Acadience® Math Benchmarks and Composite Score

Acadience Math provides two types of scores at each benchmark assessment period: (a) a raw score for each individual measure and (b) a composite score (the Math Composite Score). Each of the scores is interpreted relative to benchmarks and cut points for risk to determine if a student's score is at or above the benchmark, below the benchmark, or below the cut point for risk (well below the benchmark).

Benchmarks and Cut Points for Risk

Acadience Math *benchmarks* are empirically derived, criterion-referenced target scores that represent adequate math skills for a particular grade and time of year. Benchmarks and cut points for risk are provided for the Math Composite Score as well as for individual Acadience Math measures.

A *benchmark* indicates a level of skill at which students are likely to achieve the next Acadience Math benchmark or math outcome. Thus, for students who achieve a benchmark, the odds are in their favor of achieving later math outcomes if they receive effective core math instruction.

Conversely, the *cut points for risk* indicate a level of skill below which students are unlikely to achieve subsequent math goals without receiving additional, targeted instructional support. For students who have scores below the cut point for risk, the probability of achieving later math goals is low unless intensive support is provided.

The Acadience Math benchmarks and cut points for risk provide three primary benchmark status levels that describe students' performance: (a) At or Above Benchmark, (b) Below Benchmark, and (c) Well Below Benchmark. These levels are based on the overall likelihood of achieving specified goals on subsequent Acadience Math assessments or external measures of math achievement.

At or Above Benchmark. For students who score at or above the benchmark, the overall likelihood of achieving subsequent math goals is approximately 80% to 90%. These students are likely to need effective core instruction to meet subsequent math goals. Within this range, the likelihood of achieving subsequent goals is lower for students whose scores are right at the benchmark and increases as scores increase above the benchmark (see Table 1).

To assist in setting ambitious goals for students, the At or Above Benchmark level is subdivided into *At Benchmark* and *Above Benchmark* levels.

At Benchmark. In the At Benchmark range, the overall likelihood of achieving subsequent math goals is 70% to 85%. Some of these students, especially those with scores near the benchmark, may require monitoring and/or strategic support on specific component skills.

Above Benchmark. In the Above Benchmark range, the overall likelihood of achieving subsequent math goals is 90% to 99%. While all students with scores in this range will likely benefit from core support, some students with scores in this range may benefit from instruction on more advanced skills.

Below Benchmark. Between the benchmark and cut point for risk is a range of scores where students' future performance is more difficult to predict. For students with scores in this range, the overall likelihood of achieving subsequent math goals is approximately 40% to 60%. These students are likely to need strategic support to ensure their achievement of future goals. Strategic support generally consists of carefully targeted supplemental support in specific skill areas in which students are having difficulty. To ensure that the greatest number of students achieve later math success, it is best for students with scores in this range to be monitored regularly to ensure that they are making adequate progress and to receive increased or modified support if necessary to achieve subsequent math goals.

Well Below Benchmark. For students who score below the cut point for risk, the overall likelihood of achieving subsequent math goals is low, approximately 10% to 20%. These students are identified as likely to need intensive support. Intensive support refers to interventions that incorporate something more or something different from the core curriculum or supplemental support.

Intensive support might entail:

- delivering instruction in a smaller group or individually,
- providing more instructional time or more practice,
- presenting smaller skill steps in the instructional hierarchy,
- providing more explicit modeling and instruction, and/or
- providing greater scaffolding and practice.

Because students who need intensive support are likely to have individual needs, we recommend that their progress be monitored frequently and their intervention modified dynamically to ensure adequate progress.

Table 1 summarizes the design specifications for achieving later math outcomes and provides descriptions for the likely need for support for each of the benchmark status levels. It is important to note that while there is an overall likelihood for each benchmark status level, within each level the likelihood of achieving later math outcomes increases as students' scores increase. This is illustrated in the first column of Table 1.

Development of Benchmarks

The benchmarks and cut points for risk summarized in this document are based on research that examined the predictive probability of a score on an Acadience Math measure at a particular point in time, compared to later Acadience Math measures and external measures of math proficiency and achievement. Two outcome criteria were used to develop and evaluate the benchmarks and cut points for risk: (a) the Stanford Achievement Test Series, Tenth Edition–Total Math score (SAT10; Pearson, 2003) and (b) scores from Acadience Math measures administered at subsequent benchmark assessment time points. The 40th percentile on the SAT10 assessment was used as an indicator that the students had adequate math skills for their grade. When the Acadience Math measures were used as a criterion, goals were based on the prediction of subsequent benchmark status. For instance, the middle-of-year benchmarks were based on the prediction of end-of-year benchmark status.

Benchmarks and cut points for risk were determined by finding the scores on Acadience Math measures that corresponded to the above goals in two data sets. One sample utilized the SAT10 Total Math score as the criterion of interest, and the other sample utilized performance on later Acadience Math measures as the criterion. Data in the first sample were collected in a study conducted during the 2017–2018 school year. Participating students were administered Acadience Math during all three benchmark periods (fall or beginning of year, winter or middle of year, and spring or end of year) in addition to the SAT10 at the end of the school year. Participants in this study were 537 students across grades 2–6 from five schools in four states. The study included both students who were struggling in mathematics and those who were typically achieving. The data in the second sample were exported from Acadience Data Management and included 542,407 students from 2,321 schools, within 49 states, across grades K–6. The sample also included 22 schools outside of the United States, which accounted for less than 1% of the data. Data were collected and entered into Acadience Data Management by school personnel at three benchmark assessment time points (i.e., beginning of year, middle of year, and end of year) from the beginning of the 2015–2016 school year to the middle of the 2018–2019 school year. Data were exported from Acadience Data Management in March 2019.

