



## **Star Assessment Participation and Star Reading and Math Performance of K-8 Students Receiving Special Education Services in the School District of Philadelphia, Winter 2021-22**

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### **Key Findings**

- 75% of K-8 students who qualify to receive Special Education services participated in the Winter 2021-22 within-year reading and math assessments.
- About 9% of participating students performed At or Above Benchmark in reading in Winter 2021-22.
- About 4% of participating students scored At or Above Benchmark in math in Winter 2021-22.
- Performance varies by primary disability type, but is lower than District-wide for all disability types.

### **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 are four times more likely to drop out of high school.<sup>1</sup> Mastery of subjects such as science, social studies, and English/language arts largely depends on grade-level reading skills. If students cannot read at a grade-appropriate level, they may begin to fall behind in other content areas.<sup>2</sup>

#### **Math achievement relates to high school completion and college attainment.**

Students with higher middle school math achievement are more likely to complete high school and persist in college.<sup>3</sup> Research indicates a positive relationship between the math courses completed in middle school and likelihood of college enrollment.<sup>4</sup> It is critical to look at math performance data by

<sup>1</sup> Annie E. Casey Foundation (2013). *Early Warning Confirmed*. <http://www.aecf.org/m/resourcedoc/AECF-EarlyWarningConfirmed-2013.pdf>; (2012). *Double Jeopardy*. <https://www.aecf.org/resources/double-jeopardy/>

<sup>2</sup> Generation Ready (2013). *Adolescent Readers in Middle School*. <https://pennykittle.net/uploads/images/PDFs/Reports/Adolescent-Readers-in-Middle-School.pdf>; Cecil, N., Gipe, J., & Merrill, M. (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>

<sup>3</sup> Generation Next. *Middle Grade Math*. <https://gennextmsp.org/middle-grade-math-results/>

<sup>4</sup> *The Nation's Report Card: Mathematics 2007*. <https://nces.ed.gov/nationsreportcard/pdf/main2007/2007494.pdf>

student subgroup because students of different backgrounds start kindergarten performing differently in math, and these gaps can widen between kindergarten to third grade.<sup>5</sup>

## **The District is focused on improving literacy and math outcomes for all students, including students who qualify for Special Education services.**

On the 2018-19 Pennsylvania State English/Language Arts assessment (ELA PSSA), 19.1% of School District of Philadelphia (SDP) students who qualify to receive Special Education services in grades 3-8 scored in the proficient or advanced categories, compared to an overall District-wide rate of 35.7% in grades 3-8.<sup>6</sup> On the Pennsylvania State math assessment (Math PSSA) that same year, 14.6% of students who qualify to receive Special Education services in grades 3-8 scored proficient or advanced compared to an overall rate of 21.6% in grades 3-8.

The SDP Board of Education's Goals 1-3 are focused on improving the reading and math performance of grades K-8 students on the ELA and Math PSSA tests.<sup>7</sup> To track progress toward each Goal, the District examines both the overall participation and the performance of student subgroups on "Leading Indicators," which are within-year assessments of reading and math performance that are administered multiple times between the annual PSSA tests. If there is growth in the percentage of students scoring At or Above Benchmark on the District's within-year reading and math assessments that are administered four times per year, then the percentage of students who score in the proficient and advanced categories on the annual PSSA tests should similarly increase.

## **To track student progress more frequently than once per year via the state assessment, the District uses within-year assessments.**

The results from Leading Indicators 1-3 provide information about the reading and math performance of students in Grades K-8 four times per year.<sup>6</sup> The leading indicators are:

**Leading Indicator 1.1:** The percentage of students in grades 3-8 who score at or above grade-level on the District's within-year reading assessment in Fall, Winter, and Spring each year. Winter 2021-22 Target: 50.0%

**Leading Indicator 2.1:** The percentage of students in grades K-3 who score at or above grade-level on the District's within-year reading assessment in Fall, Winter, and Spring each year. Winter 2021-22 Target: 46.3%

**Leading Indicator 3.1:** The percentage of students in grades 3-8 who score at or above grade-level on the District's within-year math assessment in Fall, Winter, and Spring each year. Winter 2021-22 Target: 33.8%

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<sup>5</sup> National Center for Education Statistics (2004). *From Kindergarten Through Third Grade: Children's Beginning School Experiences*. <https://nces.ed.gov/pubs2004/2004007.pdf>; Center for Analysis of Postsecondary Education and Employment (2013). *Improving Students' College Math Readiness*. <https://ccrc.tc.columbia.edu/publications/improving-students-college-math-readiness-capsee.html>

<sup>6</sup> PSSA data from the 2018-19 school year is the most recent PSSA data available due to the COVID-19 pandemic. The *overall* rate includes students who qualify to receive Special Education services.

