

2023

Elementary MCAS Report



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10/10/2023

Introduction

The MCAS tests administered in Spring, 2023 give us a chance to examine our progress as we continue to recover from the learning disruptions brought on by COVID. DESE officials say that results this year show the "achievement slide" attributed to the COVID-19 pandemic's impact on the education system has stopped. Compared to 2022, scores were up 2% in math and 1% in English language arts for students in grades 3-8, according to the Massachusetts Department of Elementary and Secondary Education. However, as Commissioner Jeff Riley noted, "I think we've seen gains in both math and English, but it is fair to say without question that we are far behind still where we were in 2019."

As we all know, however, Commonwealth-wide results are heavily weighted by remarkably low performance levels in underfunded urban systems. One of the most significant red flags we have here in the Berlin-Boylston system is when our scores begin to fall to state levels. However, looking at broader performance levels does allow us to gauge the relative merits of changes in the scores of our schools. Despite best efforts, MCAS tests do not represent the same level of difficulty from year to year. If our scores improve three percent and the state scores do the same, we can be pleased but question the level of real improvement. If, on the other hand, our scores increase ten percent while the state-wide scores increase just one or two points, then we can have some confidence in pointing to meaningful improvement.

As we have noted many times in the past, MCAS testing results must be taken in context. These are tests given once a year, and are best viewed through a broad lens. We can look at how our students in each grade level did in comparison to a larger state-wide sample. We can look at grade level results from year to year (remembering that we are looking at different cohorts each year). We can also look at how our schools did as a group (grades three through five) over time.

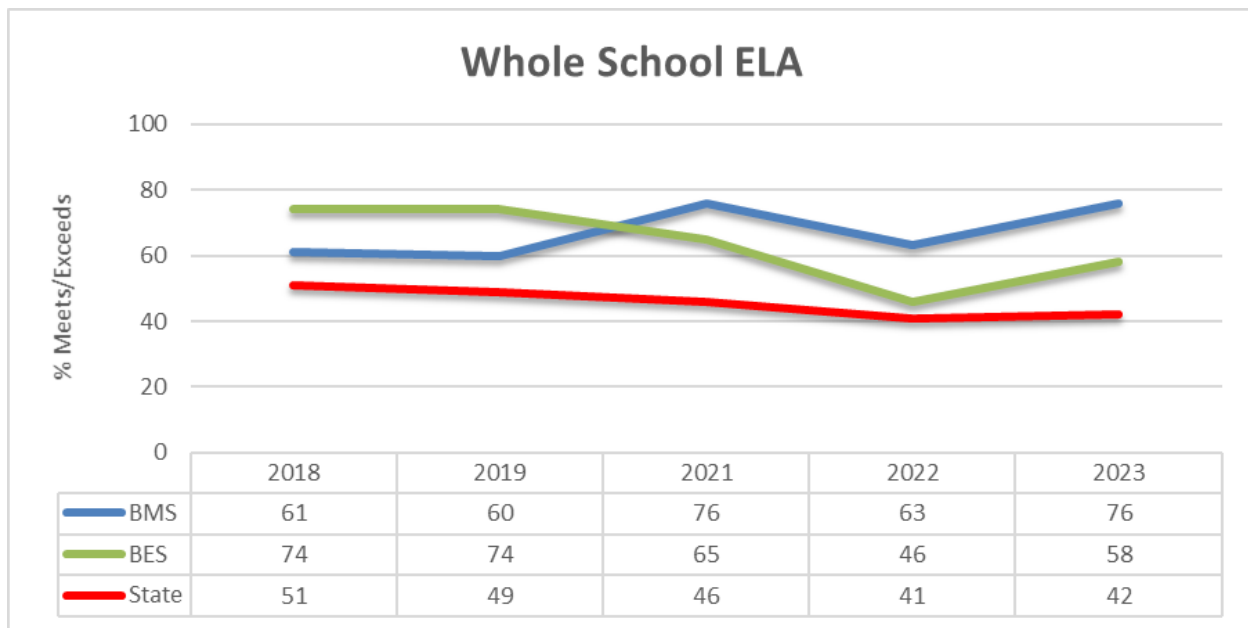
It is important to remember that this assessment has changed over time. In addition, we need to remember that there was no MCAS assessment in 2020, and only a modified assessment in 2021.

We will begin with a look at our ELA results.

English Language Arts (ELA) – 2023 Results – School-wide

The chart below graphs student performance – measured as a percentage of students scoring in the "Meets/Exceeds" categories in third through fifth grade. Looking at results for the entire tested group – all third through fifth graders – evens out the data, minimizing the impact of grades that might be unusually strong (or not) in this type of test taking.

This would be an example of where recovery from COVID learning loss in our school district is most evident. While the state-wide score increased by a mere 2.4%, the number of students who scored "Meets/Exceeds" at Berlin Memorial went up 20.6%. At Boylston Elementary, that number went up 26.1%. There are probably a variety of reasons that student performance on this assessment have recovered so quickly. The strong emphasis on literacy skills, especially early literacy skills would be one. The presence of a highly skilled literacy coach, and the willingness of teachers to try new approaches to instruction would be another. Just as important, we feel, is the commitment from parents and families who support literacy at home.



Graphs for grade level results can be found at the end of this section.

English Language Arts (ELA) – Category Analysis

The ELA MCAS assessment is broken into three categories – reading, language, and writing. As the following charts will illustrate, BBRSD students consistently outperform the state as a whole. Note that these results are represented as number of points a student earned on the assessment, rather than a reference to the “Meets” or “Exceeds” designation.

