of Black/African American students.** By contrast, a larger share of Asian, White, and Multi-racial or Other race students were near the threshold, suggesting a strategy that *only* focuses on students who are almost meeting the Keystone requirements would likely disadvantage Hispanic/Latino and Black/African American students.
- **Only a small share of students attending alternative schools, special education students, and English learners would have met Keystones graduation requirements.** Just 4% of students attending alternative schools, 8% of special education students, and 13% of English learners would have met or almost met Keystones graduation requirements compared to 45% of all general education students in traditional schools. It should be noted that special education students may have IEPs that allow for flexibility with respect to graduation requirements.
- **Economically disadvantaged students would have met Keystone graduation requirements at a lower rate than non-economically disadvantaged students.** Just one-third (31%) of economically disadvantaged students would have met Keystone graduation pathway requirements and 40% would have met or almost met requirements, compared to 41% and 53% of the non-economically disadvantaged students, respectively.

High-stakes testing environments have been shown nationwide to reflect structural inequities related to race and economic class, and previous research suggests that the Keystone requirements of the policy will likely have disparate impacts on different student subgroups.¹⁴ These patterns are what motivated the addition of the alternative pathways to graduation in Pennsylvania’s Act 158 to be more inclusive of the strengths, interests, and career goals of all students recognized in their educational achievements. It will be important to examine all five pathways moving forward to understand the full impact of Act 158.

About 60% of District school communities would see less than a quarter of students graduating through Keystones pathways if current trends continue.

Not all schools and students will struggle with achieving the new Act 158 requirements through the Keystone pathways. As shown in the maps below, District schools range widely in their rates of students who would have met graduation requirements through the two Keystone pathways.

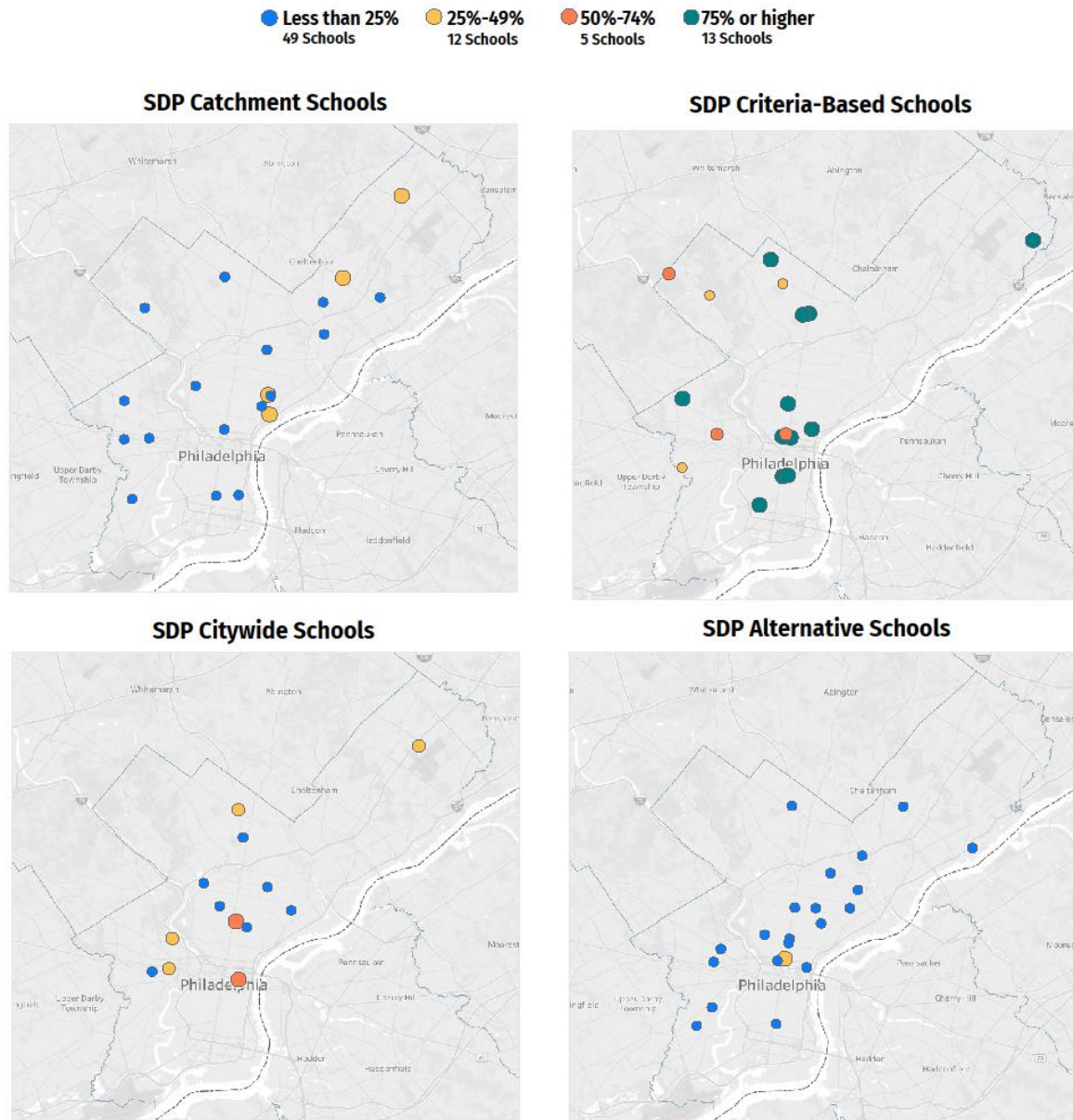
Of the 80 School District of Philadelphia high schools in this study, there were only 13 schools—all of which are criteria-based schools—where at least 75% of students either would have met or been close to meeting the Keystones graduation pathways.¹⁵ Until recently, some criteria-based schools in SDP required high performance on standardized testing in order to be admitted,¹⁶ so students in those schools were likely already supported when it comes to standardized testing.

