

To: Dr. Paul B. Ash, Superintendent

From: Tom Plati, Director of Educational Technology and Assessment

Re: 2009 MCAS Analysis

Date: October 30, 2009

At the upcoming School Committee, I will present a report of Lexington's 2009 MCAS results. In addition to presenting the results at major grade levels, this report will emphasize the new ways educators in our school system are looking at MCAS data.

Using Education Data Warehouse

The Education Data Warehouse is a collaborative effort of the Massachusetts Department of Elementary and Secondary Education and local districts to centralize K-12 educational performance data. The Warehouse is free and contains SIMS and MCAS data for every district in the state. Over 30 reports exist to allow educators to assess district and school MCAS data easily.

Using the Student Growth Model

On October 27, 2009, the D.E.S.E. made public the Student Growth Model, as a new method for interpreting student achievement using results from the MCAS. Whereas the MCAS data has proved invaluable in helping school districts gauge how well our current curriculum and instruction practices are working, it is not able to answer the question "How much academic progress did a student or group of students make in one year as measured by MCAS?" The Student Growth Model performs this function.

As preparation for the School Committee Report, I have provided in this packet some background information on each of these two new data strategies.

Appendix A- Data Warehouse Reports

I am providing training to key administrators on how to access important Data Warehouse reports and transform them into pdf and Excel files in order that reports can be used by PLC teams studying data for that grade level, department, or student group.

Examples of these reports are in the following Appendices.

- Appendix A1-1 District Performance Gr 4 ELA
- Appendix A1-2 District Performance Gr 4 Math
- Appendix A1-3 District Performance Gr 8 ELA
- Appendix A1-4 District Performance Gr 8 Math
- Appendix A1-5 District Performance Gr 10 ELA
- Appendix A1-6 District Performance Gr 10 Math
- Appendix A2 Test Item Analysis
- Appendix A3 Student Item Analysis by Subject
- Appendix A4 Class History by Subject (Cohort)

Appendix B- Student Growth Model

Appendix B1- MCAS Student Growth Percentiles: State Report October 2009 (A narrative describing the Student Growth Model and its importance)

Appendix B2- Lexington District Report Summarizing Growth of Students as a Whole and by Subgroups

Appendix B3- A Graph Showing District Achievement (% Proficient) and Student Growth for different grade levels at Lexington in English Language Arts

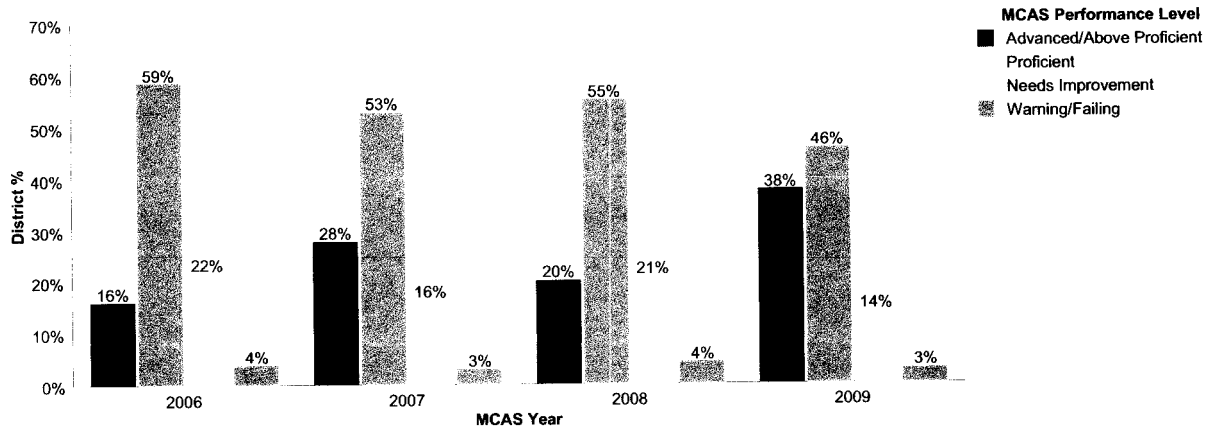
Appendix B4- A Graph Showing District Achievement (% Proficient) and Student Growth for different grade levels at Lexington in Mathematics

Appendix A

Data Warehouse Reports

District Performance Distribution by Year (2009, 2008, 2007, 2006)
 Lexington - MCAS Grade(s) 4 English

