

Preliminary Analysis of MCAS Growth Model Data for APS Elementary Schools

The Massachusetts Department of Elementary & Secondary Education (DESE) released MCAS Growth Model data to the general public on October 27, 2009. The Model produces a Student Growth Percentage (SGP) for each student. DESE released Model data by test (English Language Arts (ELA) and Mathematics) by grade, by school, by subgroup, and by district provided there are at least 20 students in the group. A group's SGP score of 65 means that 65% of students with a similar test score in prior years scored below the group in the most recent test. SGP measures a student's progress in comparison with other students with similar scores. In order for a group (say a school) to excel its students must do better than similar students. DESE publications suggest that a SGP of 40-60 is average performance with SGP scores higher or lower indicating above average or below average performance.

Special Education Subgroup Student Growth in the APS Elementary Schools

Student growth performance is calculated beginning in the fourth grade by showing relative progress from the third grade. Acton's mix of disabilities is different from the state average. It is possible that the potential for progress is different according to disability, and therefore some of the difference in SGP performance could be attributed to differences in the special education student composition of our district.

- Acton's special education students demonstrated higher SGP in both ELA and Math than the state average.
- Acton's special education students' SGP was lower than the total population of Acton students (the "Aggregate" score). Acton's Aggregate ELA SGP score is 58.0 versus 48.0 for the special education subgroup. For Math, the Aggregate SGP is 65.0 versus 56.5 for the special education subgroup.
- Acton's special education SGP progress in ELA was fourth of five peer school districts reviewed, including Acton, Boxborough, Concord, Lexington and Westford.
- Acton's special education SGP progress in Math was third of the five peer school districts identified above.
- Acton's sixth grade special education students' SGP is higher than the earlier grades, perhaps indicating stronger education at that level.
- Acton's special education SGP progress is mixed when compared with the highly publicized Mary Lyons School in Boston. Mary Lyons is a small K-8 school, with an average grade size of 13, which has a large population of special education students – 43% of students in the school are on IEPs. Mary Lyons' students did better with ELA SGP, 60.0 vs. Acton's 48.0, while their Math SGP is 44.0 vs. Acton's 56.5.

See the table below for specific results.

Special Education Subgroup

STUDENT GROWTH PERCENTILE

Acton Score Higher (Lower) Than:

<u>Grade</u>	<u>Subject</u>	<u>Acton Score</u>	<u>Boxborough</u>	<u>Concord</u>	<u>Lexington</u>	<u>Westford</u>	<u>State</u>
4	ELA	41.0		-3.0	-14.0	-8.5	7.0
4	MATH	51.0		-19.0	-8.0	19.5	12.0
5	ELA	52.5		-7.5	-8.0	9.5	10.5
5	MATH	47.0		-35.5	-22.0	5.0	6.0
6	ELA	56.0		1.0	-2.5	-5.5	15.0
6	MATH	63.5		37.5	4.5	2.5	22.5
4-6	ELA	48.0	8.5	-3.9	-10.1	-3.5	8.0
4-6	MATH	56.5	14.5	-1.8	-6.4	10.9	13.5

Special Education Subgroup Growth by Elementary School

Special Education SGP scores are available for the individual Acton elementary schools, but not individual grades at each school because each grade contains fewer than 20 special education students. It is possible that the potential for progress is different according to disability, and therefore some of the difference in SGP performance across schools could be attributed to a difference mix of special education students.

- Both Douglas' and Merriam's special education students showed higher growth than Acton's average in both ELA and Math.
- Whereas, McCarthy-Towne showed significantly lower growth than both Acton's average and the state SGP average in both ELA and Math.

See the table below for specific results.

Special Education Subgroup

STUDENT GROWTH PERCENTILE

School Higher (Lower) than Acton District

<u>Grade</u>	<u>Subject</u>	<u>Acton Score</u>	<u>Conant</u>	<u>Douglas</u>	<u>Gates</u>	<u>McCarthy</u>	<u>Merriam</u>
4	ELA	41.0					
4	MATH	51.0					
5	ELA	52.5					
5	MATH	47.0					
6	ELA	56.0					
6	MATH	63.5					
4-6	ELA	48.0	0.0	8.0	-4.0	-21.0	10.0
4-6	MATH	56.5	-6.0	10.5	0.5	-14.5	6.0

Acton's Special Education Subgroup MCAS Composite Performance Index Scores

Unlike student growth the Composite Performance Index (CPI) is calculated based on MCAS achievement scores. Student scores of Proficient or better receive 100 points, while students in lower achievement categories receive 75, 50 or 25 points depending on where in each category they fall.

- Acton's special education subgroup achievement as measured by CPI is consistently higher across all grades than the state's scores.
- Acton's special education subgroup's ELA achievement scores fall in the middle of the 5-district peer comparison group previously mentioned and second to Lexington in Math.

