MCAS 2017 *Information about Student Achievement, Growth & New State Testing procedures*

by Amy Clouter, Assistant Superintendent for Curriculum, Instruction and Assessment

Introduction

As you know, the adoption of the Education Reform act in 1993 launched an ambitious plan to raise standards in public schools.[1] To provide accountability and in an effort to ensure equal opportunities for all students, the Massachusetts Comprehensive Assessment System (or MCAS) was developed shortly thereafter. In the 20 years since, rates of student achievement have increased significantly. Our state is leading the nation in educational excellence. At the same time, schools have changed considerably since 1993. The Department acknowledged the need to continue refining our approach to teaching and learning and thus Massachusetts' state-wide assessment program has been in transition over the past several years.

Our experience with the PARCC test in 2016 previewed an assessment system designed to prepare students for the rigorous tasks they are likely to face at college and/or in their careers. However, some districts opted not to participate in PARCC testing. The "next generation" MCAS test implemented in most grades this past year was conceived to resolve the controversial issue of which assessment system the state would adopt as a whole going forward.

The Board of Elementary and Secondary Education resolved this issue with a vote in 2015 to move forward with this new version or MCAS 2.0, a Massachusetts specific assessment built from the PARCC framework. Last spring provided us a first look at this new test. However, this new version was only implemented in Grades 3-8 in English Language Arts (ELA) and Math, which means that this report will depict results from two different assessments, the original MCAS "legacy" test that students were given in Science & Technology in Grades 5, 8, and 9 and in ELA and Math in Grade 10, and the "next generation" assessment administered in 2017.

Legacy MCAS	vs.	"Next-Generation" MCAS
Only Grades 5 and 8		***MCAS 2.0:*** *ALL Grades 3-8*
Science, Technology/Engineering test		English Language Arts & Math
ALL high school tests • English Language Arts, Math, Science/Technology		

[1] *Building on 20 Years of Massachusetts Education Reform* Massachusetts Board of Elementary and Secondary Education Report M. D. Chester, Ed. D. Commissioner November 2014

MCAS 2.0 was designed to be given on a computer. Our investment in technology meant that Shrewsbury students in Grades 4-8 were able to take a computer-based version of the test. However, students in Grade 3 took the paper based version of the test. To ensure fairness regardless of test form (computer or paper) the DESE used the results from parts of the test that are **similar** to help adjust the scoring on parts of the test that vary by format. All students in Shrewsbury were able to successfully respond to expectations of the next generation of assessments.

Given that this is the first year that most of our students took this version of the test, the transition occurring in the state testing program and the wide number of variables that exist from district to district, it is advisable to be aware of student performance data, but to be cautious around drawing any conclusions or comparisons about the progress and growth of Shrewsbury students based on this data.

Additional administration details are still being developed for 2018 and are subject to further deliberation by the Board of Elementary and Secondary Education. However, consistent with the Board's November 2015 vote, test scores from the spring 2017 Next-Generation MCAS administration in grades 3-8 will not negatively impact accountability results in 2018 and going forward. What does this mean for Shrewsbury Public Schools? Districts with participation rates at 90% or higher with satisfactory graduation rates will not receive an accountability level or Progress and Performance Index (PPI), the rating that was historically used to track progress. Shrewsbury Public Schools received a Level 2 classification for accountability and assistance in 2016*. Our current participation and graduation rates remained high last year. For this reason, this year our current district accountability level is: No Level
The link to the details for the Shrewsbury accountability report can be found here: http://profiles.doe.mass.edu/accountability/report/district.aspx?linkid=30&orgcode=02710000&orgtypecode=5&

2017 Official Accountability Data - Shrewsbury

District Information	
District:	Shrewsbury (02710000)
Region:	Central
Title I Status:	Yes

Accountability Information	
Accountability and Assistance Level	
No level	Students in grades 3-8 participated in 2017 Next Generation MCAS tests
This district's determination of need for special education technical assistance or intervention	
Meets Requirements-At Risk (MRAR)	

Shrewsbury Public Schools and State Results

As before, districts received information about results in two areas, student achievement and student growth percentiles. The remainder of this report will provide information on both areas, in two different sections. The first section focuses on performance results, which is how Shrewsbury students performed in terms of achievement scores. The second section concerns student growth. Student growth, which was utilized on a full scale for the first time in Massachusetts in 2010, provides a metric for how students 'grow' in comparison to peers with similar testing histories. Taken together, strengths and goals in both areas provide a snapshot of results for the district as a whole.

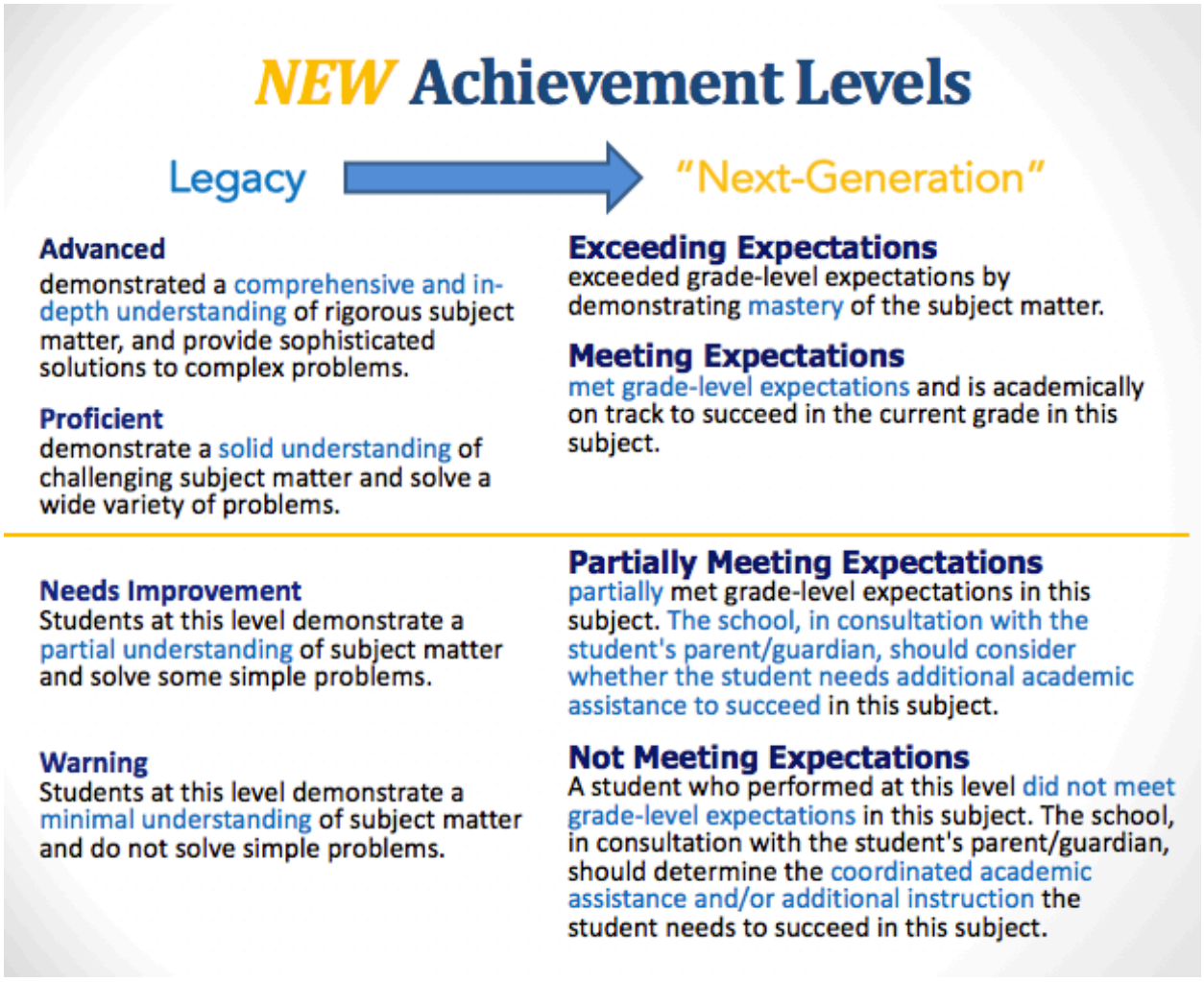
I. Student Achievement Scores

MCAS 2.0 achievement levels differ from those used with "legacy" MCAS ratings. The next generation MCAS does not use the *Advanced, Proficient, Needs Improvement and Warning* labels. Instead, the new levels are intended to signal a student's mastery of the subject matter for each particular grade level.