¹⁴ Au, Wayne. "Hiding behind high-stakes testing: Meritocracy, objectivity and inequality in US education." *International Education Journal: Comparative Perspectives* 12.2 (2014); Au, Wayne. "Meritocracy 2.0: High-stakes, standardized testing as a racial project of neoliberal multiculturalism." *Educational Policy* 30.1 (2016): 39-62; Johnson, Tammy, Jennifer Emiko Boyden, and William J. Pittz. "Racial Profiling and Punishment in US Public Schools: How Zero Tolerance Policies and High Stakes Testing Subvert Academic Excellence and Racial Equity. Research Report [and] Executive Summary." (2001). Shaw, K. Norton, M. H. Sludden, J. Long, D. Barnes, M. (2015) PA Keystone Exams: Analysis of 2013-14 Publicly-Available Data. Research for Action. [RFA_PACER_Analysis_13-14_Keystones_June_2015.pdf](https://www.researchforaction.org/) ([researchforaction.org](https://www.researchforaction.org/)); Pennsylvania Department of Education. (August 2016) Findings and Recommendations Pursuant to Act 1 of 2016. A Report Submitted to the General Assembly of Pennsylvania by the Pennsylvania Department of Education. [Findings and Recommendations Pursuant to Act 1 of 2016](https://www.ped.gov/) ([pa.gov](https://www.ped.gov/))

¹⁵ Catchment schools are formerly *neighborhood* schools. Criteria-based schools are formerly *special admission* schools.

¹⁶ School District of Philadelphia. "2021-22 School Selection in SDP." <https://www.philasd.org/era/2022/03/17/2021-22-school-selection-in-sdp/>

Figure 6: Percent of Students Who Would Have Met or Almost Met Keystone Graduation Pathway Requirements, by School



Note: Philadelphia Virtual Academy is not included here; see web map for rates. Catchment schools are formerly *neighborhood* schools. Criteria-based schools are formerly *special admission* schools.