Grades 3 Reporting Category Subtotals		Max Points	BMS Percent Possible	BES Percent Possible	State Percent Possible
Category 1	Reading	28	76%	71%	60%
Category 2	Language--Includes Essay Conventions Score	12	69%	55%	55%
Category 3	Writing--Essay Idea Development Score	4	35%	36%	27%
	Total	44	70%	66%	56%

There was minimal change in category subtotals for Grade Three from last year to this year. In terms of item performance, there was only one question that Boylston students seemed to stumble on. They were asked, after having read a short essay on someone who “trains” bugs, what the best heading for the first three paragraphs of the essay might be. It is an exercise in summarization, and only 38% of students selected the correct option, whereas 42% of students state-wide were able to give the correct answer. There was no similar item for Berlin Memorial students

Writing scores for both schools remained essentially unchanged, with each elementary school earning about 35% of the available points for the essay response. It is worth noting, however, that the state-

wide score for this section went from 17% to 27% last year to this. We had already selected writing as an area of focus for this year, and this result will further inform that work.

Grades 4 Reporting Category Subtotals		Max Points	BMS Percent Possible	BES Percent Possible	State Percent Possible
Category 1	Reading	28	73%	64%	63%
Category 2	Language--Includes Essay Conventions Score	12	77%	61%	53%
Category 3	Writing--Essay Idea Development Score	4	50%	32%	29%
	Total	44	72%	60%	54%

There was only one item on the Grade Four assessment that students struggled with, and that was a question that asked them to make an inference based on the details from the passage they had read. Only 42% of the students were able to offer the correct response.

At Grade Four writing scores in both schools improved over last year's Grade Three results. At Berlin Memorial, this cohort improved from 43% of points earned to 57%. At Boylston Elementary, this cohort improved from 22% of points earned to 37%. As noted above, writing continues to be an area where improvement appears possible.

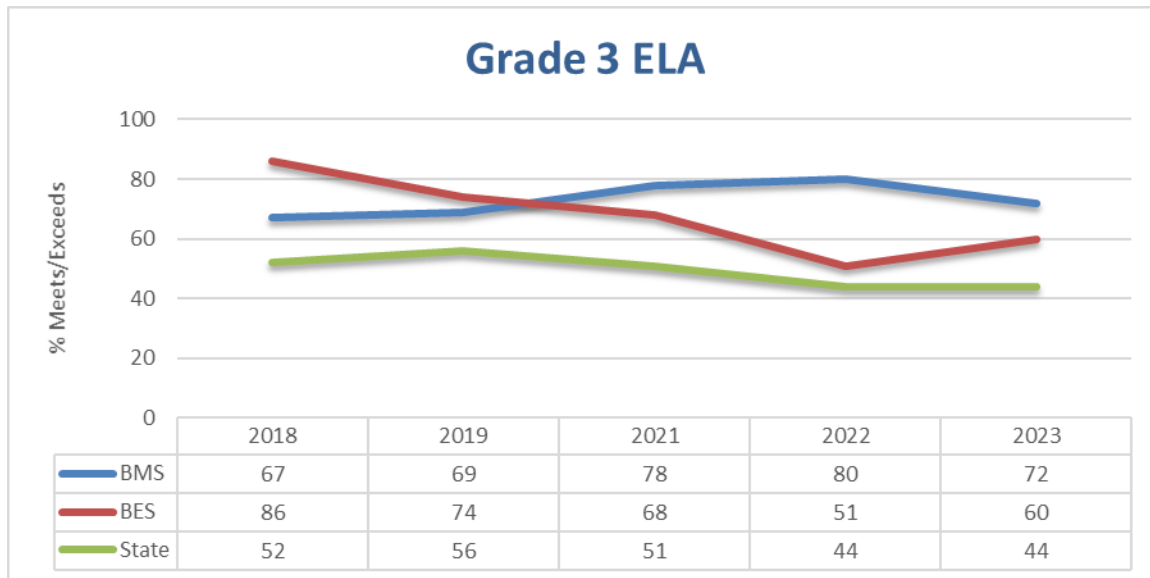
Grades 5 Reporting Category Subtotals		Max Points	BMS Percent Possible	BES Percent Possible	State Percent Possible
Category 1	Reading	28	83%	75%	68%
Category 2	Language--Includes Essay Conventions Score	12	76%	66%	55%
Category 3	Writing--Essay Idea Development Score	4	59%	44%	34%
	Total	48	74%	63%	54%

There were only two items on the Grade Five assessment that students struggled with, and it was the same two items for both schools. Only 42% of students could "identify the function of a phrase used in the passage", and only 46% of students could determine what is being suggested by a specific detail from the passage". Neither of those items were released, so we didn't really learn much from the data.