This research represents a validation of two earlier studies from the 2012–2013 and 2014–2015 school years that determined the preliminary benchmarks. Two outcome criteria were utilized in these studies: (a) the Group Mathematics Assessment and Diagnostic Evaluation total raw score (GMADE; Williams, 2004) and (b) scores from the Acadience Math measures administered at subsequent benchmark assessment time points.

Additional information about the studies will be included in the Acadience Math Technical Manual, which will be available in the future.

Table 1. Likelihood of Meeting Later Math Goals and Acadience® Math Benchmark Status

Likelihood of Meeting Later Math Goals	Benchmark Status	Benchmark Status Including Above Benchmark	What It Means
>99% 95% 90% 80% 70% 60%	**At or Above Benchmark** *overall likelihood of achieving subsequent math goals: 80% to 90%*	**Above Benchmark** *overall likelihood of achieving subsequent math goals: 90% to 99%*	For students with scores in this range, the odds of achieving subsequent math goals are very good. These students likely need effective core instruction to meet subsequent math goals. Some students may benefit from instruction on more advanced skills.
		At Benchmark *overall likelihood of achieving subsequent math goals: 70% to 85%*	For students with scores in this range, the odds are in favor of achieving subsequent math goals. The higher above the benchmark, the better the odds. These students likely need effective core instruction to meet subsequent math goals. Some students may require monitoring and strategic support on specific component skills as needed.
55% 50% 45% 40%	**Below Benchmark** *overall likelihood of achieving subsequent math goals: 40% to 60%*	**Below Benchmark** *overall likelihood of achieving subsequent math goals: 40% to 60%*	For students with scores in this range, the overall odds of achieving subsequent math goals are approximately even, and hard to predict. Within this range, the closer students' scores are to the benchmark, the better the odds; the closer students' scores are to the cut point, the lower the odds. These students likely need core instruction coupled with strategic support, targeted to their individual needs, to meet subsequent math goals. For some students whose scores are close to the benchmark, effective core instruction may be sufficient; students whose scores are close to the cut point may require more intensive support.
30% 20% 10% <5%	**Well Below Benchmark** *overall likelihood of achieving subsequent math goals: 10% to 20%*	**Well Below Benchmark** *overall likelihood of achieving subsequent math goals: 10% to 20%*	For students with scores in this range, the overall odds of achieving subsequent math goals are low. These students likely need intensive support in addition to effective core instruction. These students may also need support on prerequisite skills (i.e., below grade level) depending upon the grade level and how far below the benchmark their skills are.

The addition of the Above Benchmark status level has not changed the benchmarks. A benchmark is still the point at which the odds are in the student's favor of meeting later math goals (approximately 60% likelihood or higher). The higher above the benchmark the student scores, the better the odds. For students who are already at benchmark, the Above Benchmark status level also provides a higher goal to aim for.
"Overall likelihood" refers to the approximate percentage of students within the category who achieve later goals, although the exact percentage varies by grade, year, and measure.
Instructional decisions should be made based on students' patterns of performance across all measures, in addition to other available information on student skills, such as diagnostic assessment or in-class work.

Math Composite Score

The Math Composite Score is a combination of multiple Acadience Math scores and provides the best overall estimate of students' math skills. Acadience Learning Online will calculate the Math Composite Score for you, provided that all required measures necessary for calculating it have been administered. To calculate the Math Composite Score yourself, see the *Math Composite Score Worksheets* at the end of this document.

Benchmarks and cut points for risk for the Math Composite Score are based on the same logic and procedures as the benchmarks for the individual Acadience Math measures. However, because the Math Composite Score provides the best overall estimate of a student's skills, it should generally be interpreted first. If a student earns a Math Composite Score that is at or above the benchmark, the odds are in the student's favor of reaching later important math outcomes. Some students who score At or Above Benchmark on the Math Composite Score may still need additional support in a math skill, as indicated by a Below Benchmark score on an individual Acadience Math measure (i.e., Beginning Quantity Discrimination, Number Identification Fluency, Next Number Fluency, Advanced Quantity Discrimination, Missing Number Fluency, Computation, or Concepts and Applications). This potential need for additional support is especially true for a student whose Math Composite Score is close to the benchmark.

The Acadience Math measures that are used to calculate the Math Composite Score vary by grade and time of year. As such, the Math Composite Score is not comparable across different grades and does not provide a direct measure of growth across grades. The Math Composite Score is also not comparable across different times of year and should not be used as an indicator of growth within a grade. However, because the logic and procedures used to establish benchmarks are consistent across grades and times of year, the percent of students at different benchmark status levels can be compared, even though the mean scores are not comparable.

References

Pearson. (2003). Stanford Achievement Test Series, Tenth Edition (SAT10). San Antonio, TX.

Williams, K. T. (2004). Group Math Assessment and Diagnostic Evaluation (GMADE). New York: Pearson.

Acadience® Math: Summary of Benchmarks and Cut Points for Risk

	Kindergarten			First Grade			Second Grade			Third Grade			Fourth Grade			Fifth Grade			Sixth Grade		
	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End	Beg	Mid	End
Math Composite Score	33 **24** 13	89 **72** 49	110 **92** 67	148 **124** 81	53 **46** 33	68 **59** 44	32 **24** 16	57 **46** 30	86 **66** 48	56 **49** 33	99 **83** 57	126 **101** 74	84 **70** 47	101 **83** 55	150 **117** 81	65 **53** 35	118 **93** 63	149 **116** 79	85 **73** 46	125 **104** 72	159 **132** 94
Beginning Quantity Discrimination (BQD)	6 **5** 2	10 **7** 4	16 **13** 9																		
Number Identification Fluency (NIF)	9 **6** 4	21 **14** 8	34 **25** 14	33 **27** 16																	
Next Number Fluency (NNF)	7 **5** 2	13 **11** 7	16 **14** 10	14 **12** 9																	
Advanced Quantity Discrimination (AQD)				13 **10** 6	22 **19** 14	25 **22** 17															
Missing Number Fluency (MNF)				6 **4** 2	9 **8** 6	12 **10** 8															
Computation (Comp)				6 **5** 3	14 **11** 7	20 **17** 11	8 **6** 3	14 **11** 8	19 **15** 10	15 **13** 9	25 **22** 16	35 **29** 21	21 **17** 12	39 **31** 21	58 **46** 33	32 **27** 18	66 **52** 31	70 **56** 38	46 **39** 28	66 **54** 37	77 **66** 47
Concepts and Applications (C&A)							18 **14** 8	31 **24** 15	47 **35** 23	28 **23** 13	50 **40** 24	59 **47** 32	44 **34** 21	63 **49** 30	93 **71** 46	33 **25** 15	53 **42** 26	81 **62** 40	38 **30** 18	60 **46** 30	82 **67** 49

