THE SCHOOL DISTRICT OF **PHILADELPHIA**

Data Brief: K-8 Special Education

Assessment Participation and Reading and Math Performance of K-8 Students Receiving Special Education Services in the School District of Philadelphia, Winter 2020-21

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Key Findings

The majority (70-71%) of K-8 students who receive Special Education services participated in the winter 2020-21 within-year reading and math assessments.

About 14% of participating students performed in Tier 1/At Target in reading and math in Winter 2020-21.

Like the trend observed District-wide, students in grades 6-8 who receive Special Education services fared worse than their peers in other grade levels.

There were notable differences in performance by primary disability and grade level.

Why and how we track student math and literacy performance

Reading proficiently is critical to a student's future academic success.

Research has found that students who are not proficient readers by the end of third grade (when instruction transitions from "learning to read" to "reading to learn") are four times more likely to drop out of high school. [1] However, continuing to focus on development of literacy skills in later elementary and middle school is also critical as reading becomes less about decoding and more about "making sense of the world through print." Mastery of subjects such as science, social studies, and English/language arts largely depends on grade-appropriate reading skills. If students cannot read at a grade-appropriate level, they will begin to fall behind in other content areas.[2]

Math achievement is related to high school completion and college attainment.

Students with higher levels of middle school math achievement are more likely to complete high school and persist through

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[1] Annie E. Casey Foundation (2013). *Early Warning Confirmed.* http://www.aecf.org/m/resourcedoc/AECF-EarlyWarningConfirmed-2013.pdf; Annie E. Casey Foundation (2012). *Double Jeopardy.* https://www.aecf.org/resources/double-jeopardy/
[2] Generation Ready (2013). *Adolescent Readers in Middle School.* https://pennykittle.net/uploads/images/PDFs/Reports/Adolescent-Readers-in-Middle-School.pdf;

college. [3] Additionally, research indicates that there is a relationship between the math courses that a student completes in middle school and their likelihood of enrolling in college. [4] Middle school math success is considered a "gatekeeper" to ongoing academic opportunities that translate into different student trajectories throughout high school and college. [5] Yet, by third grade, as a result of differences in access to high-quality schools and academic resources, students of different races and socio-economic backgrounds are already performing differently in math. These gaps widen over the first four years of school, perpetuating cycles of underachievement for students of color.[6]

The Philadelphia Board of Education is focused on improving math and literacy outcomes for all students, including students who receive Special Education services.

As of spring 2019, 37% of all students in grades 3-8 and 14% of students who receive Special Education services in grades 3-8 were proficient on Pennsylvania's State ELA assessment (PSSA). [7] The District's Board Goal 1 states that the percentage of students in grades 3-8 who are proficient on the state ELA assessment will grow from 35.7% in August 2019 to 65.0% by August 2026. [8] In order to reach this target, there must be an increase in the percentage of students – both overall and by student group – who score at or above grade-level on the District's within-in year reading assessment each year.

To track student progress more frequently than once per year, as the state assessment allows, the School District uses within-year assessments.

Most students who receive Special Education services participate in one of two within-year assessments: aimswebPlus or Star (See Appendix A for additional information about the

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Cecil, Nancy & Gipe, Joan & Merrill, Marcy. (2017). *Literacy in Grades 4–8: Best Practices for a Comprehensive Program*.; IRIS Center, Peabody College, Vanderbilt University (2021*). Secondary Reading Instruction*. https://iris.peabody.vanderbilt.edu/module/sec-rdng2/cresource/q2/p03/#content

[3] Generation Next. *Middle Grade Math*. https://gennextmsp.org/middle-grade-math-results/#:~:text=Research%20indicates%20that%20students%20successfully,both%20college%20and%20career%20success.

[4] National Center for Education Statistics (2007). *The Nation's Report Card: Mathematics 2007*. https://nces.ed.gov/nationsreportcard/pdf/main2007/2007494.pdf.

[5] Wang, Jia, and Pete Goldschmidt. "Importance of Middle School Mathematics on High School Students' Mathematics Achievement." *The Journal of Educational Research* 97, no. 1 (2003): 3-19. http://www.jstor.org/stable/27542459.; Center for Analysis of Postsecondary Education and Employment (2013). Improving Students' College Math Readiness: A Review of the Evidence on Postsecondary Interventions and Reforms. https://www.capseecenter.org/wp-content/uploads/2016/03/improving-students-college-math-readiness-capsee.pdf

[6] National Center for Education Statistics (2004). *From Kindergarten Through Third Grade: Children's Beginning School Experiences*. https://nces.ed.gov/pubs2004/2004007.pdf.