Students Included: On or after Oct 1

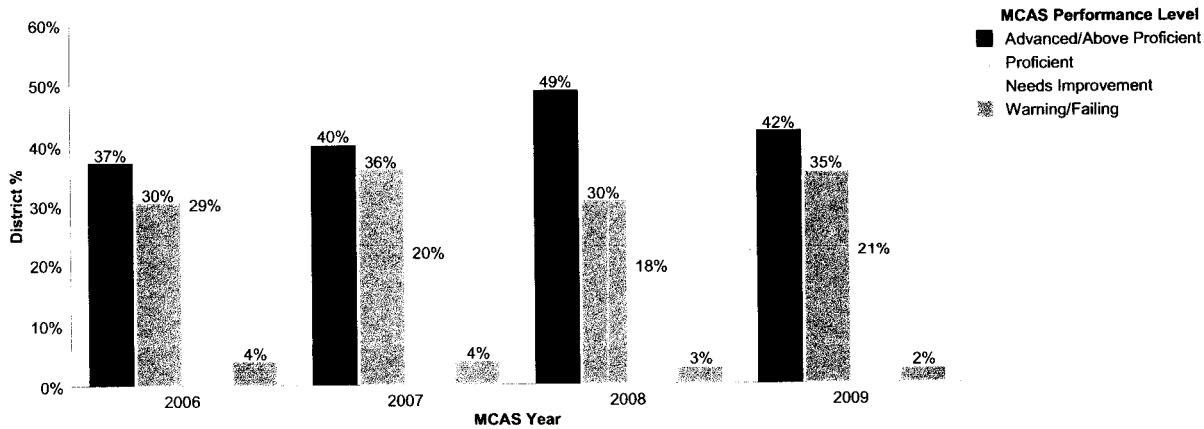


MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	75	16%	8%
	Proficient	275	59%	42%
	Needs Improvement	101	22%	39%
	Warning	18	4%	12%
	2006 Students	469		
2007	Advanced	124	28%	10%
	Proficient	235	53%	46%
	Needs Improvement	73	16%	34%
	Warning	13	3%	10%
	2007 Students	445		
2008	Advanced	98	20%	8%
	Proficient	271	55%	41%
	Needs Improvement	101	21%	39%
	Warning	21	4%	13%
	2008 Students	491		
2009	Advanced	175	38%	11%
	Proficient	212	46%	42%
	Needs Improvement	64	14%	35%
	Warning	13	3%	11%
	2009 Students	464		

* October enrollment filter is applied to the District results only. State results include On or After Oct. 1.

2009 MCAS Results are Preliminary Results
District Performance Distribution by Year (2009, 2008, 2007, 2006)
 Lexington - MCAS Grade(s) 4 Math

Students Included: On or after Oct 1

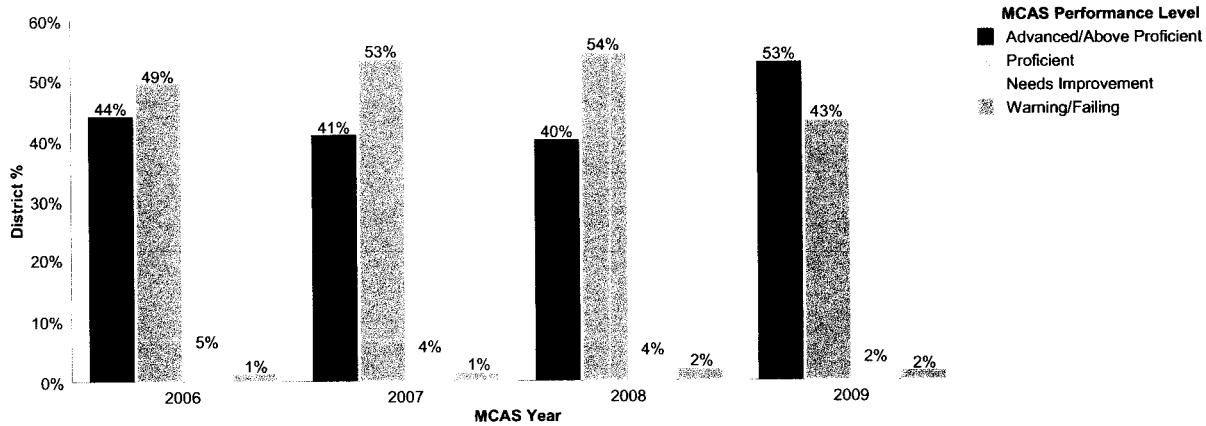


MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	173	37%	15%
	Proficient	142	30%	25%
	Needs Improvement	134	29%	45%
	Warning	18	4%	15%
	2006 Students	467		
2007	Advanced	177	40%	19%
	Proficient	159	36%	29%
	Needs Improvement	91	20%	39%
	Warning	17	4%	13%
	2007 Students	444		
2008	Advanced	242	49%	20%
	Proficient	151	30%	29%
	Needs Improvement	90	18%	38%
	Warning	13	3%	13%
	2008 Students	496		
2009	Advanced	195	42%	16%
	Proficient	163	35%	32%
	Needs Improvement	96	21%	41%
	Warning	11	2%	11%
	2009 Students	465		