Math Composite Score: A combination of multiple Acadience Math scores, which provides the best overall estimate of the student's math proficiency. For information on how to calculate the composite score, see the *Acadience Math Composite Score* worksheets on pages 29–35.

ABOVE BENCHMARK (small blue number in each box): Students scoring above the benchmark are highly likely to achieve important math outcomes (approximately 90% to 99% overall). These scores are identified as *Above Benchmark*. While students scoring Above Benchmark are likely to need *Core Support*, some may benefit from instruction on more advanced skills.

BENCHMARK GOAL (large bold number in the middle of the box): Students scoring at or above the benchmark goal have the odds in their favor (approximately 80% to 90% overall) of achieving later important math outcomes. These scores are identified as *At or Above Benchmark* and the students are likely to need *Core Support*.

CUT POINT FOR RISK (small red number in each box): Students scoring below the cut point for risk are unlikely (approximately 10%–20% overall) to achieve subsequent goals without receiving additional, targeted instructional support. These scores are identified as *Well Below Benchmark* and the students are likely to need *Intensive Support*.

Scores below the benchmark and at or above the cut point for risk are identified as *Below Benchmark*. In this range, a student's future performance is harder to predict, and these students are likely to need *Strategic Support*.

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Kindergarten Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	33 +	89 +	110 +
	At Benchmark	**Likely to Need Core Support**[b]	**24** – 32	**72** – 88	**92** – 109
	Below Benchmark	Likely to Need Strategic Support	*13* – 23	*49* – 71	*67* – 91
	Well Below Benchmark	Likely to Need Intensive Support	0 – 12	0 – 48	0 – 66
Beginning Quantity Discrimination (BQD)	Above Benchmark	Likely to Need Core Support[a]	6 +	10 +	16 +
	At Benchmark	**Likely to Need Core Support**[b]	**5**	**7** – 9	**13** – 15
	Below Benchmark	Likely to Need Strategic Support	*2* – 4	*4* – 6	*9* – 12
	Well Below Benchmark	Likely to Need Intensive Support	0 – 1	0 – 3	0 – 8
Number Identification Fluency (NIF)	Above Benchmark	Likely to Need Core Support[a]	9 +	21 +	34 +
	At Benchmark	**Likely to Need Core Support**[b]	**6** – 8	**14** – 20	**25** – 33
	Below Benchmark	Likely to Need Strategic Support	*4* – 5	*8* – 13	*14* – 24
	Well Below Benchmark	Likely to Need Intensive Support	0 – 3	0 – 7	0 – 13
Next Number Fluency (NNF)	Above Benchmark	Likely to Need Core Support[a]	7 +	13 +	16 +
	At Benchmark	**Likely to Need Core Support**[b]	**5** – 6	**11** – 12	**14** – 15
	Below Benchmark	Likely to Need Strategic Support	*2* – 4	*7* – 10	*10* – 13
	Well Below Benchmark	Likely to Need Intensive Support	0 – 1	0 – 6	0 – 9

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

First Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	148 +	53 +	68 +
	At Benchmark	**Likely to Need Core Support**[b]	**124** – 147	**46** – 52	**59** – 67
	Below Benchmark	Likely to Need Strategic Support	*81* – 123	*33* – 45	*44* – 58
	Well Below Benchmark	Likely to Need Intensive Support	0 – 80	0 – 32	0 – 43
Number Identification Fluency (NIF)	Above Benchmark	Likely to Need Core Support[a]	33 +	–	–
	At Benchmark	**Likely to Need Core Support**[b]	**27** – 32	–	–
	Below Benchmark	Likely to Need Strategic Support	*16* – 26	–	–
	Well Below Benchmark	Likely to Need Intensive Support	0 – 15	–	–
Next Number Fluency (NNF)	Above Benchmark	Likely to Need Core Support[a]	14 +	–	–
	At Benchmark	**Likely to Need Core Support**[b]	**12** – 13	–	–
	Below Benchmark	Likely to Need Strategic Support	*9* – 11	–	–
	Well Below Benchmark	Likely to Need Intensive Support	0 – 8	–	–
Advanced Quantity Discrimination (AQD)	Above Benchmark	Likely to Need Core Support[a]	13 +	22 +	25 +
	At Benchmark	**Likely to Need Core Support**[b]	**10** – 12	**19** – 21	**22** – 24
	Below Benchmark	Likely to Need Strategic Support	*6* – 9	*14* – 18	*17* – 21
	Well Below Benchmark	Likely to Need Intensive Support	0 – 5	0 – 13	0 – 16
Missing Number Fluency (MNF)	Above Benchmark	Likely to Need Core Support[a]	6 +	9 +	12 +
	At Benchmark	**Likely to Need Core Support**[b]	**4** – 5	**8**	**10** – 11
	Below Benchmark	Likely to Need Strategic Support	*2* – 3	*6* – 7	*8* – 9
	Well Below Benchmark	Likely to Need Intensive Support	0 – 1	0 – 5	0 – 7
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	6 +	14 +	20 +
	At Benchmark	**Likely to Need Core Support**[b]	**5**	**11** – 13	**17** – 19
	Below Benchmark	Likely to Need Strategic Support	*3* – 4	*7* – 10	*11* – 16
	Well Below Benchmark	Likely to Need Intensive Support	0 – 2	0 – 6	0 – 10