This is an example of what a parent score report looks like. The new levels are represented as a continuum so that a student's achievement level and the score within the level can be clearly understood. This provides parents and teachers with a good sense of a child's strengths and needs within the content areas tested.

In addition, parents receive information about how students scored on each test item as well as by skill area. In this way educators and parents alike can see where a child needs support.

Students in high school will continue to receive "legacy" ratings, so understanding the different level systems is important.



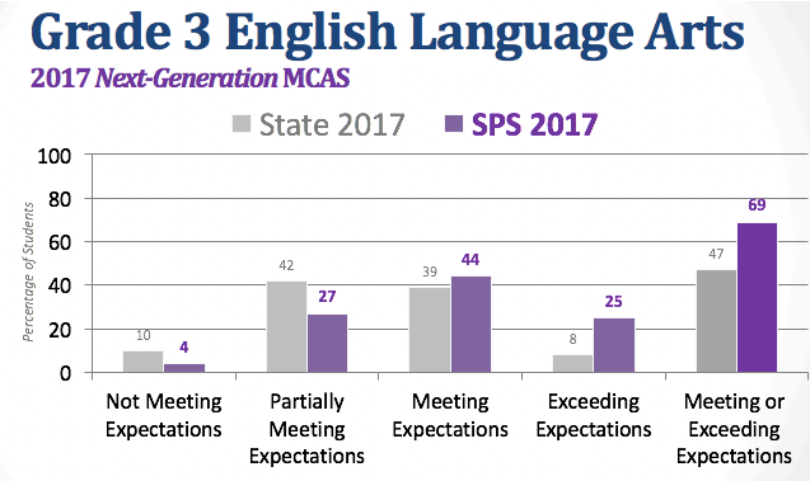
Groups of Massachusetts educators adjusted the scores to match the new purpose of the assessment. Unlike the legacy ratings, which were developed over time, the ratings for the new assessment were calibrated simultaneously. The roughly equivalent proportion of students in each grade and subject area reflect a clear progression of learning expectations from grade to grade and panelists' consistent application of the standards. It's also important to note that the new standards for Meeting Expectations are more rigorous. For this reason, the Department of Education has cautioned against comparing "old" MCAS scores to the new baseline results. ***Simply put, our results for this year serve as a baseline for future comparisons, as well as another source of information about how our students perform in this kind of testing environment.***

This part of the report details our baseline scores by content area and by grade level.

Student Achievement Scores in English Language Arts by Grade Level

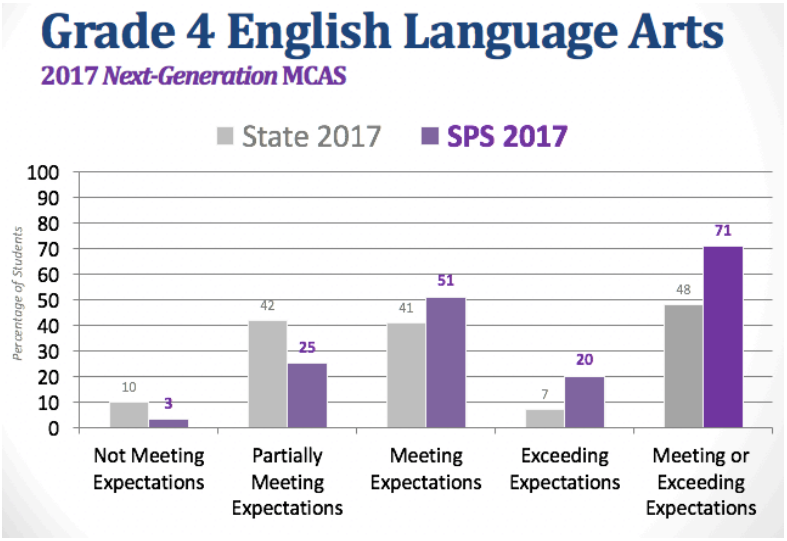
Grade 3

% by level	SPS	State
Exceeding	25	8
Meeting	44	39
Partially Meeting	27	42
Not Meeting	4	10



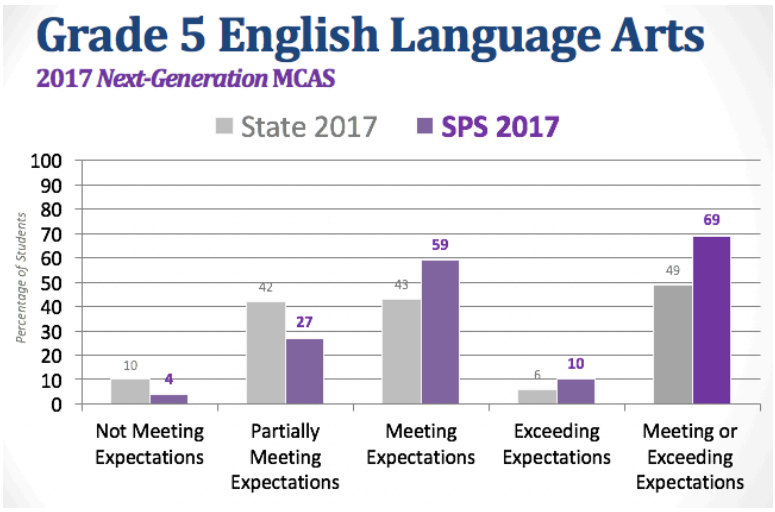
Grade 4

% by level	SPS	State
Exceeding	20	7
Meeting	51	41
Partially Meeting	25	42
Not Meeting	3	10



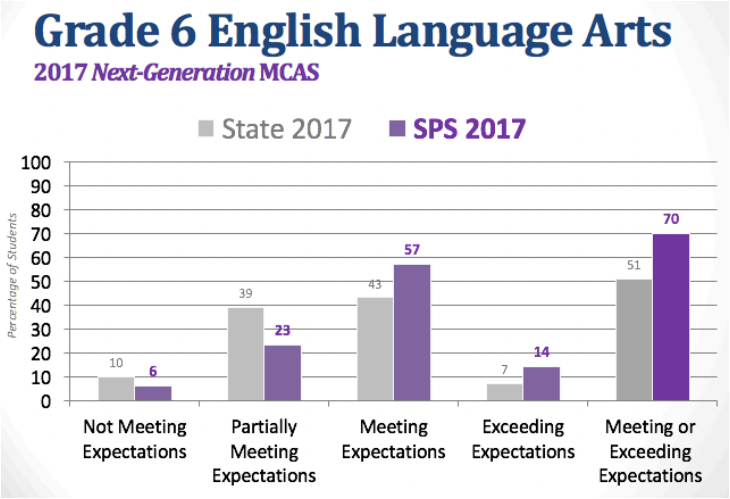
Grade 5

% by level	SPS	State
Exceeding	10	6
Meeting	59	43
Partially Meeting	27	42
Not Meeting	4	10



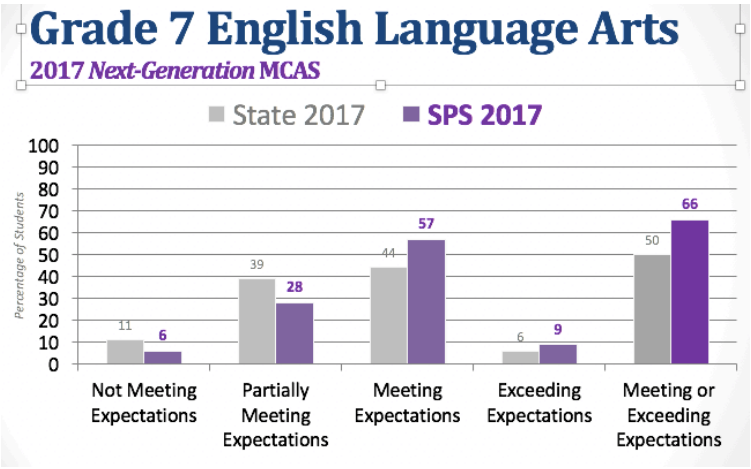
Grade 6

% by level	SPS	State
Exceeding	14	7
Meeting	57	43
Partially Meeting	23	39
Not Meeting	6	10