District Performance Distribution by Year (2009, 2008, 2007, 2006)
Lexington - MCAS Grade(s) 8 English

Students Included: On or after Oct 1

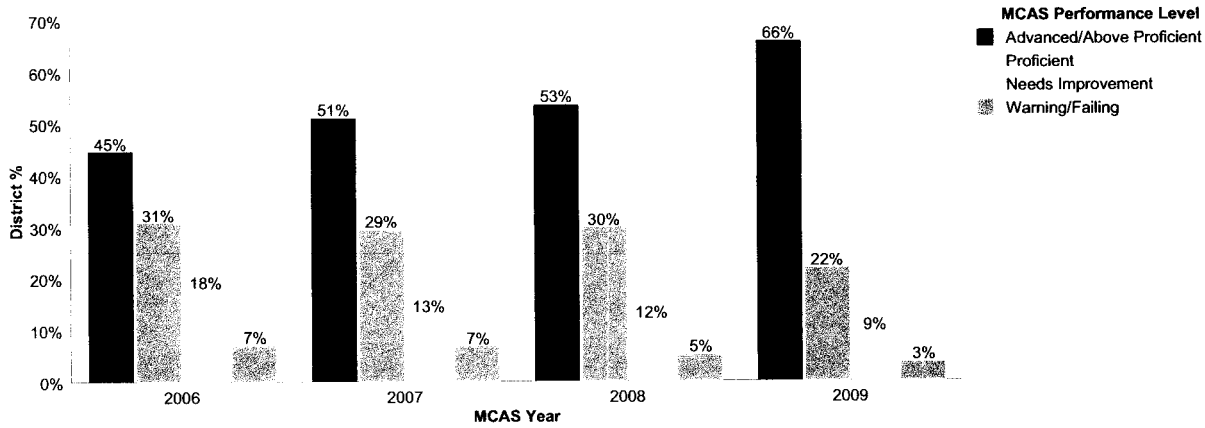


MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	210	44%	12%
	Proficient	236	49%	62%
	Needs Improvement	25	5%	19%
	Warning	6	1%	7%
	2006 Students	477		
2007	Advanced	213	41%	12%
	Proficient	278	53%	63%
	Needs Improvement	23	4%	18%
	Warning	7	1%	6%
	2007 Students	521		
2008	Advanced	214	40%	12%
	Proficient	291	54%	63%
	Needs Improvement	20	4%	18%
	Warning	10	2%	7%
	2008 Students	535		
2009	Advanced	276	53%	15%
	Proficient	225	43%	63%
	Needs Improvement	13	2%	15%
	Warning	8	2%	6%
	2009 Students	522		

* October enrollment filter is applied to the District results only. State results include On or After Oct. 1.

District Performance Distribution by Year (2009, 2008, 2007, 2006)
 Lexington - MCAS Grade(s) 8 Math