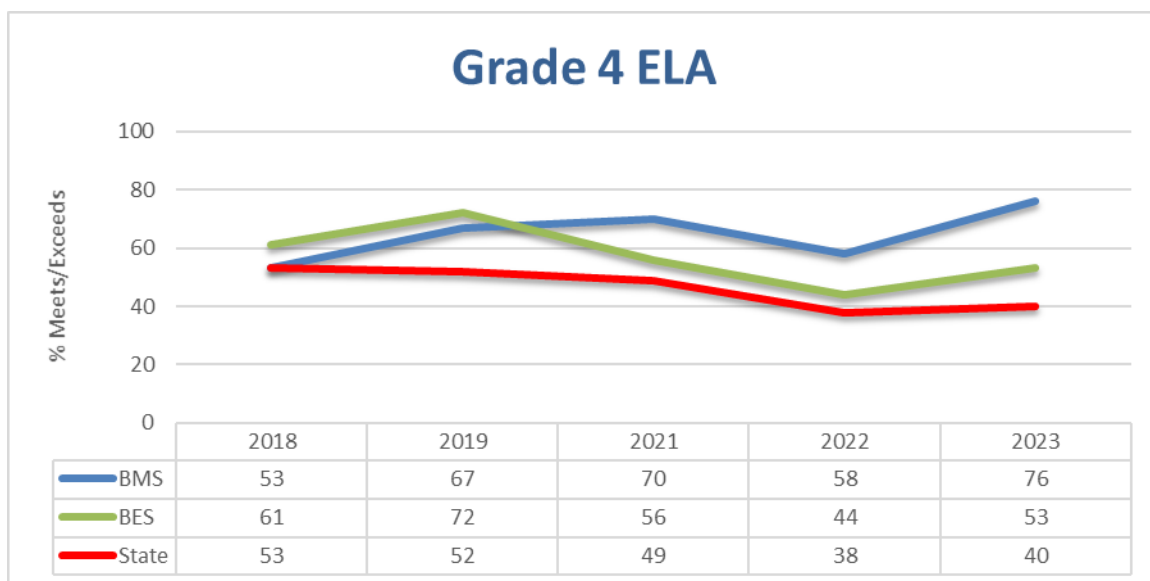
At Grade Five writing scores in both schools improved over their Grade Three results. At Berlin Memorial, this cohort improved from 32.3% of points earned to 64.6%. At Boylston Elementary, this cohort improved from 16% of points earned to 49.4%. As noted above, writing continues to be an area where improvement appears possible.

English Language Arts (ELA) – Grade Level Data

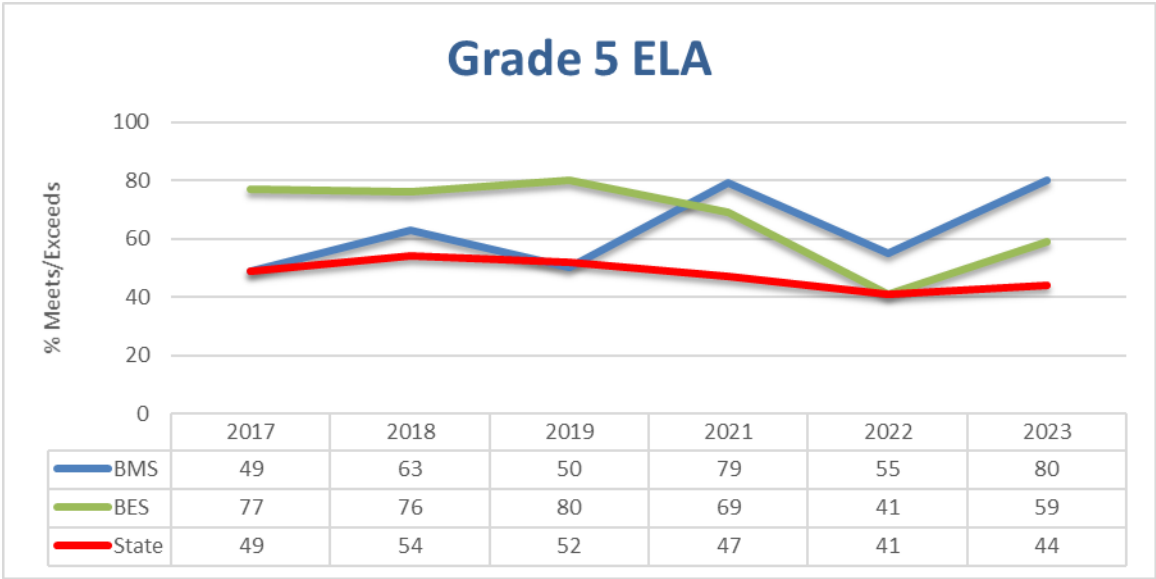
Below are grade level results for Berlin Memorial and Boylston Elementary over the last five testing cycles. Two reminders – first, there was no MCAS test in 2020 due to COVID, and second that these graphs represent grade level results, which means we are looking at results for different groups of students each year.



These scores all represent performance of students taking this test for the first time. Interestingly, the percentage of points students earned remain relatively stable in each school. The change in the “Meets/Exceeds” result is more a function of how scores are scaled from year to year.



Our results in Grade Four represent a significant improvement from last year’s fourth grade results. While the state-wide percentage of student who scored “Meets/Exceeds” increased just 5%, the percentage increase in Berlin was 31%, and the increase for Boylston was 21%. For a reference point, the scores for this particular cohort of students remained essentially unchanged from their Grade Three performance.