[7] Read more about the PSSA-ELA here: https://www.education.pa.gov/K-12/Assessment%20and%20Accountability/PSSA/Pages/default.aspx

[8] For more about SDP's Goals and Guardrails see: https://www.philasd.org/schoolboard/goals-and-guardrails/ and https://www.philasd.org/era/goals-and-guardrails/.

assessments). Generally, the District uses aimswebPlus to track progress of students in grades K-5 and Star to track performance in grades 6-8. However, some students who receive Special Education services may take the aimwebPlus assessment in grades 6-8, based on their Individualized Education Plan (IEP). Both aimswebPlus and Star assess students' performance against grade-level standards. Students are then placed into performance tiers signifying their need for reading intervention. Tier 1 status means that a student is reading "At Target" and is on the path to proficiency. Tier 2 indicates that students need strategic intervention to ensure progress towards proficiency. Tier 3 indicates that students require intensive intervention to make progress towards becoming proficient in mathematics. **In this brief, we analyze the percentage of students who were reading in Tier 1/At Target by Special Education status, grade level, and primary disability in Winter 2020-21.**

Research questions

In this brief, we explore two research questions to better understand how K-8 students who receive Special Education services performed on their Winter 2020-21 within-year reading and math assessments.

1. To what extent did students who receive Special Education services participate in the District's within-year progress monitoring assessments in Winter 2020-21?

2. What percentage of students who receive Special Education services performed in Tier 1/At Target in reading and/or math in Winter 2020-21?

3. How did reading and math proficiency in Winter 2020-21 differ by primary disability type?

Findings

To what extent did students who receive Special Education services participate in the District's within-year progress monitoring assessments in Winter 2020-21?

Over two-thirds of students who receive Special Education services participated in the Winter 2020-21 within-year reading and math assessments.

Of the 70% of students who participated in the reading assessment and the 71% who participated in the math assessment, the percentage of students assessed differed somewhat by primary disability (Table 1).[9] Not all students who receive Special Education services participate in assessments because IEP teams determine whether individual students are edible to take progress monitoring and state assessments.[10]

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[9] It is important to note that based on their IEP and the severity of their disability, not all students are eligible for participation in the aimswebPlus or Star assessments, which is why students of certain disability types are assessed at lower rates than others.

[10] For more information about a PASA/PSSA eligibility criteria to assist IEP teams in determining whether a student is eligible for assessments see https://www.education.pa.gov/Documents/K-

Students whose primary disability is classified as a speech or language impairment or a specific learning disability were assessed at rates equal to or higher than the rate of all K-8 students who were assessed District-wide during Winter 2020-21, ranging from 85% to 91% of students.[11] Students whose primary disability is classified as emotional disturbance, hearing impairment including deafness, or other health impairment were assessed at slightly lower rates than all K-8 students District-wide, ranging from 71% to 84%. Only half of students whose primary disability is autism and one third of students who are part of "all other disability types" took the math and reading assessments in Winter 2020-21.

Table 1. Participation of students receiving Special Education services in the aimswebPlus and Star assessments by primary disability type, Winter 2020-21

Primary Disability	Number of Students Enrolled in 2020-21	Number of Students Assessed in Reading	Percentage of Students Assessed in Reading	Number of Students Assessed in Math	Percentage of Students Assessed in Math
Autism	2,217	1,099	46%	1,089	45%
Emotional Disturbance	1,049	750	71%	768	73%
Hearing Impaired including Deafness	122	111	84%	109	83%
Other Health Impairment	1,906	1,656	81%	1,672	82%
Specific Learning Disability	4,466	4,074	85%	4,100	86%
Speech or Language Impairment	1,415	1,284	91%	1,274	90%
All Other Primary Disabilities[12]	1,547	509	31%	526	32%
All K-8 Special Education Students	**12,722**	9,483	70%	9,538	71%

Source: Enrollment - Oct 1 Snapshot Qlik app, data downloaded 2/26/21, aimsweb-Star Qlik app, data downloaded 3/26/21.

12/Special%20Education/Assessment/PASA%20Eligibility%20Criteria.pdf. IEP teams also determine whether edible students take assessments with or without accommodations.

[11] In winter 2020-21, District-wide, 87% of students in grades K-8 participated in the within-year winter reading assessment and 86% of students in grades K-8 participated in the within-year winter math assessment. (Source: Qlik Dashboard, aimswebPlus/Star application, participation rate overview sheet, accessed 3/25/2021).

[12] "All other primary disabilities" include: Developmental delay, intellectual disability, multiple disabilities, orthopedic impairment, traumatic brain injury, and visual impairment including blindness.

What percentage of students who receive Special Education services performed in Tier 1/At Target in Winter 2020-21?

Reading: Overall, 14% of K-8 students who receive Special Education services and were assessed on the within-year reading assessment in Winter 2020-21 scored in the Tier 1/At Target category, compared to 33% of K-8 students District-wide.