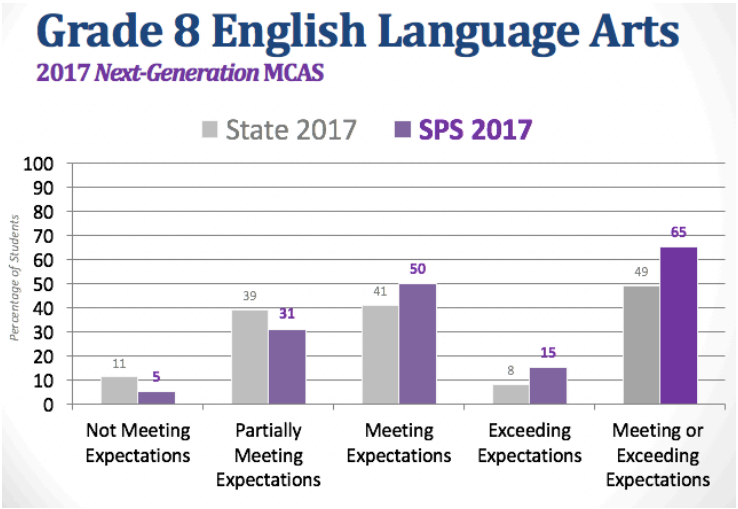
Grade 7

% by level	SPS	State
Exceeding	9	6
Meeting	57	44
Partially Meeting	28	39
Not Meeting	6	11



Grade 8

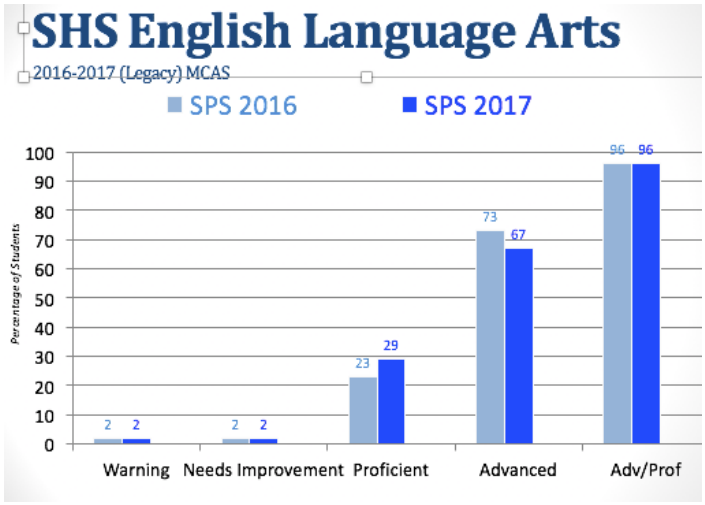
% by level	SPS	State
Exceeding	15	8
Meeting	50	41
Partially Meeting	31	39
Not Meeting	5	11



Grade 10

Achievement rates 2014-2017 for the "legacy" MCAS in English Language Arts

	2014	*2015*	*2016*	*2017*
Advanced	*70*	*74*	*73*	*67*
Proficient	*27*	*23*	*23*	*29*
Needs Improvement	*2*	*1*	*2*	*2*
Failing	*1*	*1*	*2*	*2*



Grade 10 English Language Arts Scores: Legacy MCAS 5-year history

Year	***2013***	***2014***	***2015***	***2016***	***2017***
%	*97*	*97*	*96*	*96*	*96*

Percentage of Students Meeting or Exceeding Expectations, ELA 2017

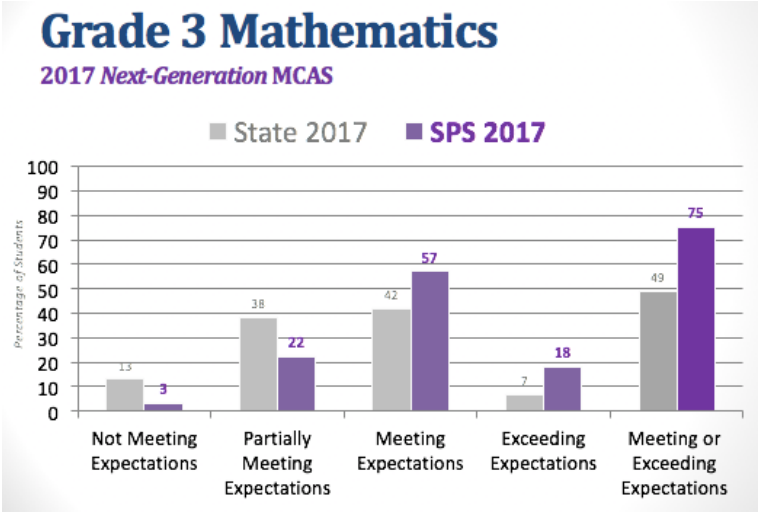
A summary of baseline ELA scores the Meeting / Exceeding range for students in grades 3-8. * Note: Gr 10 results from the "legacy" version

Grade and Subject	Gr 3 ELA	Gr 4 ELA	Gr 5 ELA	Gr 6 ELA .	Gr 7 ELA	Gr 8 ELA	Gr. 10
Shrewsbury % Level M/E 2017	***69%***	***71%***	***69%***	***70%***	***66%***	***65%***	***96%****
State Results	***47%***	***48%***	***49%***	***51%***	***50%***	***49%***	***91%****

Student Achievement Scores in Mathematics by Grade Level

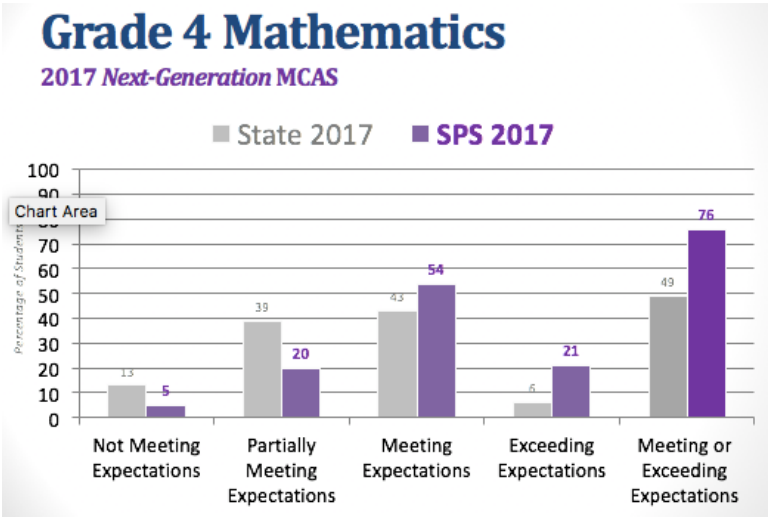
Grade 3

% by level	SPS	State
Exceeding	18	7
Meeting	57	42
Partially Meeting	22	38
Not Meeting	3	13



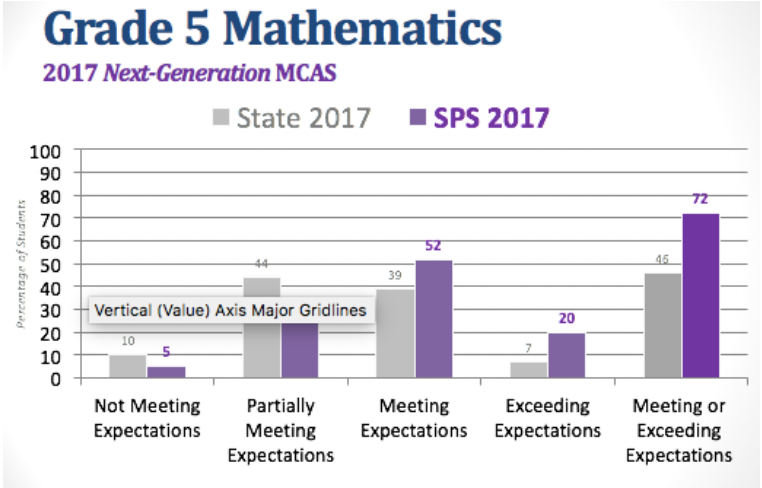
Grade 4

% by level	SPS	State
Exceeding	21	6
Meeting	54	43
Partially Meeting	20	39
Not Meeting	5	13