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Second Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	32 +	57 +	86 +
	At Benchmark	**Likely to Need Core Support**[b]	**24** – 31	**46** – 56	**66** – 85
	Below Benchmark	Likely to Need Strategic Support	*16* – 23	*30* – 45	*48* – 65
	Well Below Benchmark	Likely to Need Intensive Support	0 – 15	0 – 29	0 – 47
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	8 +	14 +	19 +
	At Benchmark	**Likely to Need Core Support**[b]	**6** – 7	**11** – 13	**15** – 18
	Below Benchmark	Likely to Need Strategic Support	*3* – 5	*8* – 10	*10* – 14
	Well Below Benchmark	Likely to Need Intensive Support	0 – 2	0 – 7	0 – 9
Concepts and Applications (C&A)	Above Benchmark	Likely to Need Core Support[a]	18 +	31 +	47 +
	At Benchmark	**Likely to Need Core Support**[b]	**14** – 17	**24** – 30	**35** – 46
	Below Benchmark	Likely to Need Strategic Support	*8* – 13	*15* – 23	*23* – 34
	Well Below Benchmark	Likely to Need Intensive Support	0 – 7	0 – 14	0 – 22

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Third Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	56 +	99 +	126 +
	At Benchmark	**Likely to Need Core Support**[b]	**49** – 55	**83** – 98	**101** – 125
	Below Benchmark	Likely to Need Strategic Support	*33* – 48	*57* – 82	*74* – 100
	Well Below Benchmark	Likely to Need Intensive Support	0 – 32	0 – 56	0 – 73
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	15 +	25 +	35 +
	At Benchmark	**Likely to Need Core Support**[b]	**13** – 14	**22** – 24	**29** – 34
	Below Benchmark	Likely to Need Strategic Support	*9* – 12	*16* – 21	*21* – 28
	Well Below Benchmark	Likely to Need Intensive Support	0 – 8	0 – 15	0 – 20
Concepts and Applications (C&A)	Above Benchmark	Likely to Need Core Support[a]	28 +	50 +	59 +
	At Benchmark	**Likely to Need Core Support**[b]	**23** – 27	**40** – 49	**47** – 58
	Below Benchmark	Likely to Need Strategic Support	*13* – 22	*24* – 39	*32* – 46
	Well Below Benchmark	Likely to Need Intensive Support	0 – 12	0 – 23	0 – 31

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Fourth Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	84 +	101 +	150 +
	At Benchmark	**Likely to Need Core Support**[b]	**70** – 83	**83** – 100	**117** – 149
	Below Benchmark	Likely to Need Strategic Support	*47* – 69	*55* – 82	*81* – 116
	Well Below Benchmark	Likely to Need Intensive Support	0 – 46	0 – 54	0 – 80
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	21 +	39 +	58 +
	At Benchmark	**Likely to Need Core Support**[b]	**17** – 20	**31** – 38	**46** – 57
	Below Benchmark	Likely to Need Strategic Support	*12* – 16	*21* – 30	*33* – 45
	Well Below Benchmark	Likely to Need Intensive Support	0 – 11	0 – 20	0 – 32
Concepts and Applications (C&A)	Above Benchmark	Likely to Need Core Support[a]	44 +	63 +	93 +
	At Benchmark	**Likely to Need Core Support**[b]	**34** – 43	**49** – 62	**71** – 92
	Below Benchmark	Likely to Need Strategic Support	*21* – 33	*30* – 48	*46* – 70
	Well Below Benchmark	Likely to Need Intensive Support	0 – 20	0 – 29	0 – 45

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Fifth Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	65 +	118 +	149 +
	At Benchmark	**Likely to Need Core Support**[b]	**53** – 64	**93** – 117	**116** – 148
	Below Benchmark	Likely to Need Strategic Support	*35* – 52	*63* – 92	*79* – 115
	Well Below Benchmark	Likely to Need Intensive Support	0 – 34	0 – 62	0 – 78
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	32 +	66 +	70 +
	At Benchmark	**Likely to Need Core Support**[b]	**27** – 31	**52** – 65	**56** – 69
	Below Benchmark	Likely to Need Strategic Support	*18* – 26	*31* – 51	*38* – 55
	Well Below Benchmark	Likely to Need Intensive Support	0 – 17	0 – 30	0 – 37
Concepts and Applications (C&A)	Above Benchmark	Likely to Need Core Support[a]	33 +	53 +	81 +
	At Benchmark	**Likely to Need Core Support**[b]	**25** – 32	**42** – 52	**62** – 80
	Below Benchmark	Likely to Need Strategic Support	*15* – 24	*26* – 41	*40* – 61
	Well Below Benchmark	Likely to Need Intensive Support	0 – 14	0 – 25	0 – 39

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Sixth Grade Benchmarks and Cut Points for Risk

Acadience Math Measure	Benchmark Status	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
Math Composite Score	Above Benchmark	Likely to Need Core Support[a]	85 +	125 +	159 +
	At Benchmark	**Likely to Need Core Support**[b]	**73** – 84	**104** – 124	**132** – 158
	Below Benchmark	Likely to Need Strategic Support	*46* – 72	*72* – 103	*94* – 131
	Well Below Benchmark	Likely to Need Intensive Support	0 – 45	0 – 71	0 – 93
Computation (Comp)	Above Benchmark	Likely to Need Core Support[a]	46 +	66 +	77 +
	At Benchmark	**Likely to Need Core Support**[b]	**39** – 45	**54** – 65	**66** – 76
	Below Benchmark	Likely to Need Strategic Support	*28* – 38	*37* – 53	*47* – 65
	Well Below Benchmark	Likely to Need Intensive Support	0 – 27	0 – 36	0 – 46
Concepts and Applications (C&A)	Above Benchmark	Likely to Need Core Support[a]	38 +	60 +	82 +
	At Benchmark	**Likely to Need Core Support**[b]	**30** – 37	**46** – 59	**67** – 81
	Below Benchmark	Likely to Need Strategic Support	*18* – 29	*30* – 45	*49* – 66
	Well Below Benchmark	Likely to Need Intensive Support	0 – 17	0 – 29	0 – 48

The benchmark is the number that is **bold**. The cut point for risk is the number that is *italicized*.