Source: Administrative data from the School District of Philadelphia, SY2014-15 – SY 2018-19

An interactive version of this map is available with additional data indicators at: <https://phledresearch.org/keystones-map/>

There are 61 schools where Keystone performance rates indicate that less than half of the students would have met or nearly met the requirements for graduation through the Keystone pathways.

This group of schools includes all of the District’s catchment and alternative schools and the Philadelphia Virtual Academy. Additionally, there are 49 schools—about 60% of District schools—where less than 25% of students would have either met or almost met the requirements for graduation through the Keystone pathways, including all but one of the District alternative schools.

Summary

The data in this report provide an overview of Keystone performance in relation to two of the five pathways to graduation under Act 158. We examine data for the classes of 2018 and 2019, a historical look at Keystone proficiency rates in a non-high stakes testing environment, in order to inform what lies ahead.

The main takeaway is that Act 158 will require many schools to improve student Keystone performance or support them in pursuing alternative pathways, and the graduation rate within the School District of Philadelphia will depend on the strategies and supports students have access to.

Philadelphia has experienced positive trends in high school graduation in the past decade.¹⁸ We find that less than half of students in the classes of 2018 and 2019 would have met or almost met the Keystone requirements. Black and Hispanic students, economically disadvantaged students, English learners, special education students, and those attending alternative schools are least likely to meet the requirements of the Keystones graduation pathways. These findings suggest that, to continue improving the graduation rate under Act 158, many students will benefit from coordinated support, guidance, and opportunities to improve Keystone performance and/or pursue alternative pathways. In our view, the equity-driven intentions of Act 158 can be achieved through dual investments in subject-area proficiency as well as clear guidance and support for connecting youth to opportunities that meet the requirements for alternative pathways.

Implications for Policy and Practice

As these new pathways will be required for graduation beginning with the Class of 2023, School District of Philadelphia program offices, community organizations, and City officials will be adopting new approaches to support students to graduate. We conclude this report with several implications for policy and practice to guide decision-making.

Supporting students to reach Act 158’s graduation requirements will take a collaborative effort across the city. The entire student support ecosystem will need to be involved in understanding and shaping local policy implementation. This will need to include creating clear and accessible opportunities to demonstrate proficiency on Keystone exams or pursue alternative pathways (e.g., CTE concentrator or internship). An example partnership to support the latter already exists through the [Career Connected Learning](#) program, a partnership supporting the completion of work-based learning between the District,

¹⁷ Attendees at our May 2022 workshop discussing Act 158 noted concerns about the complicated information shared about alternative pathways on PDE’s website.

¹⁸ Erdem-Akçay, E, School District of Philadelphia Office of Research and Evaluation. (2020) “School District of Philadelphia Graduation Rates: Definitions and Trends.” <https://www.philasd.org/research/wp-content/uploads/sites/90/2020/05/graduation-rate-definitions-and-trends-may-2020.pdf>

the City of Philadelphia, and Philadelphia Works.¹⁹ Under Act 158, these kinds of coordinated programs and opportunities will increasingly be important for Philadelphia's youth. Partnering with SDP can help stakeholder stay informed of the many nuances of the District systems and protocols in place. The District is preparing a *Partner Toolkit* to encourage coordination and collaboration around Act 158 graduation pathways.

Moving forward, it will be critical to provide guidance on the timing needed to pursue the alternative pathways. How long do students have to attempt the Keystone pathways before needing to pivot? When should students start to think about preparing to meet graduation requirements through alternative pathways? Resources are in the works through the District's Office of Academic Supports, which will provide schools with guidance on timelines and how to use the Student Information System real-time data to identify students almost meeting requirements and support them to improve Keystone exam scores or support students in attaining alternative pathway requirements.