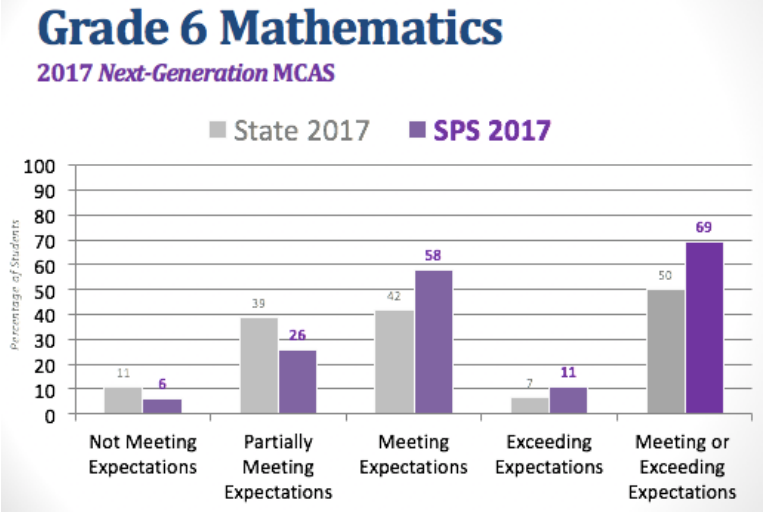
Grade 5

% by level	SPS	State
Exceeding	20	7
Meeting	52	39
Partially Meeting	24	44
Not Meeting	5	10



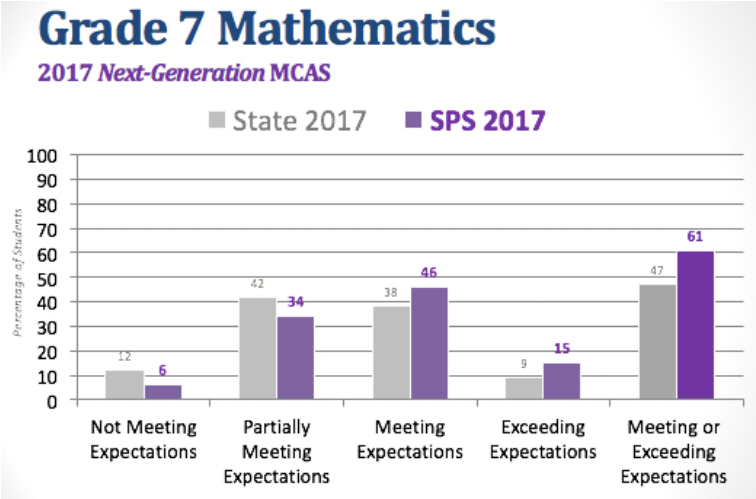
Grade 6

% by level	SPS	State
Exceeding	11	7
Meeting	58	42
Partially Meeting	26	39
Not Meeting	6	11



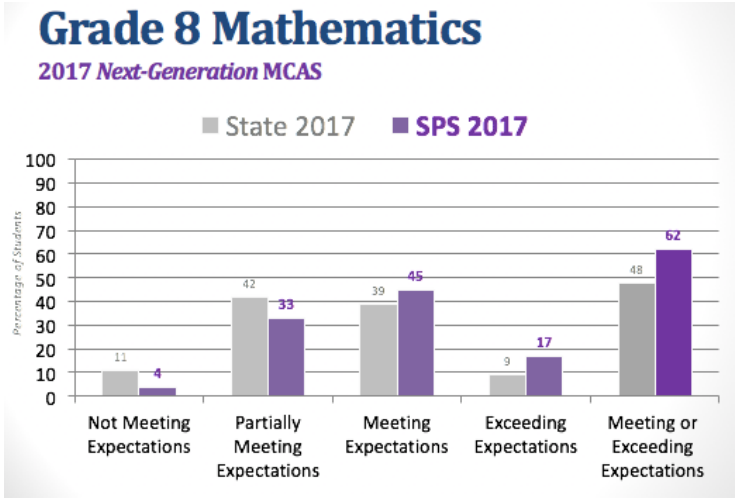
Grade 7

% by level	SPS	State
Exceeding	15	9
Meeting	46	38
Partially Meeting	34	42
Not Meeting	6	12



Grade 8

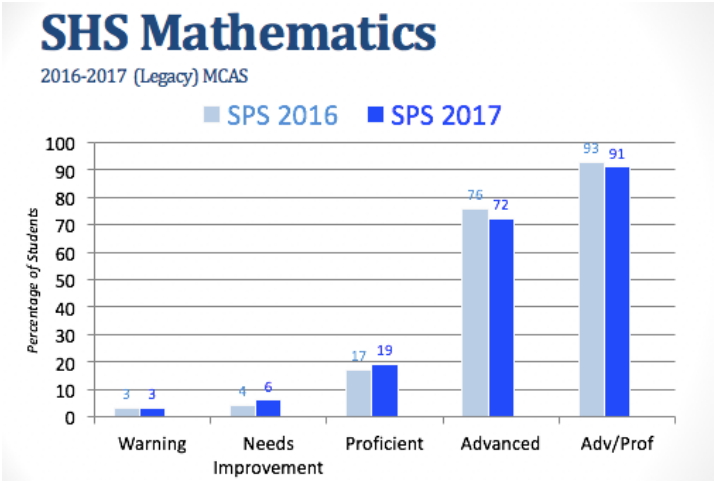
% by level	SPS	State
Exceeding	17	9
Meeting	45	39
Partially Meeting	33	42
Not Meeting	4	11



Grade 10

Achievement rates 2014-2017 for the "legacy" MCAS in Mathematics

	2014	*2015*	*2016*	*2017*
Advanced	*81*	*79*	*76*	*72*
Proficient	*14*	*13*	*17*	*19*
Needs Improvement	*3*	*6*	*4*	*6*
Failing	*1*	*2*	*3*	*3*



Grade 10 Math Scores: Legacy MCAS 5-year history

Year	***2013***	***2014***	***2015***	***2016***	***2017***
%	*93*	*95*	*92*	*93*	*91*

Percentage of Students Meeting or Exceeding Expectations, Math 2017

A summary of baseline Math scores the Meeting / Exceeding range for students in grades 3-8. * Note: Gr 10 results from the "legacy" version

Grade and Subject	Gr 3 Math	Gr 4 Math	Gr 5 Math	Gr 6 Math .	Gr 7 Math	Gr 8 Math	Gr. 10
Shrewsbury % Level M/E 2017	***75%***	***76%***	***72%***	***69%***	***61%***	***62%***	***91%****
State Results	***49%***	***49%***	***46%***	***50%***	***47%***	***48%***	***79%****

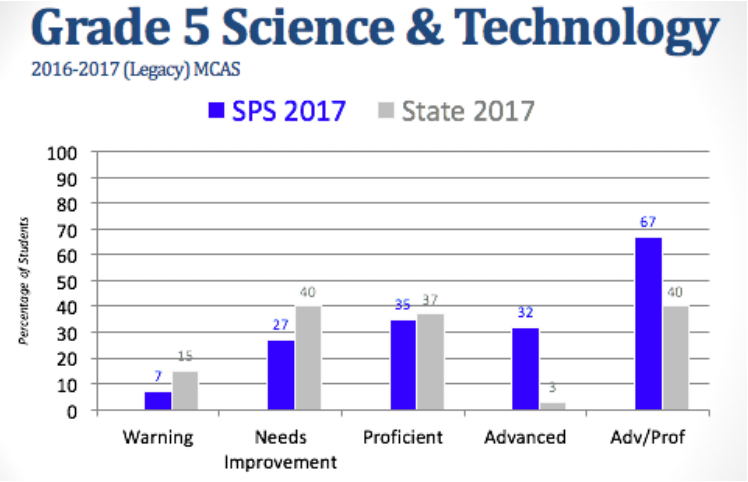
Student Achievement Scores in Science & Technology Grades 5, 8, & 10

Students in three grades took the Science Technology and Engineering test in 2017. It's important to note that these assessments are "legacy" tests.