[a] Some students may benefit from instruction on more advanced skills.

[b] Some students may require monitoring and strategic support on component skills.

Kindergarten Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	83%	65%	85%	66%
	Above Benchmark	91%	76%	94%	79%
	At Benchmark	63%	36%	64%	32%
	Below Benchmark	41%	20%	35%	14%
	Well Below Benchmark	17%	8%	10%	3%
Beginning Quantity Discrimination (BQD)	**At or Above Benchmark**	79%	62%	75%	56%
	Above Benchmark	91%	70%	85%	67%
	At Benchmark	59%	39%	54%	31%
	Below Benchmark	48%	29%	35%	18%
	Well Below Benchmark	26%	14%	17%	7%
Number Identification Fluency (NIF)	**At or Above Benchmark**	80%	63%	83%	64%
	Above Benchmark	91%	77%	90%	79%
	At Benchmark	58%	39%	62%	34%
	Below Benchmark	46%	24%	38%	18%
	Well Below Benchmark	19%	8%	15%	6%
Next Number Fluency (NNF)	**At or Above Benchmark**	83%	66%	81%	63%
	Above Benchmark	86%	72%	89%	67%
	At Benchmark	68%	44%	65%	39%
	Below Benchmark	47%	27%	43%	22%
	Well Below Benchmark	22%	11%	15%	6%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 81,484 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

First Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	85%	69%	86%	69%
	Above Benchmark	94%	79%	93%	81%
	At Benchmark	63%	39%	65%	35%
	Below Benchmark	35%	18%	33%	14%
	Well Below Benchmark	9%	4%	6%	2%
Number Identification Fluency (NIF)	**At or Above Benchmark**	82%	67%	–	–
	Above Benchmark	88%	76%	–	–
	At Benchmark	63%	41%	–	–
	Below Benchmark	38%	21%	–	–
	Well Below Benchmark	12%	5%	–	–
Next Number Fluency (NNF)	**At or Above Benchmark**	76%	61%	–	–
	Above Benchmark	81%	68%	–	–
	At Benchmark	58%	39%	–	–
	Below Benchmark	41%	25%	–	–
	Well Below Benchmark	19%	10%	–	–
Advanced Quantity Discrimination (AQD)	**At or Above Benchmark**	81%	66%	82%	66%
	Above Benchmark	91%	77%	92%	79%
	At Benchmark	59%	37%	61%	36%
	Below Benchmark	35%	18%	36%	16%
	Well Below Benchmark	11%	5%	10%	4%
Missing Number Fluency (MNF)	**At or Above Benchmark**	76%	61%	81%	65%
	Above Benchmark	86%	78%	88%	74%
	At Benchmark	60%	40%	59%	36%
	Below Benchmark	33%	18%	43%	23%
	Well Below Benchmark	12%	6%	16%	7%
Computation (Comp)	**At or Above Benchmark**	77%	63%	80%	64%
	Above Benchmark	81%	66%	85%	73%
	At Benchmark	59%	40%	61%	39%
	Below Benchmark	43%	27%	40%	21%
	Well Below Benchmark	23%	13%	15%	7%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 79,450 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Second Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	80%	63%	87%	64%
	Above Benchmark	88%	75%	94%	76%
	At Benchmark	61%	41%	69%	33%
	Below Benchmark	39%	20%	41%	14%
	Well Below Benchmark	16%	7%	10%	2%
Computation (Comp)	**At or Above Benchmark**	77%	61%	84%	62%
	Above Benchmark	85%	68%	92%	77%
	At Benchmark	62%	42%	69%	37%
	Below Benchmark	37%	20%	47%	20%
	Well Below Benchmark	12%	5%	20%	6%
Concepts and Applications (C&A)	**At or Above Benchmark**	80%	64%	85%	63%
	Above Benchmark	85%	71%	91%	73%
	At Benchmark	64%	42%	67%	38%
	Below Benchmark	46%	27%	46%	20%
	Well Below Benchmark	25%	12%	18%	6%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 77,644 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Third Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	84%	70%	89%	70%
	Above Benchmark	89%	77%	95%	81%
	At Benchmark	62%	41%	70%	34%
	Below Benchmark	42%	24%	39%	13%
	Well Below Benchmark	15%	7%	9%	2%
Computation (Comp)	**At or Above Benchmark**	79%	65%	87%	68%
	Above Benchmark	84%	71%	91%	76%
	At Benchmark	59%	43%	67%	36%
	Below Benchmark	46%	29%	45%	19%
	Well Below Benchmark	25%	14%	14%	4%
Concepts and Applications (C&A)	**At or Above Benchmark**	82%	69%	87%	68%
	Above Benchmark	87%	75%	92%	76%
	At Benchmark	62%	38%	69%	39%
	Below Benchmark	44%	26%	44%	19%
	Well Below Benchmark	19%	9%	14%	4%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 59,615 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Fourth Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	85%	71%	91%	70%
	Above Benchmark	91%	80%	96%	81%
	At Benchmark	64%	41%	75%	34%
	Below Benchmark	37%	19%	44%	13%
	Well Below Benchmark	11%	4%	8%	1%
Computation (Comp)	**At or Above Benchmark**	78%	64%	86%	66%
	Above Benchmark	85%	73%	91%	75%
	At Benchmark	61%	43%	68%	36%
	Below Benchmark	43%	26%	47%	18%
	Well Below Benchmark	19%	10%	18%	4%
Concepts and Applications (C&A)	**At or Above Benchmark**	83%	67%	90%	68%
	Above Benchmark	91%	78%	95%	78%
	At Benchmark	61%	38%	74%	39%
	Below Benchmark	38%	19%	46%	17%
	Well Below Benchmark	14%	6%	12%	3%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 56,121 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Fifth Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	87%	69%	90%	68%
	Above Benchmark	92%	78%	96%	81%
	At Benchmark	70%	43%	74%	37%
	Below Benchmark	46%	23%	43%	14%
	Well Below Benchmark	16%	6%	10%	2%
Computation (Comp)	**At or Above Benchmark**	84%	67%	87%	66%
	Above Benchmark	89%	74%	94%	77%
	At Benchmark	66%	43%	73%	39%
	Below Benchmark	51%	29%	44%	18%
	Well Below Benchmark	25%	12%	12%	3%
Concepts and Applications (C&A)	**At or Above Benchmark**	83%	65%	88%	68%
	Above Benchmark	89%	74%	93%	77%
	At Benchmark	66%	42%	72%	40%
	Below Benchmark	46%	24%	50%	22%
	Well Below Benchmark	22%	10%	18%	5%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 47,139 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Sixth Grade Percentage of Students Who Meet Later Outcomes on the Math Composite Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students **At or Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **Above** Benchmark on **middle-of-year** Math Composite Score based on beginning-of-year status	Percent of students **At or Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status	Percent of students **Above** Benchmark on **end-of-year** Math Composite Score based on middle-of-year status
Math Composite Score	**At or Above Benchmark**	87%	71%	88%	70%
	Above Benchmark	93%	80%	96%	83%
	At Benchmark	64%	39%	69%	35%
	Below Benchmark	39%	18%	35%	11%
	Well Below Benchmark	9%	3%	5%	1%
Computation (Comp)	**At or Above Benchmark**	83%	66%	85%	66%
	Above Benchmark	88%	74%	92%	77%
	At Benchmark	67%	40%	65%	36%
	Below Benchmark	41%	21%	36%	17%
	Well Below Benchmark	18%	9%	10%	3%
Concepts and Applications (C&A)	**At or Above Benchmark**	82%	66%	84%	66%
	Above Benchmark	89%	75%	92%	78%
	At Benchmark	62%	39%	67%	39%
	Below Benchmark	42%	21%	38%	17%
	Well Below Benchmark	14%	6%	11%	4%