See the table below for specific results.

Special Education Subgroup

CPI SCORE

		Acton Score Higher (Lower) Than:					
<u>Grade</u>	<u>Subject</u>	<u>Acton Score</u>	<u>Boxborough</u>	<u>Concord</u>	<u>Lexington</u>	<u>Westford</u>	<u>State</u>
3	ELA	75.9	7.7	-6.1	-4.9	2.3	10.4
3	MATH	78.0	7.5	0.1	-3.5	-2.7	14.2
4	ELA	68.4		-10.9	-7.2	-2.9	8.9
4	MATH	69.3		-8.2	-5.7	-1.3	8.9
5	ELA	84.4		-3.8	-1.3	9.9	17.3
5	MATH	72.5		-8.4	-9.5	8.1	17.8
5	SCI	76.8		-3.5	-3.0	3.4	14.6
6	ELA	85.0	2.5	2.5	-0.4	4.3	20.1
6	MATH	78.3	13.3	22.8	3.9	4.3	22.8
4-6	ELA	78.7	3.7	-3.9	-3.2	3.4	10.9
4-6	MATH	74.4	3.9	1.9	-4.2	2.5	17.5

In the CPI chart for APS elementary schools below you'll see that:

- Douglas, Gates and Merriam's CPI scores were better than Acton's district CPI scores for both ELA and Math.
- Conant and McCarthy-Towne elementary schools' CPI scores were lower than the Acton district's CPI scores for both ELA and Math.

See the table below for specific results.

Special Education Subgroup

CPI SCORE

		School Higher (Lower) than Acton District					
<u>Grade</u>	<u>Subject</u>	<u>Acton Score</u>	<u>Conant</u>	<u>Douglas</u>	<u>Gates</u>	<u>McCarthy</u>	<u>Merriam</u>
3	ELA	75.9					
3	MATH	78.0					
4	ELA	68.4					
4	MATH	69.3					
5	ELA	84.4					
5	MATH	72.5					
5	SCI	76.8					
6	ELA	85.0					
6	MATH	78.3					
4-6	ELA	78.7	-6.0	6.8	3.4	-2.7	3.6
4-6	MATH	74.4	-5.2	3.9	5.4	-6.1	5.6

Aggregate Student Growth Performance in the Acton Public School District

The SGP methodology creates an entirely new way of defining educational “success.” School districts considered “best” due to student achievement could find themselves only average or worse, when measured by how much progress students demonstrate from year to year.

- For the entire Acton student population, SGP growth is higher than the state average in all grades and subjects tested.
- Acton’s aggregate numbers show weaker growth in ELA – the lowest SGP score among the five peer districts tracked here – Acton, Boxborough, Concord, Lexington, and Westford.
- However, Acton demonstrated the highest SGP in Math among the five peer districts identified above.
- Acton’s aggregate ELA SGP scores rank 93rd of 296 schools for sixth grade, which puts Acton’s student progress in the 69th percentile for ELA. Acton’s aggregate Math SGP scores rank 39th out of 296 schools for sixth grade, which puts its student progress in the 87th percentile for Math.

See the table below for specific results.

Aggregate

STUDENT GROWTH PERCENTILE

Acton Score Higher (Lower) Than:

<u>Grade</u>	<u>Subject</u>	<u>Acton Score</u>	<u>Boxborough</u>	<u>Concord</u>	<u>Lexington</u>	<u>Westford</u>	<u>State</u>
4	ELA	59.0	-1.5	-12.0	4.0	-2.0	9.0
4	MATH	66.0	16.5	-14.0	7.0	17.0	16.0
5	ELA	59.0	-2.0	-3.5	-1.5	-8.0	9.0
5	MATH	58.0	-7.0	-12.0	-11.0	4.0	8.0
6	ELA	56.5	1.5	-6.0	-2.0	-20.5	6.5
6	MATH	67.5	36.5	39.5	8.5	11.5	17.5
4-6	ELA	58.0	-1.0	-7.3	-0.1	-10.6	8.0
4-6	MATH	65.0	17.0	5.5	2.5	11.9	15.0

Aggregate Student Growth Performance by Elementary School

Individual Acton elementary schools showed aggregate differences in student growth as well as dramatic differences between individual grades within each school. These new student growth performance scores will help target areas for additional investigation. For example, exceptional performance should be researched to find the underlying causes for success, while poorer performance should be examined to identify areas that need improvement. See the table below for specific results.