Assessment levels generally indicate how each student is achieving relative to the state standards for that grade level. Here is a snapshot of how our students performed over time by grade:

Grade 5

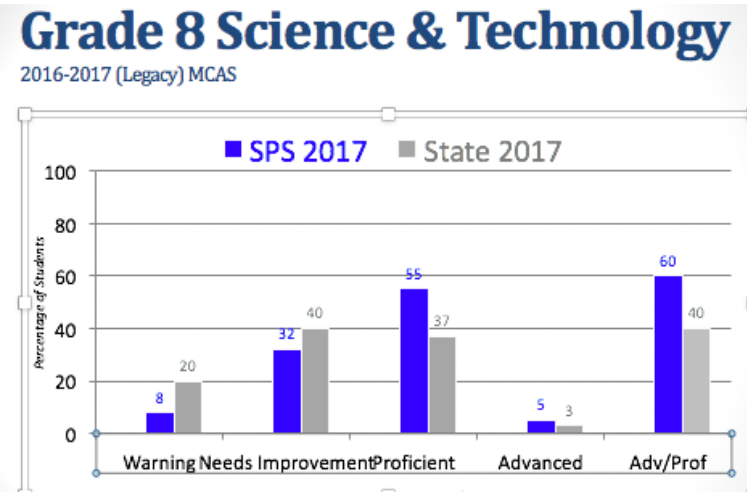
	2014	*2015*	*2016*	*2017*
Advanced	*31*	*31*	*34*	*32*
Proficient	*41*	*40*	*36*	*35*
Needs Improvement	*23*	*25*	*24*	*27*
Failing	*4*	*4*	*7*	*7*



Results in Grade 5 were very similar to past years, with a slight decrease in the percentage of students in the Advanced and Proficient levels and a slight increase in the number of students scoring a Needs Improvement.

Grade 8

	2014	*2015*	*2016*	*2017*
Advanced	*14*	*9*	*12*	*5*
Proficient	*55*	*53*	*47*	*55*
Needs Improvement	*26*	*33*	*33*	*32*
Failing	*5*	*6*	*8*	*8*

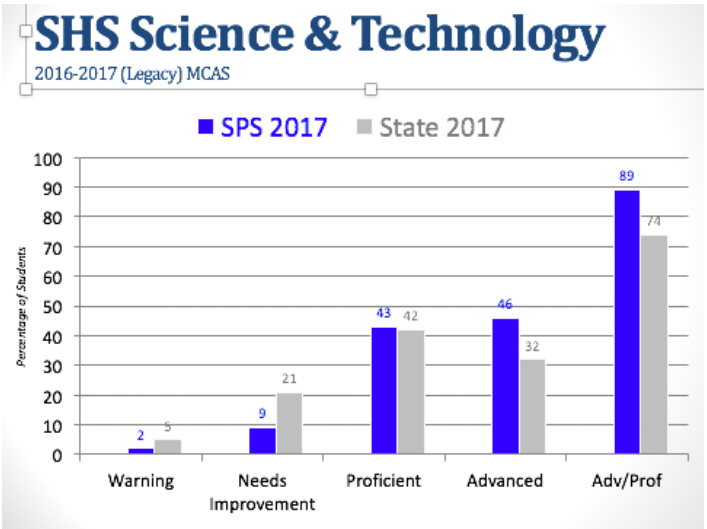


There was a slight increase in the percentage of students in the Advanced and Proficient levels this year,

although with a reduction in the portion of students scoring Advanced. Note that historically the Grade 8 Science & Technology test has been historically the most challenging test in all of the legacy MCAS tests in terms of percentages of students scoring at high levels across the state, so while is it appropriate to compare performance of 8th graders over time, it is not valid to compare performance on this test against how students fare on the Grade 5 or High School Science & Technology tests.

Grade 10

	2014	*2015*	*2016*	*2017*
Advanced	*50*	*46*	*54*	*46*
Proficient	*39*	*40*	*36*	*43*
Needs Improvement	*10*	*12*	*8*	*9*
Failing	*1*	*1*	*2*	*2*



Our student scores for Science and Technology exam compare favorably with districts of similar size, demographics and enrollment. Overall our oldest students post the highest scores. However, as mentioned above, because the "legacy" tests were created and calibrated at different times by different groups, the progression of expectations from one grade to another is not well aligned.

In Shrewsbury the timing of content delivery also has an impact on student performance. For example, our fifth grade students are tested cumulatively on content that is taught in earlier grades, especially fourth grade. Our current work in Science should help us to align our curriculum to the new Science standards. It's likely that the state assessment for this content area will also change in future.

II. Student Growth Percentile Scores (SGPs)

Assessment levels indicate how each student is achieving relative to the state standards for that grade level and content area. Growth scores represent change in an individual student's MCAS performance from either one year prior or two years prior to the next. By utilizing a growth model system, the state is attempting to answer the question, "How much academic progress did a student or group of students make in one year as measured by MCAS?"

Massachusetts measures growth for individual students by comparing the change in their achievement on statewide assessments to that of their "academic peers" (all other students in the state who previously had similar historical assessment results). The rate of change is expressed as a percentile that represents how many students had greater or lesser improvement on this year's test vs. previous tests.

The state defines *moderate* (or expected) growth to be between the 40-60 percentile, with *low* growth as below the 40th percentile and *high growth* as above the 60th percentile. In reviewing an individual student's result, teachers and parents might wonder, "*How much did Rishi improve her math score on MCAS in 6th grade, relative to students who had the same math scores on the 4th and 5th grade math tests?*" SGP scores help to answer that question: if Rishi had a higher score than more than 65 percent of her academic peers with the same score history, then her Student Growth Percentile (SGP) would be 65.

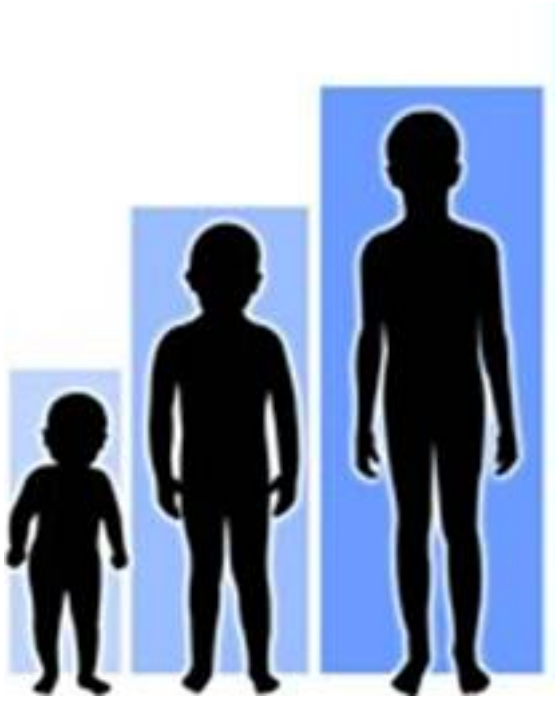
The growth model method operates independently of MCAS performance levels. As a result, all students, no matter what their scores were on past MCAS tests, have an equal chance to demonstrate growth at any of the 99 percentiles on the next year's test. Growth percentiles are calculated in ELA and Mathematics for students in Grades 4 through 8 and 10. The state's growth model requires at least two years of MCAS results to calculate growth percentiles. Therefore, no growth scores are available for Grade 3; Grade 4 growth percentiles are only in comparison to Grade 3 scores; and Grade 5 and up are in comparison to the two previous years of scores. In addition, because the Science and Technology test is only administered in grades five, eight, and nine/ten there is no growth data produced for this test.

This measure of student test scoring over time provides us with additional information; this data helps us monitor individual students and subgroups within the district. Importantly, it may also us identify "bright spots", grade level practices that yield exceptional outcomes for students.