Performance varied notably by grade level. Overall, higher percentages of students in grades K-5 were reading in Tier 1/At Target compared to students in grades 6-8 (Table 2) in Winter 2020-21. A quarter (26%) of second grade students were reading in Tier 1/At Target. However, only 5%-6% of students in grades 6-8 who receive Special Education services were reading in Tier 1/At Target. This pattern is consistent with student performance district-wide in Winter 2020-21 (Appendix B, Table B1).

Table 2. Percentage of K-8 District Special Education students at Tier 1 in reading on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star) by grade level

Grade	Number of Students Participating in Reading Assessment	Percentage of Students at Tier 1/At Target in Reading
K	340	13%
1	825	18%
2	918	26%
3	1,036	19%
4	1,225	19%
5	1,365	17%
6	1,232	6%
7	1,259	6%
8	1,283	5%
All K-8 Special Education Students	**9,483**	**14%**

Source: aimsweb-Star Qlik app, data downloaded 3/26/21.

Math: Overall, 14% of K-8 students who receive Special Education services and were assessed on the within-year mathematics assessment were performing in Tier 1/At Target, compared to 35% of K-8 students District-wide in Winter 2020-21.

Performance varied by grade level. Overall, higher percentages of students in grades K-4 were reading in Tier 1/At Target compared to students in grades 5-8 (Table 3). Over a quarter (28%) of second grade students were performing at Tier 1/At Target for math. However, only 9% to 10% of students in grades 5-8 who receive Special Education services were performing in Tier 1/At Target for math. This pattern is consistent with student performance District-wide in Winter 2020-21 (Appendix B, Table B2).

Table 3. Percentage of K-8 District Special Education students at Tier 1 in math on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star) by grade level

Grade	Number of Students Participating in Math Assessment	Percentage of Students at Tier 1/At Target in Math
K	323	22%
1	779	13%
2	916	28%
3	1,049	17%
4	1,263	15%
5	1,399	10%
6	1,232	10%
7	1,274	10%
8	1,303	9%
All K-8 Special Education Students	**9,538**	**14%**

Source: aimsweb-Star Qlik app, data downloaded 3/26/21

How did reading and math proficiency in Winter 2020-21 differ by primary disability type?

Just 8% of K-8 students whose primary disability is a "specific learning disability" scored in the Tier 1/At Target category for reading in Winter 2020-21.

About one-third (31%) of students whose primary disability is speech or language impairment were reading in Tier 1/At Target in Winter 2020-21. This is similar to the percentage of K-8 students reading in Tier 1/At Target District-wide (33%, Appendix B, Table B1). Additionally, a quarter of assessed students whose primary disability is autism (24%) or hearing impaired/deafness (23%) were reading in Tier 1/At Target in Winter 2020-21.

Table 4. Percentage of K-8 students at Tier 1 in Reading on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star) by primary disability

Primary Disability	Number of Students Participating in Reading Assessment	Percentage of Students at Tier 1/At Target in Reading
Autism	1,099	23%
Emotional Disturbance	750	12%
Hearing Impaired including Deafness	111	23%
Other Health Impairment	1,656	13%
Specific Learning Disability	4,074	8%
Speech or Language Impairment	1,284	31%
All Other Primary Disabilities	509	4%
All K-8 Special Education Students	**9,483**	**14%**

Source: aimsweb-Star Qlik app, data downloaded 3/26/21

Like reading, just 8% of K-8 students whose primary disability is a "specific learning disability" scored in the Tier 1/At Target category in math in Winter 2020-21.

However, about one-third (31%) of students whose primary disability is speech or language impairment or hearing impairment were performing in Tier 1/At Target for math in Winter 2020-21. This is similar to the percentage of K-8 students performing in math in Tier 1/At Target district wide (35%, Appendix B, Table B2). Whereas, a fifth of assessed students whose primary disability is autism (21%) were performing in Tier 1/At Target in math in Winter 2020-21.

Table 5. Percentage of K-8 students at Tier 1 in Math on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star) by primary disability

Primary Disability	Number of Students Participating in Math Assessment	Percentage of Students at Tier 1/At Target in Math
Autism	1,089	21%
Emotional Disturbance	768	9%
Hearing Impaired including Deafness	109	31%
Other Health Impairment	1,672	12%
Specific Learning Disability	4,100	8%
Speech or Language Impairment	1,274	31%
All Other Primary Disabilities	526	4%
All K-8 Special Education Students	**9,538**	**14%**

Source: aimsweb-Star Qlik app, data downloaded 3/26/21.

Conclusion

The majority (70%) of K-8 students in the School District of Philadelphia who receive Special Education services participated in the Winter 2020-21 within-year reading assessment (aimswebPlus or Star). This is a substantial percentage, given that not all students are required to participate, based on their IEP.