Note. This table shows the percent of students that are on track on the Math Composite Score at the middle and end of the year based on the student's Acadience Math measure score at the beginning and middle of the year. N = 17,061 students who had Acadience Math data for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years. Data exported from Acadience Data Management.

Kindergarten Percentage of Students Who Meet Later Outcomes on the GMADE Total Math Score based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on GMADE Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on GMADE Total Math Score based on middle-of-year status	Percent of students showing adequate skill on GMADE Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	80%	79%	80%
	Below Benchmark	53%	66%	76%
	Well Below Benchmark	12%	31%	37%
Beginning Quantity Discrimination (BQD)	**At or Above Benchmark**	78%	85%	87%
	Below Benchmark	63%	75%	67%
	Well Below Benchmark	13%	30%	37%
Number Identification Fluency (NIF)	**At or Above Benchmark**	79%	80%	80%
	Below Benchmark	67%	69%	74%
	Well Below Benchmark	27%	39%	34%
Next Number Fluency (NNF)	**At or Above Benchmark**	81%	76%	74%
	Below Benchmark	55%	61%	68%
	Well Below Benchmark	21%	38%	57%

Note. This table shows the likelihood of being on track on the GMADE assessment administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the GMADE assessment was used to indicate whether the student was on track. N = 156 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category. The GMADE data was collected during the 2012–2013 school year.

First Grade Percentage of Students Who Meet Later Outcomes on the GMADE Total Math Score based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on GMADE Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on GMADE Total Math Score based on middle-of-year status	Percent of students showing adequate skill on GMADE Total Math Score based on end-of-year status
Math Composite Score	At Benchmark	82%	87%	86%
	Below Benchmark	50%	52%	53%
	Well Below Benchmark	28%	22%	29%
Number Identification Fluency (NIF)	At Benchmark	82%	–	–
	Below Benchmark	42%	–	–
	Well Below Benchmark	33%	–	–
Next Number Fluency (NNF)	At Benchmark	86%	–	–
	Below Benchmark	49%	–	–
	Well Below Benchmark	29%	–	–
Missing Number Fluency (MNF)	At Benchmark	78%	91%	79%
	Below Benchmark	37%	45%	64%
	Well Below Benchmark	12%	37%	28%
Advanced Quantity Discrimination (AQD)	At Benchmark	77%	80%	85%
	Below Benchmark	48%	53%	54%
	Well Below Benchmark	33%	21%	24%
Computation (Comp)	At Benchmark	70%	78%	85%
	Below Benchmark	57%	63%	68%
	Well Below Benchmark	32%	35%	21%

Note. This table shows the likelihood of being on track on the GMADE assessment administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the GMADE assessment was used to indicate whether the student was on track. N = 154 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category. The GMADE data was collected during the 2012–2013 school year.

Second Grade Percentage of Students Who Meet Later Outcomes on the SAT10 Total Math Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on SAT10 Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on middle-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	88%	89%	90%
	Below Benchmark	55%	41%	53%
	Well Below Benchmark	14%	10%	14%
Computation (Comp)	**At or Above Benchmark**	86%	90%	90%
	Below Benchmark	53%	44%	57%
	Well Below Benchmark	18%	16%	25%
Concepts and Applications (C&A)	**At or Above Benchmark**	93%	88%	92%
	Below Benchmark	47%	47%	33%
	Well Below Benchmark	25%	13%	5%

Note. This table shows the likelihood of being on track on the SAT10 Total Math Score administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the SAT10 assessment was used to indicate whether the student was on track. N = 132 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category.