Aggregate Growth Percentiles

While student growth percentiles enable educators to chart the growth of an individual student compared to that of academic peers, student growth percentiles may also be aggregated to understand growth at the subgroup, school, or district level.

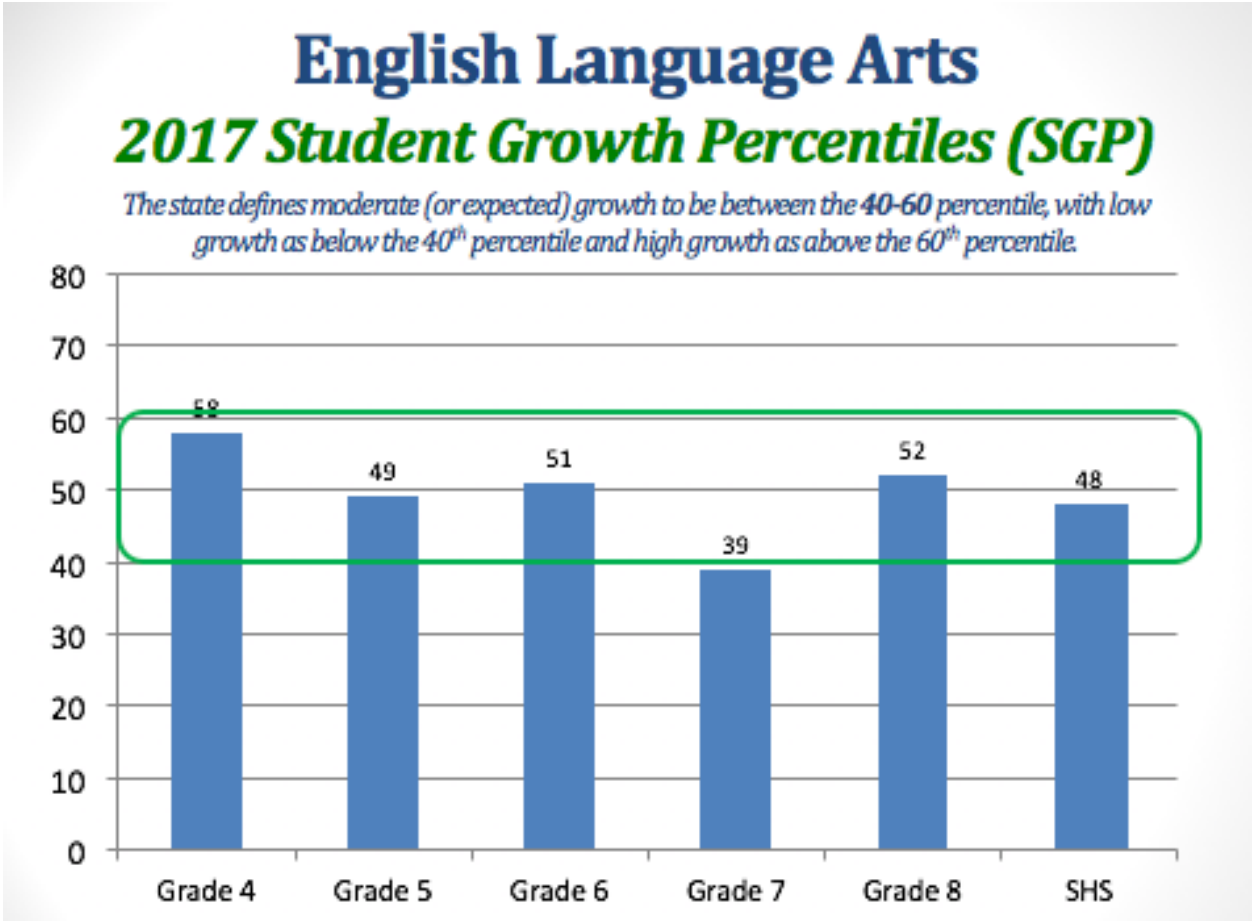
The most effective way to report growth for a group is through the use of the median student growth percentile (the middle score if one ranks the individual student growth percentiles from highest to lowest). A typical school or district in the commonwealth would have a median student growth percentile of 50.



Shrewsbury Public Schools Median SGP by Grade:

English Language Arts 2012-2017

ELA	2012	2013	2014	2015	2016	2017
Gr 4	83	77	65	69	53	58
Gr 5	49	42	45	37	46	49
Gr 6	63	56	50	46	46	51
Gr 7	50	47	42	37	34	39
Gr 8	50	48	51	50	45	52
Gr 10	58	60	54	53	46	48

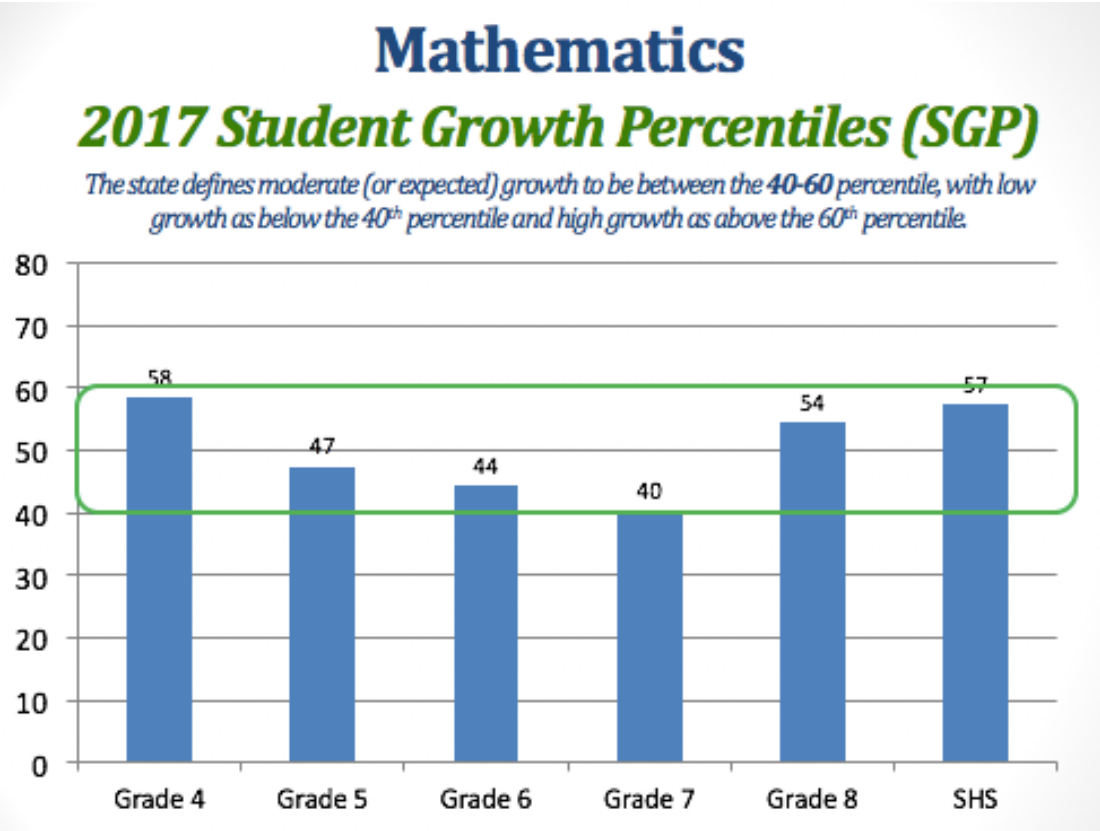


Although there are areas to target for improvement in achievement levels at several grade levels, the growth percentiles for each grade level were all in the moderate (or expected) growth range except in one instance, just one point below.