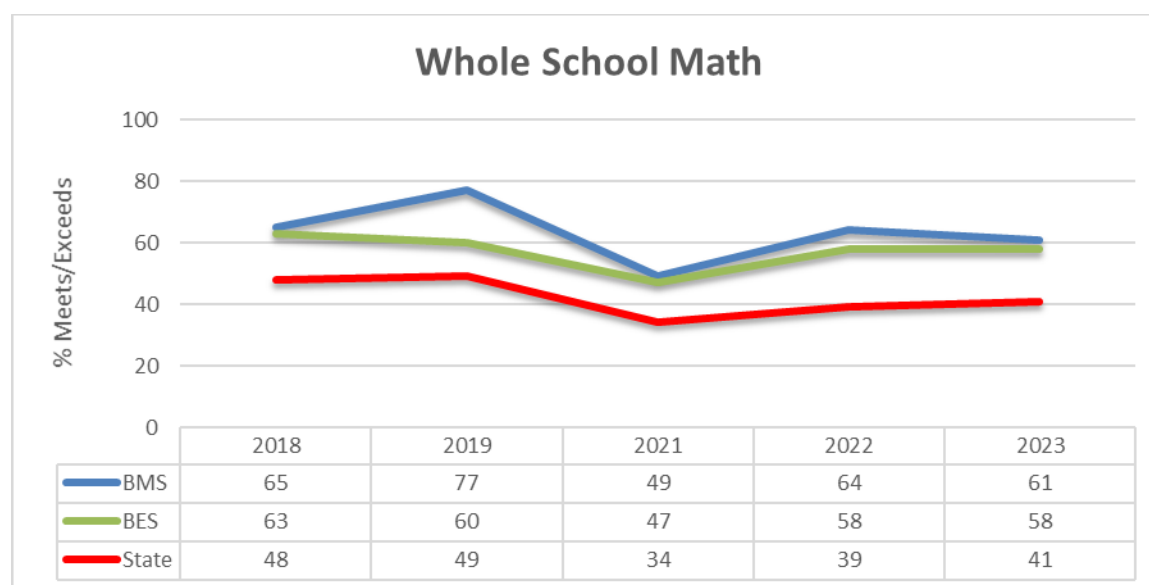


Our results in Grade Five also represent a significant improvement from last year’s results. While the state-wide percentage of student who scored “Meets/Exceeds” remained flat at 41%, results at Boylston Elementary increased 44%, from 41% “Meets/Exceeds” to 59%. Berlin Memorial saw a similar improvement, up 45% from 55% “Meets/Exceeds” to 80%. Looking at these students as a cohort, the BMS cohort has returned to their Grade Three achievement level – 78% “Meets/Exceeds in Grade Three and 80% in Grade Five. The Boylston cohort has not yet regained that achievement level – 68% “Meets/Exceeds in Grade Three and 59% in Grade Five.

Mathematics – 2023 Results – School-wide

Just as in the ELA section above, the chart below graphs student performance – measured as a percentage of students scoring in the “Meets/Exceeds” categories in third through fifth grade. Looking at results for the entire tested group – all third through fifth graders – evens out the data, minimizing the impact of grades that might be unusually strong (or not) in this type of test taking.

Unlike our ELA performance, however, the recovery from COVID learning loss has been much slower. Upon return from COVID in 2021, Berlin Memorial had 49% of Third - Fifth graders score “Meets/Exceeds” on the Mathematics MCAS assessment. In 2023 that number rose to 61% - an increase of 24.9%. Boylston Elementary School had 47% of Third - Fifth graders score “Meets/Exceeds” on the Mathematics MCAS assessment. In 2023 that number rose to 58% - an increase of 23.4%. In that same period the state-wide average for Grades Three – Five rose from 34% “Meets/Exceeds” in 2021 to 41% in 2023, an increase of 20.6%.



Graphs for grade level results can be found at the end of this section.

Mathematics – Category Analysis

The Mathematics MCAS assessment is broken into the five categories you can see below. As the following charts will illustrate, BBRSD students in both schools consistently outperform the state as a whole. Note that these results are represented as number of points a student earned on the assessment, rather than a reference to the “Meets” or “Exceeds” designation.

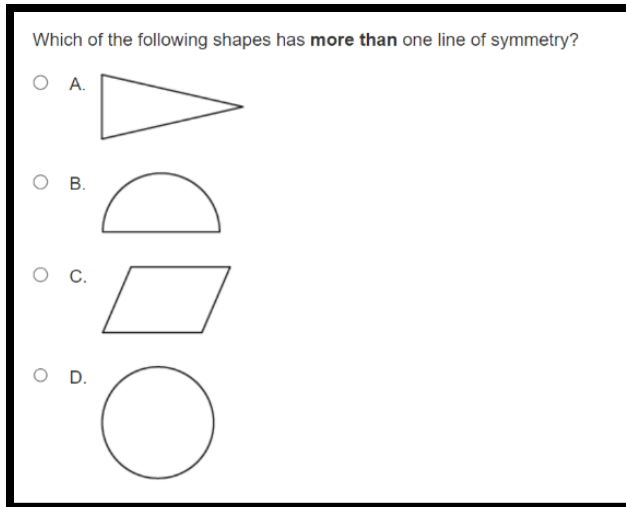
Grade 3 Reporting Category Subtotals - Mathematics		Max Points	BMS Average Points	BES Average Points	State Percent Possible
Category 1	Operations and Algebraic Thinking	15	76%	73%	59%
Category 2	Number and Operations in Base Ten	8	67%	65%	54%
Category 3	Number and Operations-Fractions	9	65%	72%	58%
Category 4	Measurement and Data	12	69%	68%	54%
Category 5	Geometry	4	67%	57%	52%
	Total	48	70%	69%	56%

There were only minor overall changes in performance in category subtotals for Grade Three from last year to this year. There were, however, some Grade Three questions that require further investigation. At Berlin Memorial, for example, only one student in five could successfully complete the item that required them to “select and appropriate ruler and measure an item to the nearest fourth of an inch”. Almost half of the state-wide sample could do that. BMS students also struggled with identifying which fraction represented the shaded part of a regular object. And – no surprise in this digital age – only one BMS student in three could tell what time it was on a picture of an analog clock (still a Grade 3 Math standard).

We are pleased to note that 50% or more of Grade Three students in Boylston can complete each of these tasks. There were no significant areas of weakness noted in the BES item analysis.