<sup>7</sup> For more about SDP's Goals and Guardrails and the Leading Indicators visit <https://www.philasd.org/era/goals-and-guardrails/> and <https://dashboards.philasd.org/extensions/goals-and-guardrails/index.html#/>

## Research questions

Three research questions about how K-8 students who qualify to receive Special Education services performed on the Winter<sup>8</sup> 2021-22 within-year Star reading and math assessments are addressed in this brief.<sup>9</sup>

1. To what extent did K-8 students who qualify to receive Special Education services participate in the Star reading and/or math assessments in Winter 2021-22?
2. What percentage of K-8 students who qualify to receive Special Education services performed At or Above Benchmark on the Star reading and/or math assessments in Winter 2021-22 by grade level?
3. What percentage of K-8 students who qualify to receive Special Education services performed At or Above Benchmark on the Star reading and/or math assessments in Winter 2021-22 by disability type?

## Findings

### To what extent did K-8 students who qualify to receive Special Education services participate in the Star reading and/or math assessments in Winter 2021-22?

#### **About three-quarters of students who qualify to receive Special Education services participated in the Winter 2020-21 within-year Star reading and math assessments.**

About 75% of students who qualify to receive Special Education services participated in the Star reading and math assessments (Table 1) during the Winter (December 2021) window. Not all students who qualify to receive Special Education services participate in assessments; Individualized Education Program (IEP) teams determine whether students are eligible to take such assessments at all or with accommodations.<sup>10</sup>

Among students in grades K-8 who qualify for Special Education services (also referred to as students with IEPs), 4<sup>th</sup> through 8<sup>th</sup> graders had the highest participation rates on the Star reading assessment (75-80%), and 3<sup>rd</sup> through 8<sup>th</sup> graders had similar participation rates on the Star math assessment (76-80%). Students in grades K-2 are not required or expected to take the Star math assessment. Therefore, participation rates for students in grades K-2 are far lower than students in higher grades.<sup>11</sup>

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<sup>8</sup> The data in this brief is from the *Winter 1* Star window typically open in December; the *Winter 2* Star window typically opens in January, and data from *Winter 2* is not included in this brief.

<sup>9</sup> See Appendix A for more information about Star.

<sup>10</sup> 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.pattan.net/Publications/PASA-Eligibility-Criteria-Decision-Making-Companio>

<sup>11</sup> Students in grades K-2 take an alternative Star Math Curriculum Based Measure (CBM) Assessment Battery instead of Star Math. If students meet the 852 scale score cutoff in Star Early Literacy during grades K-2, teachers can recommend they take Star Math prior to 3<sup>rd</sup> grade. In Winter 2021-22, of students who qualify to

Table 1. Participation of K-8 students who qualify to receive Special Education services on the Star reading and/or math assessments in Winter 2021-22 by grade level

Grade Level	Number of Enrolled students who qualify for special education services	Participated in Star Reading		Participated in Star Math	
		# of students	% of students	# of students	% of students
K	859	575	66.9%	N/A	N/A
1	992	730	73.6%	186	18.8%
2	1,316	950	72.2%	454	34.5%
3	1,455	1,054	72.8%	1,110	76.3%
4	1,655	1,286	77.8%	1,277	77.2%
5	1,790	1,424	79.7%	1,409	78.7%
6	1,711	1,285	75.4%	1,313	76.7%
7	1,651	1,259	76.4%	1,263	76.5%
8	1,672	1,290	77.2%	1,293	77.3%

Source: Qlik Academic Screeners, accessed April 13, 2022

**Note:** Students in Grades K-2 take Star Early Literacy instead of Star Reading. Participation on Star Early Literacy is included in this and all relevant tables. Students in grades K-2 take an alternative Star Math CBM Assessment Battery instead of Star Math; performance on the Math CBM Battery is not included in this brief.