Furthermore, in the short term, District offices and community partners can work toward successful graduation outcomes for all students by executing a dual strategy to support students to graduate, aimed at both Keystone and alternative graduation pathways. In the short term, it would be reasonable to identify current high school students who have “almost” met the Keystone performance requirements and focus on getting those students to pass missing exams or exams with *Below Basic* scores. However, we show that, because a larger proportion of them almost met Keystone requirements, such a strategy would provide disproportionately more support to students who are White, Multi-racial or Other, and Asian students compared to Black and Hispanic students. While the District and partners work toward ensuring all students can pass Keystone exams, short-term strategies that equally prioritize making alternative pathways more accessible and navigable are necessary in order to ensure that historically disadvantaged student groups who face substantial educational and structural inequities do not fall behind the benchmarks of their peers, simply because of the standardized testing system.

This school year (2022-23), the District and community supports could immediately target improving Keystone performance through realistic interventions for 11th-grade students who are close to meeting the Keystone-associated graduation pathways. This report found that one in every six students who did not meet Keystones graduation pathway requirements were on the cusp of meeting them, only needing one additional Keystone exam score of at least Basic. Dedicated interventions could target this year's 11th graders who have achieved success on two Keystone exams and only need one additional exam or improved score to graduate, a strategy already identified by the District as a key lever in supporting student success in meeting graduation requirements. As stated above, we caution that solely relying on this strategy would likely increase inequity in graduation rates across the District, however.

Seniors in the graduating Class of 2023 who are not on track to meet Keystone graduation requirements should be identified and connected to supports that will allow them to pursue alternative pathways. The vast majority of Keystone exams have historically been taken in students' first three years of high school, meaning that schools will know this fall which seniors meet Keystone performance requirements for graduation. The District is in the process of ensuring the Student Information Systems have real-time information for school administrators to use to identify seniors who might consider taking or retaking an exam or who need to pursue alternative pathways to graduate this year. This will also allow the District to monitor 2021-22 Keystone performance data to determine which school communities need the most support and inform work by District agencies, City of Philadelphia, and local school partners to target resources to the seniors in these schools.

¹⁹ Career Connected Learning (CCL) is an approach to college and career readiness education that is rooted in the idea that the best way to teach skills essential for a successful career is through direct, real-world experience reinforced by rigorous and relevant classroom learning. CCL systems support large-scale efforts to pair meaningful, high-quality, on-the-job experiences with aligned classroom learning to prepare all students to compete for good jobs and earn industry-valued postsecondary credentials.

To support longer-term data-driven strategies for navigating Act 158, Philadelphia education stakeholders, as well as families and students, should have access to publicly-available school-level data related to all five graduation pathways. In December 2020, in anticipation of Act 158 and need for additional Keystone performance monitoring and support, the School District of Philadelphia’s School Board [adopted the goal](#) to increase the share of students who are proficient on all three state high school assessments (Algebra, Literature, and Biology) by the end of their 11th grade year to 52% by August 2026. Stakeholders can already [access public data](#) related to Keystone proficiency. Additionally, this report and [PERC’s accompanying interactive web map](#) allow teachers and school staff, District officials, educational organizations, and members of the community to view additional Keystone performance metrics (students meeting Keystone graduation pathway requirements, almost meeting requirements, and taking all three exams) by individual school or school type. Expanded data related to all five pathways should be made available each year will be critical to continuing to provide support to students in future years.

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Appendix A: Additional Data Tables

Sample Description

	Class of 2017-18 (N=8,174)	Class of 2018-19 (N=8,205)	Both Cohorts (N=16,379)
Sex			
% Female	50.72%	50.48%	50.60%
% Male	49.28%	49.52%	49.40%
Race/ethnicity			
% Black or African American	54.32%	52.38%	53.35%
% Hispanic or Latino	17.93%	18.33%	18.13%
% White	13.26%	12.47%	12.86%
% Asian	10.84%	11.66%	11.25%
% Multi-racial or Other	3.65%	5.16%	4.40%
Economically disadvantaged?			
Yes	59.93%	55.58%	57.75%
No	37.37%	44.42%	40.91%
Missing economic disadvantaged status	2.69%	0%	1.34%
Receiving Special Education services?			
Yes	13.75%	13.63%	13.69%
No	86.25%	86.37%	86.31%
English Learner?			
Yes	10.95%	11.04%	11.00%
No	89.05%	88.96%	89.00%