Grade 4 Reporting Category Subtotals - Mathematics		Max Points	BMS Average Points	BES Average Points	State Percent Possible
Category 1	Operations and Algebraic Thinking	11	72%	67%	55%
Category 2	Number and Operations in Base Ten	11	74%	72%	60%
Category 3	Number and Operations-Fractions	16	72%	70%	58%
Category 4	Measurement and Data	11	61%	60%	47%
Category 5	Geometry	5	58%	75%	67%
	Total	54	70%	68%	56%

As you can see, the performance of the two schools when broken into subtotals were essentially the same. The one exception to this was in Category 5 – Geometry. Boylston students earned 75% of the point in this category, whereas Berlin students earned just 58%. A closer look at the results revealed **one single question** which threw off the results. Only ONE student in the entire BMS Fourth Grade got the following question correct.



For those of us who are geometry-phobes, choices A and B have exactly *one* line of symmetry. C has none. D, a circle, has an infinite number of lines of symmetry.

For the record, 52% of students in Boylston and across the state could answer this correctly. This is a great example of a concept we taught with very little success but can easily address this year.

Grade 5 Reporting Category Subtotals - Mathematics		Max Points	BMS Average Points	BES Average Points	State Percent Possible
Category 1	Operations and Algebraic Thinking	8	49%	54%	47%
Category 2	Number and Operations in Base Ten	16	66%	67%	56%
Category 3	Number and Operations-Fractions	14	60%	56%	52%
Category 4	Measurement and Data	11	52%	53%	50%
Category 5	Geometry	5	73%	68%	58%
	Total	54	70%	68%	56%

Again, as might be expected, these results are similar to last year's totals. There were, however, a couple of test items that our fifth grade students struggled with. The first was an item that asked them to multiply a fraction by a mixed number to solve a word problem. The problem reads as follows:

One cup of trail mix contains $\frac{1}{3}$ pound of dried fruit. Riley has $7\frac{1}{2}$ cups of the trail mix.

What is the total amount, in pounds, of dried fruit in Riley's trail mix

Only 23% of Berlin students and 32% of Boylston students could correctly answer this item (It's $2\frac{1}{2}$ pounds, by the way.)

The other item that gave students significant trouble was this one:

An expression is shown.

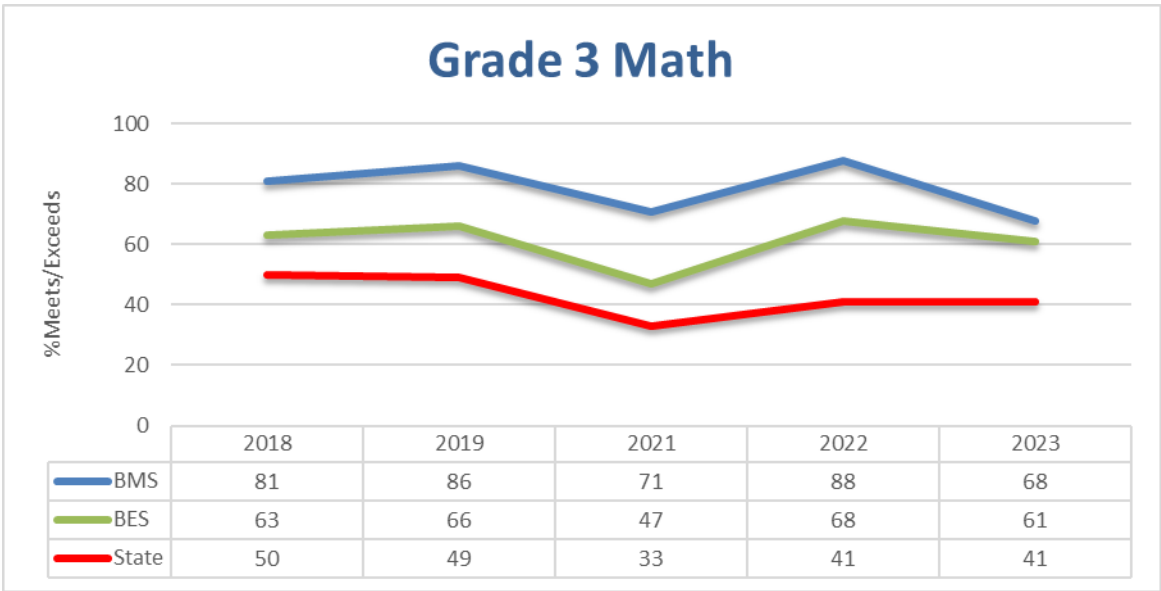
$$(1+5)+4\times(8-2)\div 2$$

What is the value of the expression?

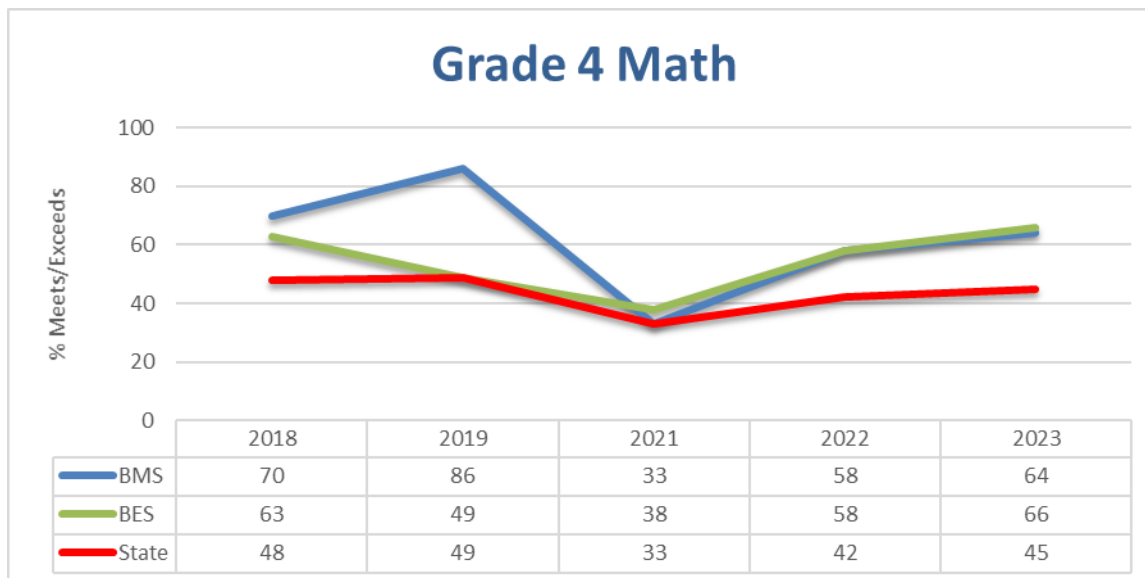
Only 26% of Berlin students and 12% of Boylston students could give the correct answer, which relies on a students’ understanding of mathematical order of operations (PEMDAS for those recalling middle school math).