Shrewsbury Public Schools Median SGP by Grade: 2012-2017

Mathematics 2013-2017

Math	2012	2013	2014	2015	2016	2017
Gr 4	69	58	67	65	59	58
Gr 5	46	42	45	44	41	47
Gr 6	67	57	54	38	38	44
Gr 7	56	42	36	30	38	40
Gr 8	53	61	45	39	50	54
Gr 10	54	55	62	53	58	57

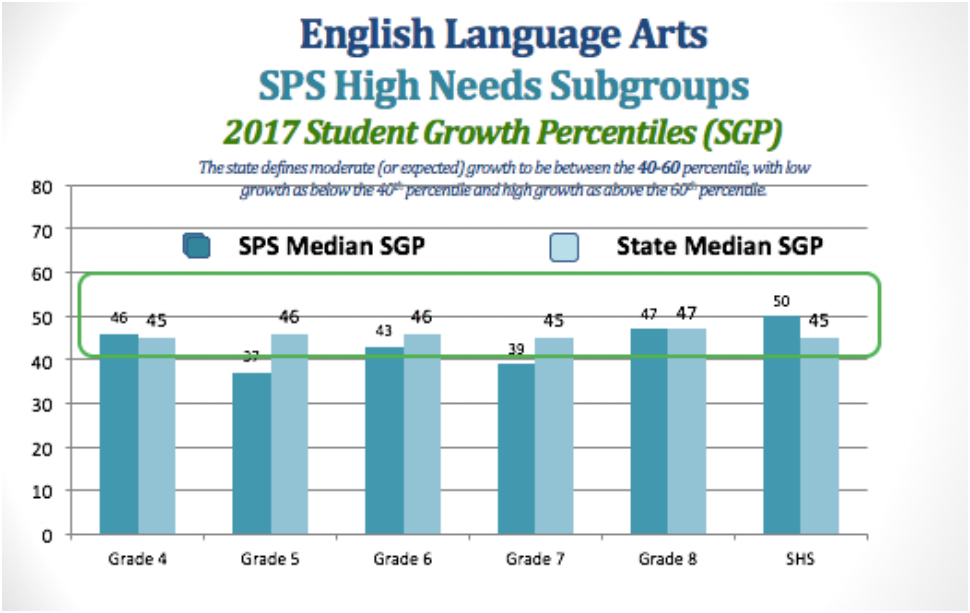


Again, growth percentile scores are expected to fall within 40-60. Note the relative higher rate of growth in grades 4, 8 and 10.

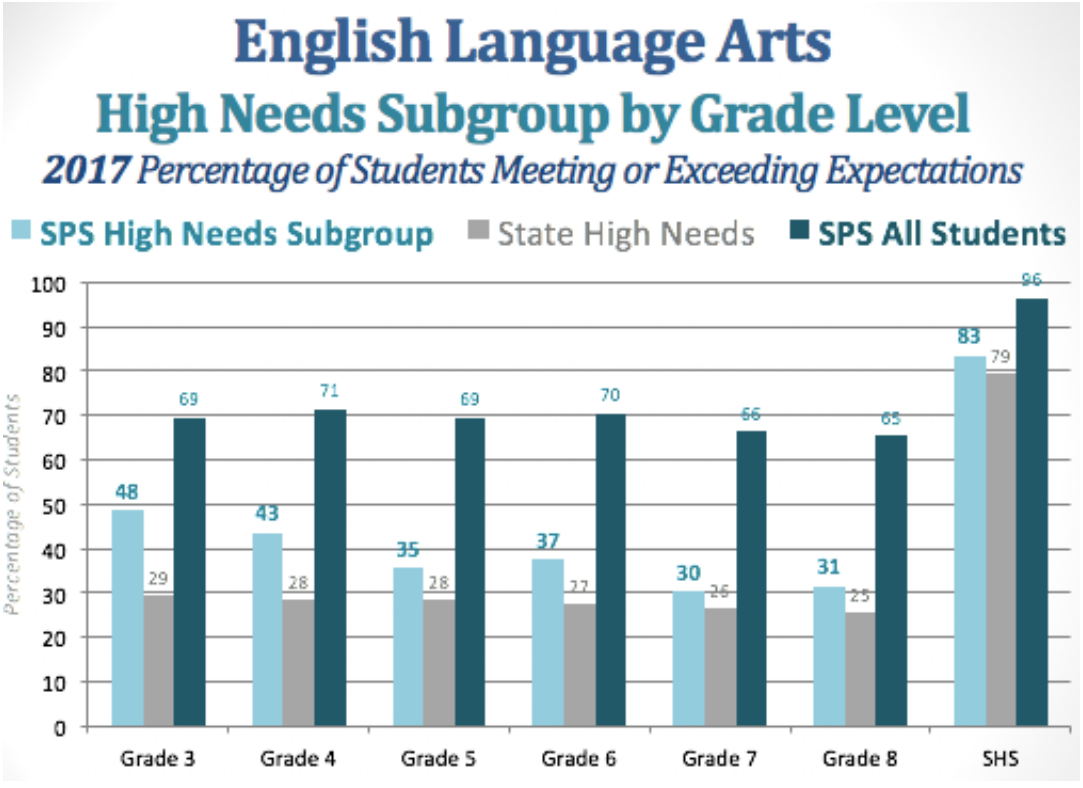
District Subgroup Performance

Another important way we demonstrate our commitment to student growth is by monitoring groups of children. These cohorts are called 'subgroups'. Comparing their results to aggregate data helps educators to identify and close achievement gaps.

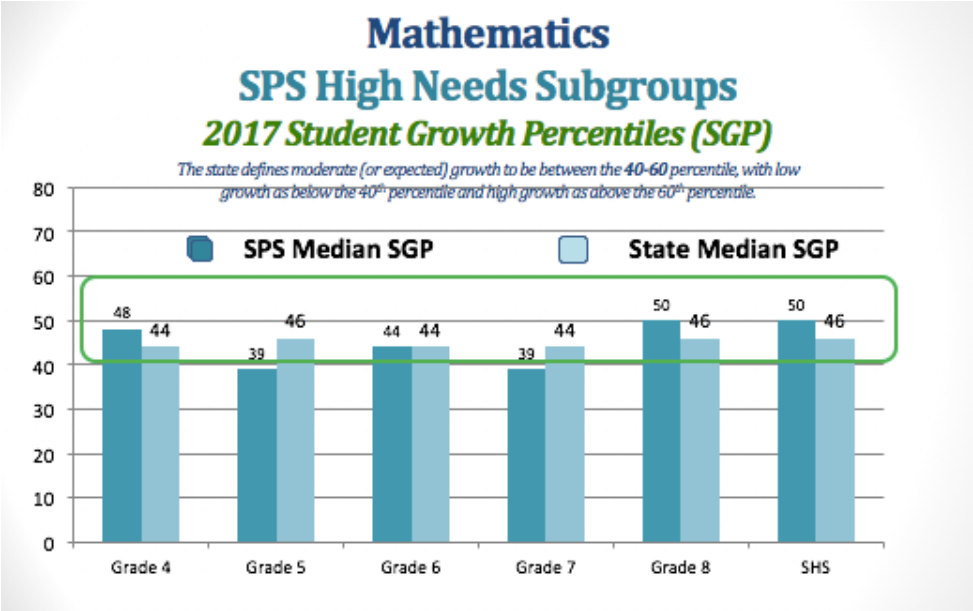
MCAS ELA Grades 3-8 2017



Staff look closely at the achievement gap between the high needs subgroup and the "all students" group. While our overall SGP scores consistently outperform the state, there is still progress to be made in closing gaps for students with special needs. The chart above shows that SPS students in the high need subgroup are not growing in English Language Arts at several levels as much as we'd like. The resulting achievement gap is depicted well below.