Third Grade Percentage of Students Who Meet Later Outcomes on the SAT10 Total Math Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on SAT10 Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on middle-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	85%	86%	83%
	Below Benchmark	57%	40%	40%
	Well Below Benchmark	10%	15%	14%
Computation (Comp)	**At or Above Benchmark**	77%	78%	81%
	Below Benchmark	38%	62%	44%
	Well Below Benchmark	19%	21%	26%
Concepts and Applications (C&A)	**At or Above Benchmark**	83%	78%	87%
	Below Benchmark	47%	36%	45%
	Well Below Benchmark	17%	6%	10%

Note. This table shows the likelihood of being on track on the SAT10 Total Math Score administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the SAT10 assessment was used to indicate whether the student was on track. N = 114 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category.

Fourth Grade Percentage of Students Who Meet Later Outcomes on the SAT10 Total Math Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on SAT10 Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on middle-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	92%	84%	82%
	Below Benchmark	50%	50%	60%
	Well Below Benchmark	6%	7%	13%
Computation (Comp)	**At or Above Benchmark**	91%	81%	81%
	Below Benchmark	42%	33%	43%
	Well Below Benchmark	24%	0%	14%
Concepts and Applications (C&A)	**At or Above Benchmark**	88%	81%	83%
	Below Benchmark	42%	57%	64%
	Well Below Benchmark	13%	7%	13%

Note. This table shows the likelihood of being on track on the SAT10 Total Math Score administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the SAT10 assessment was used to indicate whether the student was on track. N = 70 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category.

Fifth Grade Percentage of Students Who Meet Later Outcomes on the SAT10 Total Math Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on SAT10 Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on middle-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	85%	81%	82%
	Below Benchmark	46%	40%	50%
	Well Below Benchmark	26%	7%	3%
Computation (Comp)	**At or Above Benchmark**	81%	77%	77%
	Below Benchmark	43%	50%	54%
	Well Below Benchmark	21%	13%	8%
Concepts and Applications (C&A)	**At or Above Benchmark**	85%	87%	83%
	Below Benchmark	50%	48%	45%
	Well Below Benchmark	23%	10%	7%

Note. This table shows the likelihood of being on track on the SAT10 Total Math Score administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the SAT10 assessment was used to indicate whether the student was on track. N = 123 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category.

Sixth Grade Percentage of Students Who Meet Later Outcomes on the SAT10 Total Math Score Based on Benchmark Status on Individual Acadience Math Measures

Acadience Math Measure	Benchmark Status	Percent of students showing adequate skill on SAT10 Total Math Score based on beginning-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on middle-of-year status	Percent of students showing adequate skill on SAT10 Total Math Score based on end-of-year status
Math Composite Score	**At or Above Benchmark**	94%	93%	89%
	Below Benchmark	44%	33%	36%
	Well Below Benchmark	26%	13%	0%
Computation (Comp)	**At or Above Benchmark**	88%	85%	85%
	Below Benchmark	17%	36%	46%
	Well Below Benchmark	32%	15%	8%
Concepts and Applications (C&A)	**At or Above Benchmark**	91%	84%	93%
	Below Benchmark	53%	62%	32%
	Well Below Benchmark	22%	12%	0%

Note. This table shows the likelihood of being on track on the SAT10 Total Math Score administered at the end of the year, based on the student's individual beginning-, middle-, and end-of-year Acadience Math measure benchmark status. The 40th percentile for the SAT10 assessment was used to indicate whether the student was on track. N = 74 students. Due to insufficient sample size, At Benchmark and Above Benchmark were kept as one category.

Percentage of Students Who Met Outcomes at the Beginning of the Following Year

Acadience Math Measure	End-of-Year Benchmark Status	Likelihood of Being on Track on Math Composite Score at Beginning of Following Year					
		K	1	2	3	4	5
Math Composite Score	At or Above Benchmark	86%	81%	85%	85%	84%	81%
	Below Benchmark	38%	41%	48%	39%	37%	35%
	Well Below Benchmark	9%	13%	17%	11%	10%	9%
Beginning Quantity Discrimination (BQD)	At or Above Benchmark	79%					
	Below Benchmark	49%					
	Well Below Benchmark	25%					
Number Identification Fluency (NIF)	At or Above Benchmark	87%					
	Below Benchmark	36%					
	Well Below Benchmark	8%					
Next Number Fluency (NNF)	At or Above Benchmark	81%					
	Below Benchmark	51%					
	Well Below Benchmark	19%					
Advanced Quantity Discrimination (AQD)	At or Above Benchmark		80%				
	Below Benchmark		49%				
	Well Below Benchmark		20%				
Missing Number Fluency (MNF)	At or Above Benchmark		78%				
	Below Benchmark		46%				
	Well Below Benchmark		20%				
Computation (Comp)	At or Above Benchmark		82%	83%	83%	83%	83%
	Below Benchmark		49%	48%	45%	43%	39%
	Well Below Benchmark		20%	19%	16%	17%	12%
Concepts and Applications (C&A)	At or Above Benchmark			82%	85%	82%	80%
	Below Benchmark			46%	46%	41%	42%
	Well Below Benchmark			19%	16%	15%	15%

Note. This table shows the percent of students that are on track on the Math Composite Score at the beginning of the following school year based on their end-of-year benchmark status. Sample sizes for cross-year cohorts as follows. End of kindergarten to beginning of first grade: 54,402, end of first grade to beginning of second grade: 54,137, end of second grade to beginning of third grade: 44,401, end of third grade to beginning of fourth grade: 40,411, end of fourth grade to beginning of fifth grade: 34,929, and end of fifth grade to beginning of sixth grade: 11,785. Acadience Math data were exported from Acadience Data Management for the 2015–2016, 2016–2017, 2017–2018, and/or 2018–2019 school years.