Of the students who participated, 14% of K-8 students who receive Special Education services performed in Tier 1/At Target on their Winter 2020-21 assessment in reading and math. This means about 15 out of every 100 students who received Special Education services in 2020-21 were on the path towards reading proficiently, compared to about 33 out of 100 K-8 students (33%) District-wide. Like the trend observed District-wide, students in grades 6-8 who receive Special Education services fared worse than their peers in other grade levels, with only about 5% of students in grades 6-8 reading in Tier 1/At Target on the Winter 2020-21 assessment, and about 10% of students in grades 5-8 performing in Tier 1/At Target in math on the Winter 2020-21 assessment.

Student performance differed by primary disability. Students whose primary disability was a speech or language impairment performed most similar to students' District-wide. However, just 8% of K-8 students whose primary disability is a "specific learning disability" scored in both the Tier 1/At Target categories for reading and math in Winter 2020-21.

Appendix A: About the Assessments

The **aimswebPlus assessments** are standards-based and vary by grade level. Literacy assessments begin in kindergarten by assessing pre-literacy skills such as letter recognition, letter sounds, and blending. Later, these assessments progress to include identification of common words, oral and silent reading fluency, vocabulary, and reading comprehension. Math assessments begin in kindergarten by assessing emerging numeracy skills such as number recognition and quantity conceptualization. Later, these assessments progress to include math facts, mental computation, triad number comparisons, and math concepts. All of these skills contribute to develop proficiency in reading and math. Assessments allow teachers to pinpoint skills that need additional work in order to improve overall reading and math achievement. Each of the aimswebPlus assessments are brief and in total, the set of assessments take approximately 15 minutes per student. Based on composite scale scores, students are ranked on a national scale (national percentile rank, NPR). Based on their NPR, students are categorized into three Tiers.

- **Tier 1** indicates that students are testing "At Target" and are on track to proficiency in mathematics.

- **Tier 2** indicates that students need strategic intervention to ensure progress towards proficiency.

- **Tier 3** indicates that students require intensive intervention to make progress towards becoming proficient in mathematics.

The **Star Reading assessment** measures students' reading and math skills aligned to state standards and Common Core State Standards. Star Reading tracks development in five domains: Word Knowledge and Skills, Comprehension Strategies and Constructing Meaning, Analyzing Literary Text, Understanding Author's Craft, and Analyzing Argument and Evaluating Text. Star Math tracks development in six domains: Numbers, Operations, Algebra, Geometry, Measurement, and Data Analysis, Stats, and Probability, All Star assessments are computer-adaptive tests (CATs). Computer-adaptive tests continually adjust the difficulty of each student's test by choosing each test question based on the child's previous response. If the student answers a question correctly, the difficulty level of the next item is increased. If the student misses a question, the difficulty level is decreased. Therefore, two students taking the same assessment can receive different question sets depending on their responses. On average, students complete the Star assessments in 15 minutes. Based on student performance, student performance is categorized into four levels (rather than three), based on national percentile rank (NPR). These designations are:

- **Tier 1/At or Above Benchmark:** These students are on track to proficiency in mathematics, and are testing at or above the 40th percentile nationally.

- **On Watch:** These might not require specific intervention, but warrant closer attention to ensure that they maintain their progress. These students are testing between the 25th and 39th percentile nationally.

- **Tier 2/Strategic Intervention:** Indicates that students need strategic intervention to ensure progress towards proficiency. These students are testing between the 10th and 24th percentile nationally.

- **Tier 3/ Intensive Intervention:** Indicates that students require intensive intervention to make progress towards becoming proficient in mathematics. These students are testing below the 10th percentile nationally.

For more information about assessments in SDP, visit the Office of Assessment.[13]

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[13] https://www.philasd.org/era/assessment/

Appendix B. District-Wide K-8 Performance, Winter 2020-21

Table B1. Percentage of K-8 District students at Tier 1 in **reading** on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star), by grade level

Grade Level	Number of Students Participating in Reading Assessment	Percentage of Students at Tier 1/At Target
K	7,060	18%
1	8,699	28%
2	8,193	44%
3	8,269	40%
4	7,879	43%
5	7,831	46%
6	7,847	25%
7	7,745	26%
8	7,697	25%
All K-8 students	71,220	33%

Source: aimsweb-Star Qlik app, data downloaded 3/26/21.

Table B2. Percentage of K-8 District students at Tier 1 in **math** on Winter 2020-21 progress monitoring assessment (aimswebPlus or Star), by grade level

Grade Level	Number of Students Participating in Math Assessment	Percentage of Students at Tier 1/At Target
K	6,738	33%
1	8,219	29%
2	8,133	38%
3	8,270	31%
4	7,928	34%
5	7,879	31%
6	7,779	37%
7	7,762	41%
8	7,759	42%
All K-8 students	70,467	35%

Source: aimsweb-Star Qlik app, data downloaded 3/26/21.