Graduation Pathways by Cohort

Percent of students who would have met or almost met Keystone pathway graduation requirements in traditional SDP high schools, by cohort, among students who took at least 1 Keystone exam or associated Keystone course

	Class of 2017-18 (N=8,174)	Class of 2018-19 (N=8,205)	Both Cohorts (N=16,379)
% Attempted all 3 exams	71.13%	78.50%	74.82%
% Would have met the Keystone proficiency pathway	14.88%	25.69%	20.29%
% Would have met the Keystone Composite Pathway (but not Keystone proficiency pathway)	14.33%	14.64%	14.48%
% Would have met either Keystone pathway	29.20%	40.33%	34.78%
% Would have almost met either Keystone pathway	13.41%	6.89%	10.14%

Percent of students who would have met or almost met Keystone pathway graduation requirements in alternative SDP high schools, by cohort, among students who took at least 1 Keystone exam or associated Keystone course

	Class of 2017-18 (N=712)	Class of 2018-19 (N=680)	Both Cohorts (N=1,392)
% Attempted all 3 exams	46.81%	41.00%	43.95%
% Would have met the Keystone proficiency pathway	0.33%	0.45%	0.39%
% Would have met the Keystone Composite Pathway (but not Keystone proficiency pathway)	2.31%	1.70%	2.01%
% Would have met either Keystone pathway	2.64%	2.15%	2.40%
% Would have almost met either Keystone pathway	1.54%	1.59%	1.56%

Note: The proficient pathway requires a score of proficient or above on all three Keystone exams. The composite pathway requires no Below Basic scores, at least one Proficient score, and a composite score of 4,452.

Keystone Exam Performance by Subject

Keystone performance rates among all students

	% Below Basic	% Basic	% Proficient	% Advanced	% Attempted
Algebra	25.91%	33.97%	21.76%	8.93%	90.57%
Biology	34.37%	21.23%	20.43%	9.56%	85.60%
Literature	19.47%	23.84%	37.50%	3.31%	84.11%

Keystone performance rates among students who took Keystone subject

	% Below Basic	% Basic	% Proficient	% Advanced	% Attempted
Algebra	28.61%	37.51%	24.03%	9.86%	90.57%
Biology	40.15%	24.81%	23.87%	11.17%	85.60%
Literature	23.15%	28.34%	44.58%	3.93%	84.11%

Rates meeting Graduation Pathways Among Student Subgroups

Percent of students who would have met or almost met Keystone pathway graduation requirements, by sociodemographic groups

	Number of students	% Would have met...			% Would have almost met either pathway	% Attempting all 3 exams
		Keystone proficiency pathway	Keystone composite pathway	Either Keystone pathway		
Sex						
Female	8,288	23.72%	16.72%	40.44%	10.71%	77.67%
Male	8,091	16.78%	12.19%	28.97%	9.55%	71.91%
Race/ethnicity						
Black or African American	8,738	15.51%	15.40%	30.91%	8.62%	75.61%
Hispanic or Latino	2,970	12.05%	12.05%	24.11%	7.81%	71.48%
White	2,107	28.38%	14.62%	43.00%	15.05%	72.28%
Asian	1,843	42.65%	12.91%	55.56%	14.76%	78.68%
Multi-racial or Other	721	31.48%	16.92%	48.40%	12.07%	76.56%
Economically disadvantaged?						
Yes	9,459	16.74%	14.07%	30.81%	9.01%	75.99%
No	6,700	25.88%	15.37%	41.25%	11.81%	73.99%
Receiving Special Education services?						
Yes	2,242	2.14%	3.48%	5.62%	2.23%	64.67%
No	14,137	23.17%	16.23%	39.40%	11.40%	76.43%
English Learner?						
Yes	1,801	2.50%	4.55%	7.05%	4.61%	66.35%
No	14,578	22.49%	15.71%	38.20%	10.82%	75.87%

Appendix B: Graduation Pathways Visualization from the PA Department of Education