Among students who qualify to receive Special Education services, 75% participated in the Star reading assessments and 63% participated in the Star math assessments, but the percentage of participating students differed somewhat by primary disability (Table 2).<sup>12</sup> Students whose primary disability is classified as a *Speech or Language Impairment* or a *Specific Learning Disability* were assessed on the Star reading assessment 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 89% to 91% of

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receive Special Education supports, no Kindergarteners took Star Math, while only 186 1<sup>st</sup> graders and 454 2<sup>nd</sup> graders took Star Math. Performance on the Math CBM Assessment Battery is not included in this brief. For more information about Star administration and assessment types visit <https://www.philasd.org/era/assessment/star-information/>

<sup>12</sup> 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 Star assessments, which is why students of certain disability types are assessed at lower rates than others. Students who do not successfully complete the first five practice questions on Star Computer Adaptive Tests (CATs) and who receive Autistic Support or Life Skills Support (students typically have an Intellectual Disability), or take the Pennsylvania Alternate System of Assessment (PASA) instead of the PSSA may be exempt from the Star CATs. Students with IEPs that allow for extended time on assessments may receive extended time on the Star CATs. Star Math items include audio support for students. Data in this brief is from December 2021; starting in January 2022, students with Multiple Disabilities or Blindness were not required to take Star CATs.

students.<sup>13</sup> Students whose primary disability is classified as *Emotional Disturbance*, *Other Health Impairment*, and *Specific Learning Disability* were assessed on the Star math assessment at lower rates than all grade 3-8 students District-wide, ranging from 71% to 83%. About half or fewer than half of students whose primary disability is *Autism*, *Intellectual Disability*, or *Other* took the Star reading and/or math assessments in Winter 2021-22.

Table 2. Participation of K-8 students who qualify to receive Special Education services on the Star reading and/or math assessments in Winter 2021-22 by disability type

Primary Disability	Enrolled	Participated in Star Reading		Participated in Star Math	
	# of students	# of students	% of students	# of students	% of students
Autism	2,563	1,390	54.3%	1,059	41.32%
Emotional Disturbance	880	688	78.2%	628	71.36%
Intellectual Disability	1,291	483	37.5%	435	33.69%
Other Health Impairment	2,003	1,709	85.5%	1,425	71.14%
Specific Learning Disability	4,694	4,178	89.3%	3,873	82.51%
Speech or Language Impairment	1,317	1,240	94.2%	751	57.02%
Other	353	165	47.0%	134	37.96%

**Source:** Qlik Academic Screeners, accessed April 13, 2022

**Note:** This table includes the six most common Primary Disability types of K-8 students during 2021-22; this may not have the same pattern as in prior school years. *Other* includes: Developmental Delay (3-5 in EI Program), Hearing Impaired including Deafness, Multiple Disabilities, Orthopedic Impairment, Traumatic Brain Injury, Visual Impairment including Blindness. For more information about participation, see footnote 12. Students in Grades K-2 take Star Early Literacy instead of Star Reading. Participation on Star Early Literacy is included in this and all relevant tables. Students in grades K-2 take an alternative Star Math Curriculum Based Measure (CBM) Assessment Battery instead of Star Math. Performance on the Math CBM Assessment Battery is not included in this brief.

<sup>13</sup> In Winter 2021-22 District-wide, 91.5% of students in grades K-3 and 90.2% of students in grades 3-8 participated in the Star reading assessment (math participation data is not public as of April 13, 2022). For more information on participation rates, please visit <https://dashboards.philasd.org/extensions/goals-and-guardrails/index.html#/goal1/winter>

## What percentage of K-8 students who qualify to receive Special Education services performed At or Above Benchmark on the Star reading and/or math assessments in Winter 2021-22 by grade level?

**Overall, 9% of K-8 students who qualify to receive Special Education services and were assessed on the Star reading assessment in Winter 2021-22 scored At or Above Benchmark, compared to 27%-33% of K-8 students District-wide.**

The performance of students who qualify to receive Special Education services varied notably by grade level. Overall, higher percentages of students in kindergarten and 1<sup>st</sup> grade were reading At or Above Benchmark compared to students in higher grades in Winter 2021-22 (Table 3). In comparison, 9-10% of 2<sup>nd</sup> through 4<sup>th</sup> graders scored At or Above Benchmark on the Star reading assessment and 5-6% of 5<sup>th</sup> through 8<sup>th</sup> graders scored At or Above Benchmark on the Star reading assessment. Across all grade levels, the percentage of students scoring At or Above Benchmark on the Star reading assessment in Winter 2021-22 was lower than District-wide figures.<sup>14</sup>

Table 3. Percentage of K-8 students who qualify to receive Special Education services performing At/Above Benchmark on the Star reading assessment in Winter 2021-22 by grade level

Grade	Participated in Star Reading	Performed At/Above Benchmark	
	# of students	# of students	% of students
K	563	140	24.9%
1	730	121	16.6%
2	950	90	9.5%
3	1,054	94	8.9%
4	1,286	110	8.6%
5	1,424	75	5.3%
6	1,285	73	5.7%
7	1,259	64	5.1%
8	1,290	72	5.6%

**Source:** Qlik Academic Screeners, accessed April 13, 2022

**Note:** Students in Grades K-2 take Star Early Literacy instead of Star Reading. Performance on Star Early Literacy is included in this and all relevant tables.