Percentile Ranks of Benchmarks and Cut Points by Grade at Beginning of Year

Acadience Math Measure	Benchmark Status	K	1	2	3	4	5	6
Math Composite Score	Benchmark	45	47	41	49	47	47	48
	Cut Point for Risk	23	23	22	24	22	24	20
Beginning Quantity Discrimination (BQD)	Benchmark	52						
	Cut Point for Risk	24						
Number Identification Fluency (NIF)	Benchmark	46	47					
	Cut Point for Risk	27	24					
Next Number Fluency (NNF)	Benchmark	52	47					
	Cut Point for Risk	28	27					
Advanced Quantity Discrimination (AQD)	Benchmark		45					
	Cut Point for Risk		24					
Missing Number Fluency (MNF)	Benchmark		45					
	Cut Point for Risk		21					
Computation (Comp)	Benchmark		54	45	50	45	50	47
	Cut Point for Risk		30	14	26	22	26	24
Concepts and Applications (C&A)	Benchmark			48	50	47	46	45
	Cut Point for Risk			26	25	26	24	22

Note. This table shows the percentile ranks of benchmarks and cut points by grade at the beginning of the year based on the 2016–2017 Acadience Math National Norms.

Percentile Ranks of Benchmarks and Cut Points by Grade at Middle of Year

Acadience Math Measure	Benchmark Status	K	1	2	3	4	5	6
Math Composite Score	Benchmark	43	47	44	46	46	43	44
	Cut Point for Risk	21	22	20	23	24	23	22
Beginning Quantity Discrimination (BQD)	Benchmark	36						
	Cut Point for Risk	14						
Number Identification Fluency (NIF)	Benchmark	43						
	Cut Point for Risk	22						
Next Number Fluency (NNF)	Benchmark	47						
	Cut Point for Risk	23						
Advanced Quantity Discrimination (AQD)	Benchmark		45					
	Cut Point for Risk		24					
Missing Number Fluency (MNF)	Benchmark		51					
	Cut Point for Risk		30					
Computation (Comp)	Benchmark		48	47	48	45	43	43
	Cut Point for Risk		24	27	25	24	20	21
Concepts and Applications (C&A)	Benchmark			46	46	46	46	43
	Cut Point for Risk			23	23	25	24	23

Note. This table shows the percentile ranks of benchmarks and cut points by grade at the middle of the year based on the 2016–2017 Acadience Math National Norms.

Percentile Ranks of Benchmarks and Cut Points by Grade at End of Year

Acadience Math Measure	Benchmark Status	K	1	2	3	4	5	6
Math Composite Score	Benchmark	43	46	40	42	40	40	43
	Cut Point for Risk	21	22	21	22	19	20	22
Beginning Quantity Discrimination (BQD)	Benchmark	47						
	Cut Point for Risk	22						
Number Identification Fluency (NIF)	Benchmark	42						
	Cut Point for Risk	22						
Next Number Fluency (NNF)	Benchmark	49						
	Cut Point for Risk	23						
Advanced Quantity Discrimination (AQD)	Benchmark		47					
	Cut Point for Risk		25					
Missing Number Fluency (MNF)	Benchmark		46					
	Cut Point for Risk		29					
Computation (Comp)	Benchmark		50	42	45	43	42	45
	Cut Point for Risk		24	18	23	22	22	24
Concepts and Applications (C&A)	Benchmark			41	45	40	42	45
	Cut Point for Risk			20	26	21	21	27

Note. This table shows the percentile ranks of benchmarks and cut points by grade at the end of the year based on the 2016–2017 Acadience Math National Norms.

K Kindergarten Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

BQD Score = _____ x 2 = _____

+ NIF Score = _____

+ NNF Score = _____ x 2 = _____

Math Composite Score (2 x BQD + NIF + 2 x NNF) = ☐

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

BQD Score = _____ x 3 = _____

+ NIF Score = _____

+ NNF Score = _____ x 3 = _____

Math Composite Score (3 x BQD + NIF + 3 x NNF) = ☐

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

BQD Score = _____ x 2 = _____

+ NIF Score = _____

+ NNF Score = _____ x 3 = _____

Math Composite Score (2 x BQD + NIF + 3 x NNF) = ☐

Do not calculate the Composite Score if any of the values are missing.

1 First Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

NIF Score = _____

+ NNF Score = _____ x 3 = _____

+ AQD Score = _____ x 2 = _____

+ MNF Score = _____ x 5 = _____

+ Comp Score = _____ x 4 = _____

Math Composite Score (NIF + 3 x NNF + 2 x AQD + 5 x MNF + 4x Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

AQD Score = _____

+ MNF Score = _____ x 2 = _____

+ Comp Score = _____

Math Composite Score (AQD + 2 x MNF + Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

AQD Score = _____

+ MNF Score = _____ x 2 = _____

+ Comp Score = _____

Math Composite Score (AQD + 2 x MNF + Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

2 Second Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

3 Third Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = _____

Do not calculate the Composite Score if any of the values are missing.

4 Fourth Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

Comp Score = _____ x 2 = _____

+ C&A Score = _____

Math Composite Score (C&A + 2 x Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

5 Fifth Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

6 Sixth Grade Acadience® Math Composite Score Worksheet

The Math Composite Score is used to interpret student results for Acadience Math. Acadience Learning Online will calculate the composite score for you. You can also use this worksheet to calculate the composite score.

Name: _____ **Class:** _____

Beginning of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

Middle of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.

End of Year Benchmark

Comp Score = _____

+ C&A Score = _____

Math Composite Score (C&A + Comp) = ☐

Do not calculate the Composite Score if any of the values are missing.