- Aggregate student growth performance at Conant elementary school was superior in ELA for the school as a whole and for each individual grade tested. Conant showed more ELA growth per student than any other elementary school in APS.
- Aggregate student growth performance at McCarthy-Towne was the weakest of all the elementary schools in APS. The fifth grade performance in both ELA and Math was the principal drag on the school's SGP score.
- Aggregate student growth in Merriam's fourth grade class was weak, while other grades were superior in both ELA and Math. For example, Merriam's fifth grade Math SGP is the highest Math SGP for any elementary school and/or grade in APS.

Aggregate

STUDENT GROWTH PERCENTILE

School Higher (Lower) than Acton District

<u>Grade</u>	<u>Subject</u>	Acton	<u>Conant</u>	<u>Douglas</u>	<u>Gates</u>	<u>McCarthy</u>	<u>Merriam</u>
		<u>Score</u>					
4	ELA	59.0	17.0	2.0	12.0	1.0	-30.5
4	MATH	66.0	-1.0	1.0	10.0	-4.5	-17.0
5	ELA	59.0	8.5	-5.0	-3.0	-13.0	3.5
5	MATH	58.0	-1.0	5.0	-5.0	-24.0	11.5
6	ELA	56.5	14.5	-8.5	-1.5	-6.5	5.5
6	MATH	67.5	-1.5	2.5	-1.5	5.5	0.5
4-6	ELA	58.0	14.0	-6.0	2.0	-7.0	-8.0
4-6	MATH	65.0	-2.0	2.0	1.0	-7.0	0.0

Comparison of 6th Grade Student Growth Performance and MCAS CPI Achievement by District
The chart below shows the range of differences in ranking when comparing the MCAS Growth (SGP) and Achievement (CPI) methods of evaluation.

Sixth Grade Student Performance ENGLISH LANGUAGE ARTS

	Student Growth Percentage			Composite Performance Index		
	<u>Score</u>	<u>Rank</u>	<u>Percentile</u>	<u>CPI</u>	<u>Rank</u>	<u>Percentile</u>
Acton	56.5	93	69	96.8	10	97
Boxborough	55.0	106	64	96.9	8	97
Concord	62.5	40	86	95.1	35	88
Lexington	62.0	43	85	95.9	21	93
Westford	77.0	6	98	97.0	6	98

MATH

	Student Growth Percentage			Composite Performance Index		
	<u>Score</u>	<u>Rank</u>	<u>Percentile</u>	<u>CPI</u>	<u>Rank</u>	<u>Percentile</u>
Acton	67.5	39	87	94.6	6	98
Boxborough	31.0	278	6	93.2	16	95
Concord	28.0	285	4	82.0	140	53
Lexington	56.0	107	64	92.9	19	94
Westford	56.0	110	63	94.2	9	97

Growth Model Comparison Between Acton and Peer Districts

An analysis of how Acton ranks among other peer districts with respect to a student's progress in fourth, fifth, and sixth grades (using SGP scores to measure student growth) suggests the following:

- Lexington has very strong and consistent performance in all grades and subjects in aggregate and for the special education subgroup – generally scoring in the 90+ percentile (top 10% among districts ranked by SGP score) across all grades and subjects tested for special education students.
- Acton has very good and consistent performance in all grades and subjects in aggregate and for the special education subgroup – scoring in the 64% – 86% for special education students.
- Concord has shown “best in class” growth performance among the special education subgroup in Math in the 4th and 5th grades but with a dramatic reduction in growth in the 6th grade.

See the table below for specific results.

STUDENT GROWTH PERCENTILE

Special Education Subgroup

<u>Grade</u>	<u>Subject</u>	<u>Acton</u>		<u>Concord</u>		<u>Lexington</u>		<u>Westford</u>	
		<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>
4	ELA	61	0.64	52	0.70	14	0.92	33	0.81
4	MATH	28	0.84	1	0.99	11	0.94	131	0.23
5	ELA	38	0.78	16	0.91	13	0.93	85	0.52
5	MATH	57	0.68	1	0.99	6	0.97	81	0.54
6	ELA	26	0.85	27	0.85	17	0.90	10	0.94
6	MATH	25	0.86	156	0.12	36	0.80	34	0.81

STUDENT GROWTH PERCENTILE

Aggregate

<u>Grade</u>	<u>Subject</u>	<u>Acton</u>		<u>Concord</u>		<u>Lexington</u>		<u>Westford</u>	
		<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>	<u>Rank</u>	<u>% tile</u>
4	ELA	65	0.77	11	0.96	18	0.94	56	0.80
4	MATH	29	0.90	6	0.98	20	0.93	164	0.42
5	ELA	71	0.75	51	0.82	22	0.92	31	0.89
5	MATH	84	0.71	25	0.91	26	0.91	118	0.59
6	ELA	93	0.69	40	0.86	43	0.85	6	0.98
6	MATH	39	0.87	286	0.03	107	0.64	110	0.63