<sup>14</sup> In Winter 2021-22 District-wide, 27.4% of students in grades K-3 and 32.7% of students in grades 3-8 performed At or Above Benchmark on the Star reading assessment (Math data is not public as of April 13, 2022). For more information on performance, please visit <https://dashboards.philasd.org/extensions/goals-and-guardrails/index.html#/goal1/winter>

**Overall, 2%-5% of students in grades 3-8 who qualify to receive Special Education services and participated in the Star math assessment in Winter 2021-22 scored At or Above Benchmark.**

Students who qualify for Special Education services and participated in the Star assessments performed slightly differently depending on grade level. In each of grades 3-8, over 1,000 students who qualify to receive Special Education services took the Star math assessment in Winter 2021-22.<sup>15</sup> Between 4-5% of students in grades 3-4 scored At or Above Benchmark on the Star math assessment in Winter 2021-22 (Table 4). In comparison, 2%-3% of students in grades 5-8 scored At or Above Benchmark on the Star math assessment in Winter 2021-22.

Table 4. Percentage of K-8 students who qualify to receive Special Education services performing At/Above Benchmark on the Star math assessment in Winter 2021-22 by grade level

Grade	Participated in Star Math	Performed At/Above Benchmark	
	# of students	# of students	# of students
K	0	N/A	N/A
1	186	32	17.2%
2	454	43	9.5%
3	1,110	58	5.2%
4	1,277	54	4.2%
5	1,409	40	2.8%
6	1,313	33	2.5%
7	1,263	19	1.5%
8	1,293	29	2.2%

**Source:** Qlik Academic Screeners, accessed April 13, 2022

**Note:** Students in grades K-2 take an alternative Star Math Curriculum Based Measure (CBM) Assessment Battery instead of Star Math. If Performance on the Math CBM Assessment Battery is not included in this brief.

<sup>15</sup> Students in grades K-2 take an alternative Star Math Curriculum Based Measure (CBM) Assessment Battery instead of Star Math. If students meet the 852 scale score cutoff in Star Early Literacy during grades K-2, teachers can recommend they take Star Math prior to 3<sup>rd</sup> grade. In Winter 2021-22, of students who qualify to receive Special Education supports, no Kindergarteners took Star Math, while only 186 1<sup>st</sup> graders and 454 2<sup>nd</sup> graders took Star Math. Performance on the Math CBM Assessment Battery is not included in this brief.

## What percentage of K-8 students who qualify to receive Special Education services performed At or Above Benchmark on the Star reading and/or math assessments in Winter 2021-22 by disability type?

**Over 20% of students with a *Speech or Language Impairment*, but fewer than 3% of students with a *Specific Learning Disability* scored At or Above Benchmark on the Star reading assessment in Winter 2021-22.**

Student performance on the Star reading assessment varied notably by primary disability. Nearly a quarter of students with a primary disability of *Speech or Language Impairment* were reading At or Above Benchmark in Winter 2021-22 (Table 5). In comparison, 15%-19% of students with a primary disability of *Autism* and *Other* scored At or Above Benchmark on the Star reading assessment, and 7%-8% of students with a primary disability of *Emotional Disturbance* and *Other Health Impairment* scored At or Above Benchmark on the Star reading assessment. Additionally, fewer than 3% of students with a primary disability of *Specific Learning Disability* and *Intellectual Disability* scored At or Above Benchmark on the Star reading assessment. Across all primary disability types, the percentage of students scoring At or Above Benchmark on the Star reading assessment in Winter 2021-22 was lower than District-wide.<sup>16</sup>

Table 5. Percentage of K-8 students who qualify to receive Special Education services performing At/Above Benchmark on the Star reading assessment in Winter 2021-22 by disability type

Primary Disability	Star Reading Participation	Performed At/Above Benchmark	
		# of students	# of students
Autism	1,390	210	15.20%
Emotional Disturbance	688	46	6.70%
Intellectual Disability	483	1	0.20%
Other Health Impairment	1,709	132	7.70%
Specific Learning Disability	4,178	120	2.90%
Speech or Language Impairment	1,240	298	24.00%
Other	165	32	19.39%

**Source:** Qlik Academic Screeners, accessed April 13, 2022

**Note:** This table includes the six most common Primary Disability types of K-8 students during 2021-22; this may not have the same pattern as in prior school years. *Other* includes: Developmental Delay, Hearing Impaired including Deafness, Multiple Disabilities, Orthopedic Impairment, Traumatic Brain Injury, Visual Impairment including Blindness. Students in Grades K-2 take Star Early Literacy instead of Star Reading. Participation on Star Early Literacy is included in this and all relevant tables.