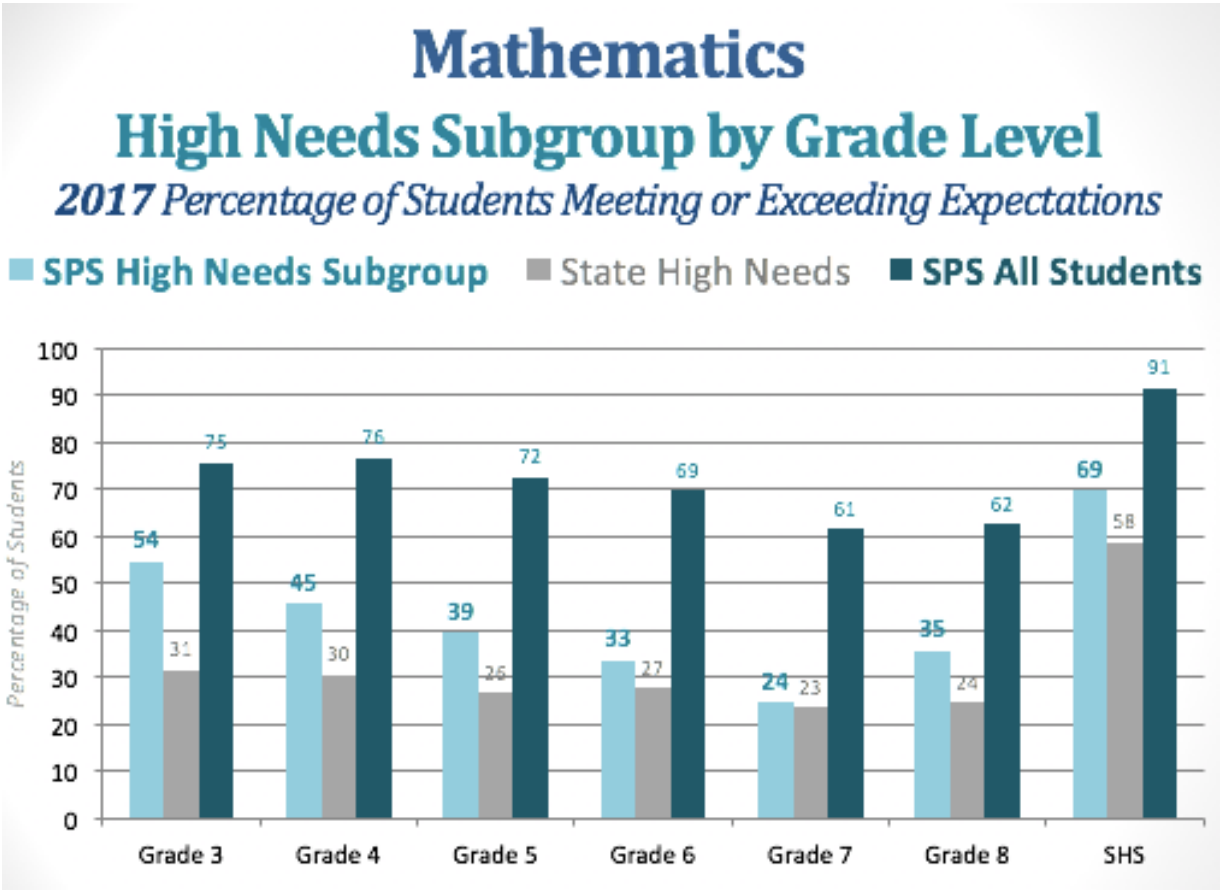


MCAS Math Grades 3-8 2017



Students in the high needs subgroup faced similar achievement challenges in Mathematics. For these students, a higher growth percentile is critical to their ability to "catch up" to their peers.

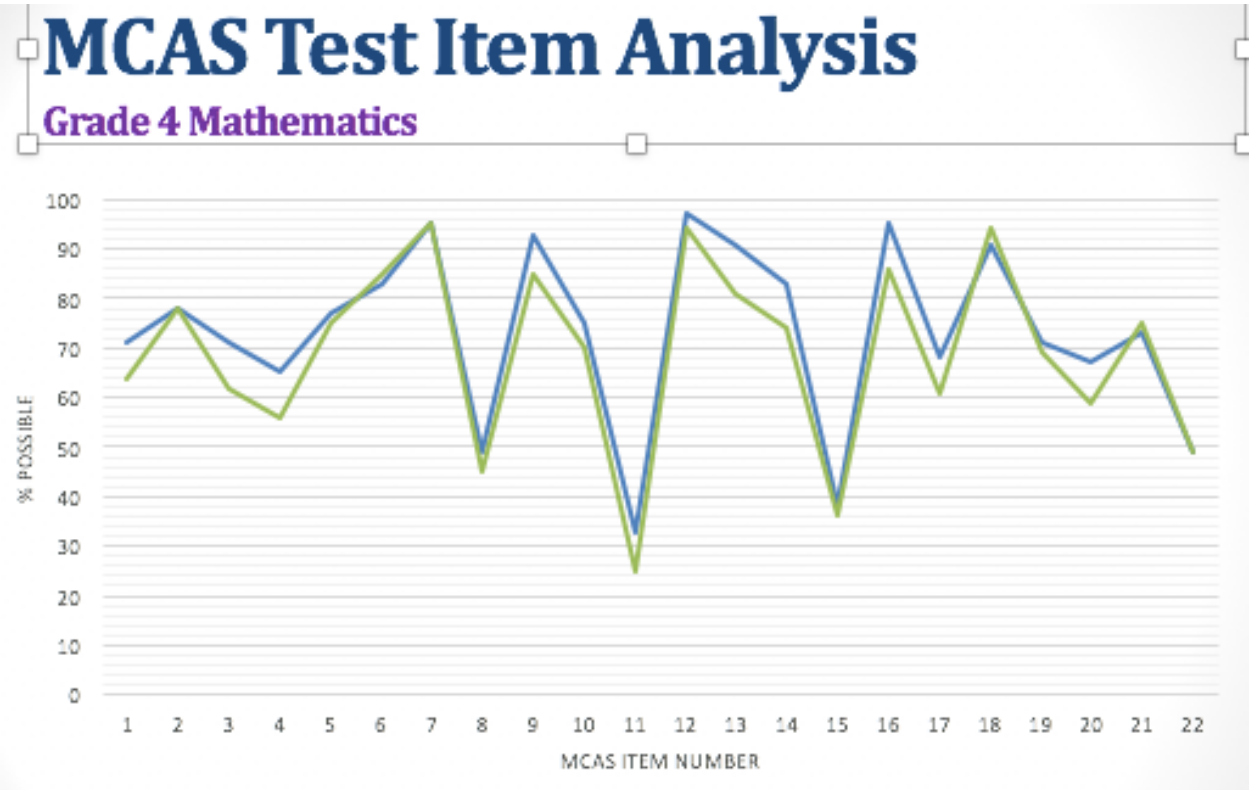
While there is still obvious improvement to make in achievement levels for the high needs subgroups, the growth percentiles in several grade levels in Math are promising.



Item Analysis

Staff analyze MCAS data from the DESE portal to review student performance, identify strengths and weaknesses in specific standards, and also examine released questions to determine how students need to specifically apply their understanding of concepts. The DESE district profile portal allows anyone to access data about standards, question types and even to compare item scores across districts. Click here to see how it works: http://profiles.doe.mass.edu/mcas/mcascharts2.aspx?linkid=33&orgcode=02710000&fycode=2017&orgtypecode=5&

Scrutinizing student results by question helps educators to align their practice with the expectations inherent in the assessment. The chart below depicts an item analysis. Looking at the results in this way allows teacher teams to visually spot areas of instruction to target for reteaching.



An example of the ongoing analysis . . . This graph depicting scores by question for two different schools indicates strong correlation between test items. It also seems to indicate that curriculum implementation and staff collaboration are working consistently.

Looking Forward

With the release of new state Science standards, a K-12 committee was formed to review the Shrewsbury science curriculum and to prepare for the changes in content. Work is underway at both the Elementary and Middle levels to help educators adjust to changes in content and practice. This will be a multiyear endeavor, with potential implications for state assessment results.

Most importantly, we are still learning about the MCAS 2.0 assessment system. The wealth of information about student performance is important and helpful. Translating data into meaningful, timely outcomes for students requires ongoing commitment on the part of administrators and teams of educators alike. As the district builds capacity for data analysis we are confident that our teaching staff will be better able to assess, intervene and support students and their families with the areas of challenge that are identified in student performance data.

In many ways, the steps ahead will be similar to our initial progress in 1998 when the MCAS was new. While there are many differences among communities, districts are very collaborative in this work and Shrewsbury is no exception. We look forward to working with colleagues, as Massachusetts takes strides to continue leading the nation in education. As we respond to this data, securing resources for teacher leadership, curriculum development and data analysis will be important supports to include in our strategic planning.

Paton School fourth-graders (l to r) Lawson Mitchell, Caroline Strickland and Owen Wang show Jim DuPont (left) and Dr. Joseph Sawyer how they use their iPads.