Pennsylvania Pathways to Graduation

Keystone Proficiency Pathway *Numeric or Non-Numeric Scores*

Algebra I
Proficient or Advanced

Biology
Proficient or Advanced

Literature
Proficient or Advanced

Keystone Composite Pathway *Numeric Scores Only*

At least 1 Keystone Exam scaled score is
1500 or Greater

No Keystone Exam score is
Below Basic

The Keystone Exam 3-score composite is
4452 or Greater
The Keystone Exam 2-score composite is
2939 or Greater
(where eligible under §121.1)

CTE Concentrator

Meet locally established, grade-based requirements for Keystone content in which the student is less than Proficient

CTE Concentrator
1 Artifact from pathway criteria

Alternative Assessment

Meet locally established, grade-based requirements for Keystone content in which the student is less than Proficient

Alternative Assessment
1 Artifact from pathway criteria

Evidence-Based Pathways

Meet locally established, grade-based requirements for Keystone content in which the student is less than Proficient

Evidence-Based
3 Artifacts from pathway criteria

Waiver

A student in 12th grade, or experiencing extenuating circumstances, who meets locally established grade-based requirements for Keystone content area(s) in which the student is less than proficient, and is unable to satisfy the requirements of a graduation pathway may be granted a waiver by the chief school administrator.

Individualized Education Plan

A student with a disability who is unable to satisfy pathway requirements but who satisfactorily completes a special education program is granted a diploma under Title 22 §4.24.

NOTE: Although this infographic displays a sequential progression, students may fulfill criteria under the CTE Concentrator, Alternative Assessment, or Evidence-Based Pathways prior to demonstrating proficiency in Keystone academic content through Keystone Exam scores or locally established grade-based requirements.

Pathway Criteria

CTE Concentrator	Alternative Assessment	Evidence-Based
<p style="text-align: center;">1 Artifact</p>	<p style="text-align: center;">1 Artifact</p>	<p style="text-align: center;">3 Artifacts consistent w/student goals</p> <p style="text-align: center;">ONE or more from Section One No more than TWO from Section Two</p>
<p>Industry-based competency certification</p> <hr/> <p>Likelihood of industry-based competency assessment success</p> <hr/> <p>Readiness for continued engagement in CTE Concentrator program of study</p>	<p>Attainment of one alternative assessment score or better: ACT (21), ASVAB AFQT (31), PSAT/NMSQT (970), or SAT (1010)</p> <hr/> <p>Attainment of Gold Level or better on ACT WorkKeys</p> <hr/> <p>Attainment of 3 or better on AP Exam(s) related to each Keystone content area in which less than Proficient</p> <hr/> <p>Attainment of 4 or better on IB Exam(s) related to each Keystone content area in which less than Proficient</p> <hr/> <p>Successful completion of concurrent enrollment course(s) related to each Keystone content area in which less than Proficient</p> <hr/> <p>Successful completion of a pre-apprenticeship program</p> <hr/> <p>Acceptance into accredited, non-profit Institution of Higher Education (IHE) 4yr program for college-level coursework</p>	<p style="text-align: center;">Section 1</p> <hr/> <p>Attainment of 630 or better on any SAT Subject Test</p> <hr/> <p>Attainment of Silver Level or better on ACT WorkKeys</p> <hr/> <p>Attainment of 3 or better on any AP Exam</p> <hr/> <p>Attainment of 3 or better on any IB Exam</p> <hr/> <p>Successful completion of any concurrent enrollment or postsecondary course</p> <hr/> <p>Industry-recognized credentialization</p> <hr/> <p>Acceptance into accredited, non-profit Institution of Higher Education (IHE) for college-level coursework in an other-than-4yr program</p> <hr/> <p style="text-align: center;">Section 2</p> <hr/> <p>Attainment of Proficient or Advanced on any Keystone Exam</p> <hr/> <p>Successful completion of a service-learning project</p> <hr/> <p>Letter guaranteeing full-time employment or military enlistment</p> <hr/> <p>Completion of an internship, externship, or cooperative education program</p> <hr/> <p>Compliance with NCAA Division II academic requirements</p>