Mathematics– Grade Level Data

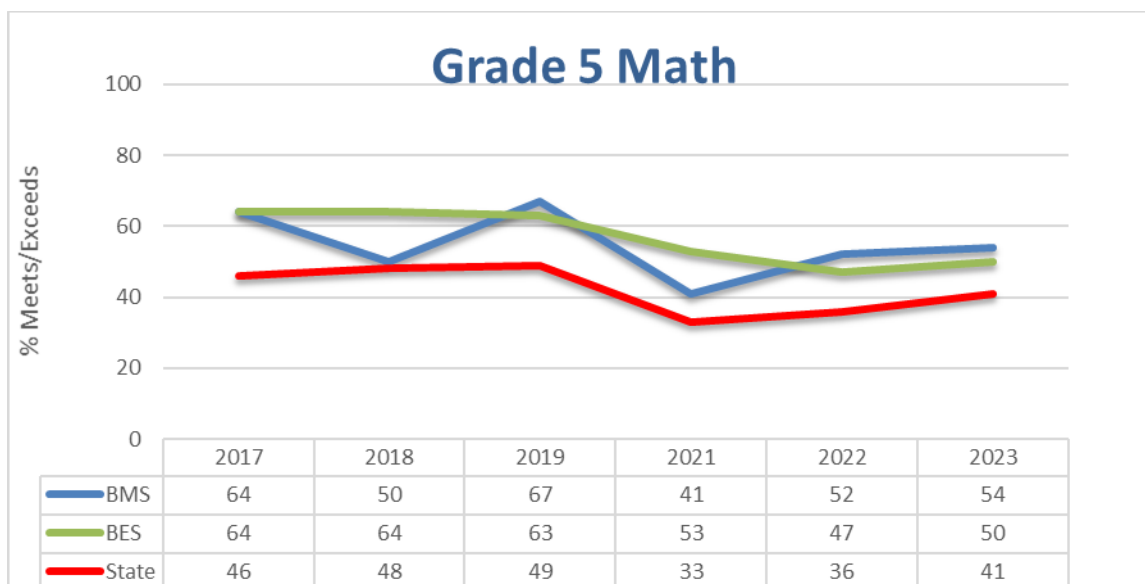
Below are grade level results for Berlin Memorial and Boylston Elementary over the last five testing cycles. As before, two reminders – first, there was no MCAS test in 2020 due to COVID, and second that these graphs represent grade level results, which means we are looking at results for different groups of students each year.



As noted in the ELA section, Grade Three scores represent the performance of students taking this test for the first time. There was a significant decline in Berlin Memorial scores, and a slight one for Boylston. Some of the BMS challenges (time telling, for example) require an attention to these type of test items. Practice using an online ruler and reading an analog clock would help. With the assistance of Joey Flournoy, our outstanding Math Coach, we will dig further into these issues.



Our results in Grade Four represent a slight improvement from last year's fourth grade results, but a decline from the performance of the same cohort last year. That two-thirds of our students in Grade Four meet or exceed the expectations for math, there remains a desire to support the students not there yet.



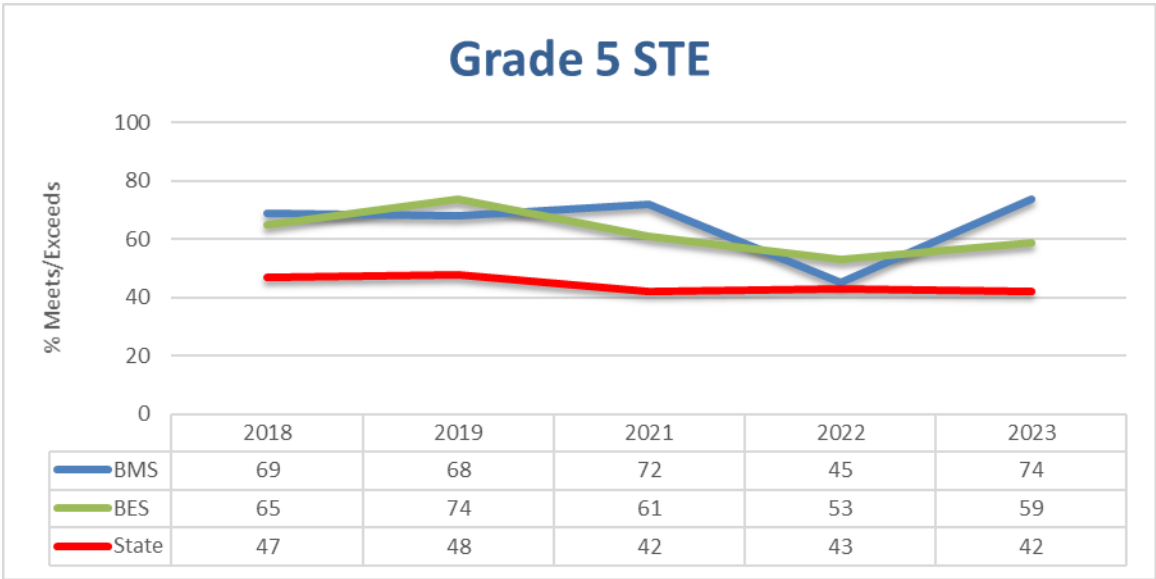
Our results in Grade Five represent an insignificant improvement from last year's results. While the state-wide percentage of student who scored "Meets/Exceeds" increased from 36% to 41%, results at Boylston Elementary and Berlin Memorial remained essentially flat. Looking at these students as a cohort, the BMS cohort has declined from their Grade Three achievement level – 71% "Meets/Exceeds" in Grade Three to 54% in Grade Five. The Boylston cohort has shown a slight increase from 47% "Meets/Exceeds" in Grade Three and 50% in Grade Five.