<sup>16</sup> In Winter 2021-22 District-wide, 27.4% of students in grades K-3 and 32.7% of students in grades 3-8 performed At or Above Benchmark on the Star reading assessment. For more information on performance, please visit <https://dashboards.philasd.org/extensions/goals-and-guardrails/index.html#/goal1/winter>



**Nearly 15% of students with a *Speech or Language Impairment*, but only 1% of students with a *Specific Learning Disability* scored At or Above Benchmark on the Star math assessment in Winter 2021-22.**

Student performance on the Star math assessment varied by primary disability. Nearly 9%-15% of students with a primary disability of *Speech or Language Impairment* and *Autism* scored At or Above Benchmark on the Star math assessment in Winter 2021-22 (Table 5). In comparison, fewer than 5% of students in any other primary disability category scored At or Above Benchmark on the Star math assessment.

Table 6. Percentage of K-8 students who qualify to receive Special Education services performing At/Above Benchmark on the Star math assessment in Winter 2021-22 by disability type

Primary Disability	Star Math Participation	Performed At/Above Benchmark	
		# of students	# of students
Autism	1,059	93	8.80%
Emotional Disturbance	628	12	1.90%
Intellectual Disability	435	1	0.20%
Other Health Impairment	1,425	45	3.20%
Specific Learning Disability	3,873	41	1.10%
Speech or Language Impairment	751	109	14.50%
Other	134	7	4.17%

**Source:** Qlik Academic Screeners, accessed April 13, 2022

**Note:** This table includes the six most common Primary Disability types of K-8 students during 2021-22; this may not have the same pattern as in prior school years. *Other* includes: Developmental Delay, Hearing Impaired including Deafness, Multiple Disabilities, Orthopedic Impairment, Traumatic Brain Injury, Visual Impairment including Blindness. Students in grades K-2 take an alternative Star Math Curriculum Based Measure (CBM) Assessment Battery instead of Star Math. Performance on the Math CBM Assessment Battery is not included in this brief.

## Conclusion

Three-quarters (75%) of K-8 students in the School District of Philadelphia who qualify to receive Special Education services participated in the Winter 2021-22 within-year Star reading and math assessments. This represents a high percentage of students eligible for the assessments, as not all students with IEPs are required to participate.

Of the students who participated, 9% of K-8 students who qualify to receive Special Education services performed At or Above Benchmark on the Star reading assessment, and about 2%-5% of them performed at this level on the Star math assessment. Similar to District-wide trends, students in grades 5-8 who qualify to receive Special Education services fared worse than their peers in K-4, with only about 5%-6% of students in grades 5-8 reading On or Above Benchmark in Winter 2021-22.

There were noteworthy differences by disability type. Over 15% of students with *Autism*, but fewer than 3% of students with a *Specific Learning Disability* scored At or Above Benchmark on the Star reading assessment. In comparison, nearly 9% of students with *Autism*, but only 1% of students with a *Specific Learning Disability* scored At or Above Benchmark on the Star math assessment.

## Appendix A: About the Assessments

The Star Reading assessment measures students' reading and math skills aligned to state standards and Common Core State Standards.<sup>17</sup> Star Reading focuses on 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 concentrates on development in six domains: Numbers, Operations, Algebra, Geometry, Measurement, and Data Analysis, Statistics, and Probability. All of the results from Star assessments included in this brief come from 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 answers a question incorrectly, 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 20 minutes. Student performance is categorized into four levels, based on national percentile rank (NPR). These designations and definitions used in SDP are:

- **At or Above Benchmark:** Indicates that students are on track to proficiency in reading and mathematics, and are testing at or above the 40<sup>th</sup> percentile nationally for reading and 70<sup>th</sup> percentile nationally for math.
- **On Watch:** Students in this category might not require specific intervention, but warrant closer attention to ensure that they maintain their progress. These students are testing between the 25<sup>th</sup> and 39<sup>th</sup> percentile nationally for reading and 25<sup>th</sup> to 69<sup>th</sup> percentile nationally for math.
- **Strategic Intervention:** Indicates that students need strategic intervention to ensure progress towards proficiency. These students are testing between the 10<sup>th</sup> and 24<sup>th</sup> percentile nationally.
- **Intensive Intervention:** Indicates that students require intensive intervention to make progress towards becoming proficient. These students are testing below the 10<sup>th</sup> percentile nationally.

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<sup>17</sup> For more information about assessments in SDP, visit <https://www.philasd.org/era/assessment/star-information/>