Science, Technology & Engineering – 2023 Results – School-wide

In addition to tests in ELA and Math, Grade Five students also take an MCAS test in Science, Technology & Engineering (STE). This is another assessment where we have previously seen continuous improvement in performance. This year, however, scores in both schools dropped – by a whopping 37.5% at BMS, and 13.9% at BES.

While it is good to note this positive trend, it is not possible to examine these results more closely, because DESE did not release data on student performance by standard.

Science, Technology & Engineering – Five Year Review



This chart tracks student performance over the last five testing cycles. As you can see, after a decline in 2022, these scores have resumed their historical patterns. This assessment is a good example of the combination of skills our students are working on in other areas. It requires close reading with attention to detail and the ability to solve multi-step problems.

A review of the table below illustrates the similarities of outcomes for each of the two elementary schools. Despite similar point totals there is a significant discrepancy between the “Meets/Exceeds” performance of the two schools. It is for this reason that it is important take the time to review MCAS results in context.

Grades 5 STE Reporting Category Subtotals		Max Points	BMS Percent Possible	BES Percent Possible	State Percent Possible
Category 1	Earth & Space Sciences	17	73%	67%	59%
Category 2	Life Science	13	66%	60%	54%
Category 3	Physical Science	16	63%	63%	52%
Category 4	Technology/Engineering	8	69%	62%	55%
Category 5	Science Practices	36	64%	75%	58%
	Total	54	68%	63%	55%

Student Growth Percentiles

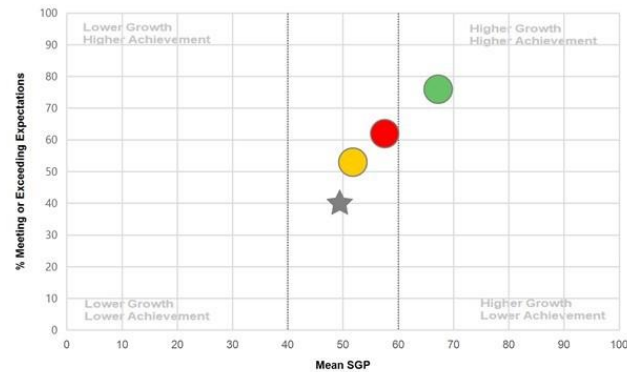
Student growth percentiles are designed to illustrate the average improvement from grade to grade. The hope, of course, is that all students improve faster than the average – in this case above the 50th percentile. The challenge, of course, is that the higher a student group performs in one year, the harder it is to exceed the 50th percentile point in subsequent years.

Here are graphs for students in Fourth and Fifth Grade in English Language Arts and Mathematics.

ELA Growth



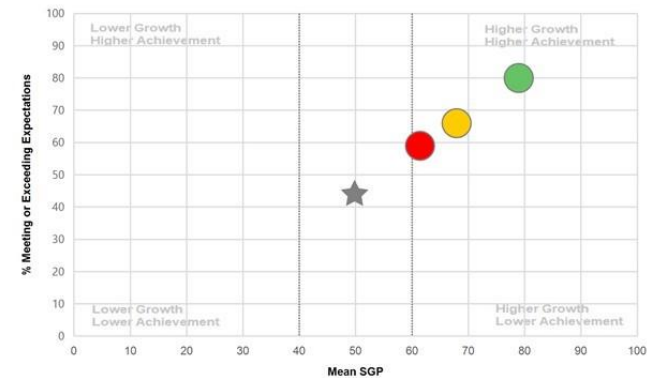
GR301 MCAS District and School Achievement and Growth by School
Spring 2023 MCAS English Language Arts Grade 4



Mean student growth percentile (SGP) is not calculated if the number of students with SGP is less than 20.



GR301 MCAS District and School Achievement and Growth by School
Spring 2023 MCAS English Language Arts Grade 5

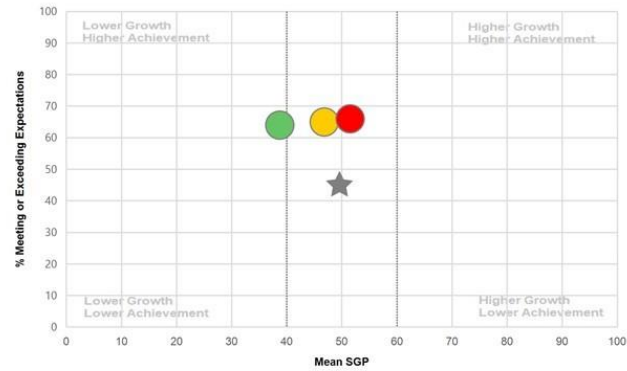


Mean student growth percentile (SGP) is not calculated if the number of students with SGP is less than 20.

Mathematics Growth



GR301 MCAS District and School Achievement and Growth by School
Spring 2023 MCAS Mathematics Grade 4

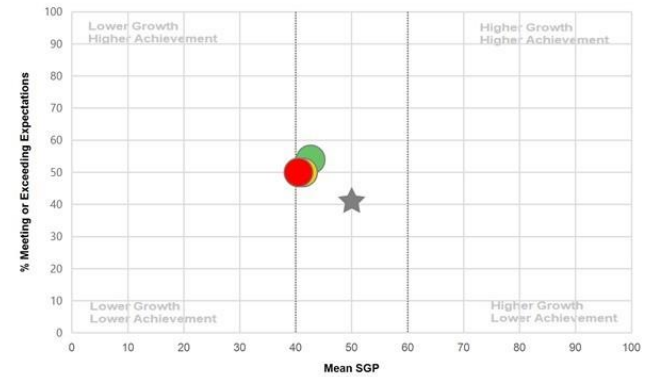


	Mean SGP	No. of Students Included in SGP	% Meeting or Exceeding Expectations
Berlin Memorial School (06200005)	39	25	64
Berlin-Boylston (06200000)	47	68	65
Boylston Elementary School (06200010)	51	43	66

Mean student growth percentile (SGP) is not calculated if the number of students with SGP is less than 20.



GR301 MCAS District and School Achievement and Growth by School
Spring 2023 MCAS Mathematics Grade 5



	Mean SGP	No. of Students Included in SGP	% Meeting or Exceeding Expectations
Berlin Memorial School (06200005)	43	33	54
Berlin-Boylston (06200000)	41	89	50
Boylston Elementary School (06200010)	40	56	50

Mean student growth percentile (SGP) is not calculated if the number of students with SGP is less than 20.

Observations and next steps

General

We remind the community of this every year - these results are neither as good nor as bad as they look on the surface. Our ELA scores showed a good deal of improvement over-all, and we had a very strong student growth percentile average. I would suggest that these results are a reflection of the hard work our students and teachers are doing at the primary level with foundational literacy skills. The results in mathematics were a little less positive, and the lower growth percentiles in that area reflect that.

Single sets of MCAS scores can be deceiving. Looking at the same scores over time, or by cohort, when possible, is a more productive way to look at where we stand.

English Language Arts

State-wide test scores in ELA rose a single percentage point this past year, while combined percentages of BBRSD students who scored “Meets or Exceeds” rose significantly. With the guidance of Stephanie Woodward, our outstanding Literacy Coach, we have made significant strides as a District in this area. We now need to look at next steps.

What does this look like at BES?

ELA has shown good growth for our student growth percentile; however, we want continued and consistent growth. As the new principal I would like to gain a better understanding of our history. I am still gathering information, and history of previous years. I am diving into the data. What I have discovered is that daily, our students are working hard, our team is working hard, and we all want to improve. By studying our school's history, we can identify both successful practices and areas where improvement is needed. This historical insight can inform our decision-making processes and help us build upon our past achievements.

Moving forward, I am committed to the following actions to gain a deeper understanding of our school's history and integrate it into our student learning and assessment practices:

- Utilizing the curriculum and resources with fidelity and need to inform our instruction and continued progress.
- Engaging in ongoing dialogue and working with the BES team to ensure that historical knowledge informs our assessment strategies, ensuring they align with our school's and district's aspirations.

What does this look like at BMS?

Our ELA results at BMS remain very strong. They do not yet meet my dream of 90% “Meets or Exceeds” at the end of Grade Three, but we remain close. Our written expression results have improved, as have overall reading scores. The goal at BMS is to continue to capitalize on available resources to support struggling readers.

Mathematics

Our overall results in mathematics remain unchanged from 2022. We saw slight improvements in Grades Four and Five, and a decline in Grade Three, especially in Berlin. Some of this is the nature of year-to-year changes in test items, student strengths and weaknesses, and expected statistical variation.

The bigger focal area is how do we improve our overall scores on a more consistent basis. As noted earlier, student performance on test items that required multiple steps seemed to be an area of weakness. We will, with the assistance of Mr. Joey Flournoy, our Math Coach, continue to develop classroom strategies to support this type of complex thinking.

What does this look like at BES

Our math scores are not where we want to be. Going forward we will continuously analyze student data and adjust strategies as needed. We will regularly review the impact of interventions (both tutor and differentiation in classrooms) and make improvements accordingly. We will use our curriculum with fidelity, take data and analyze that data to improve.

We will foster a positive math culture within the school where students feel motivated and confident in their math abilities. We will celebrate math achievements and create a supportive learning environment.

What does this look like at BMS

On initial review, there were two areas that seemed to need our attention. The first area, as noted, is in solving math multi-step math problems. The second area, perhaps more easily addressed, is a closer look at mathematical vocabulary. These are things we will look at going forward.

Science, Technology & Engineering

The STE MCAS assessment is given twice, in fifth grade and again in eighth grade. As such it is a cumulative test, assessing student access to learning over several years. Our 2023 Fifth Graders were very successful on this assessment. Boylston students made gains over the previous year, and the Berlin score returned to historical norms.

In the coming months we will dig deeper into our strengths and weaknesses to better support student performance.