Students Included: On or after Oct 1

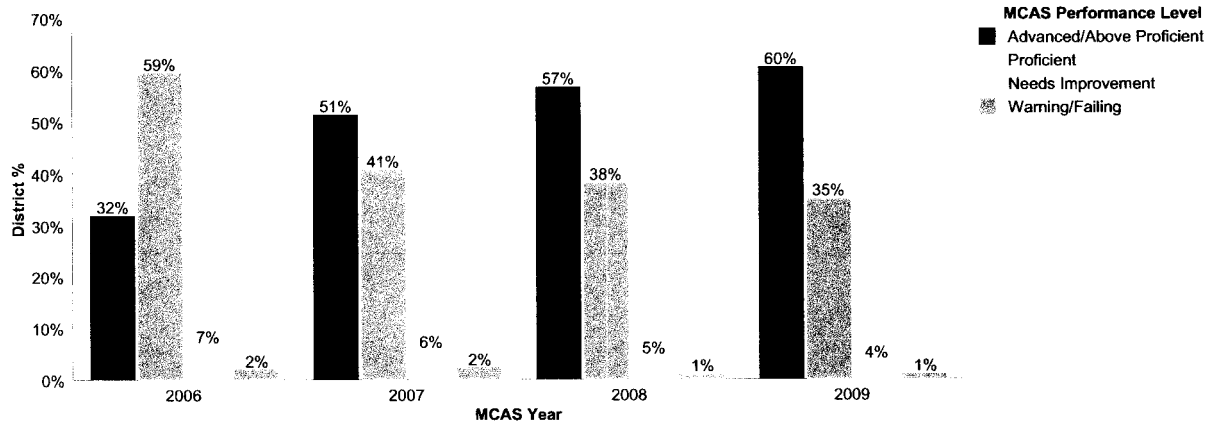


MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	214	45%	12%
	Proficient	148	31%	28%
	Needs Improvement	85	18%	31%
	Warning	33	7%	29%
	2006 Students	480		
2007	Advanced	264	51%	17%
	Proficient	152	29%	28%
	Needs Improvement	67	13%	30%
	Warning	35	7%	25%
	2007 Students	518		
2008	Advanced	288	53%	19%
	Proficient	161	30%	30%
	Needs Improvement	63	12%	27%
	Warning	27	5%	24%
	2008 Students	539		
2009	Advanced	342	66%	20%
	Proficient	113	22%	28%
	Needs Improvement	47	9%	28%
	Warning	18	3%	23%
	2009 Students	520		

* October enrollment filter is applied to the District results only. State results include On or After Oct. 1.

Appendix A1-5 District Performance Distribution by Year (2009, 2008, 2007, 2006) Lexington - MCAS Grade(s) 10 English

Students Included: On or after Oct 1



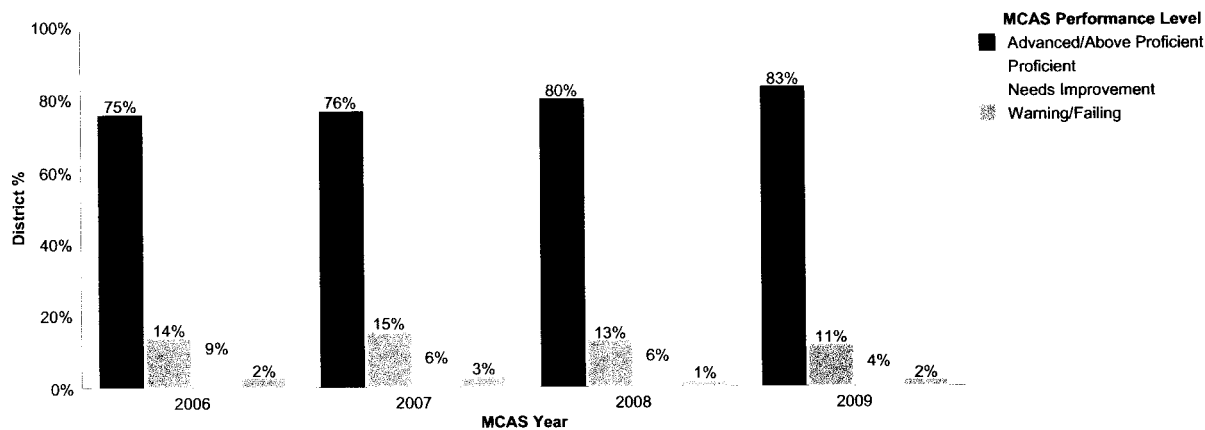
MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	169	32%	16%
	Proficient	315	59%	53%
	Needs Improvement	35	7%	24%
	Failing	11	2%	7%
	2006 Students	530		
2007	Advanced	262	51%	22%
	Proficient	208	41%	49%
	Needs Improvement	29	6%	24%
	Failing	12	2%	6%
	2007 Students	511		
2008	Advanced	263	57%	23%
	Proficient	177	38%	51%
	Needs Improvement	21	5%	21%
	Failing	4	1%	4%
	2008 Students	465		
2009	Advanced	301	60%	29%
	Proficient	174	35%	52%
	Needs Improvement	18	4%	15%
	Failing	5	1%	4%
	2009 Students	498		

* October enrollment filter is applied to the District results only. State results include On or After Oct. 1.



District Performance Distribution by Year (2009, 2008, 2007, 2006) Lexington - MCAS Grade(s) 10 Math

Students Included: On or after Oct 1



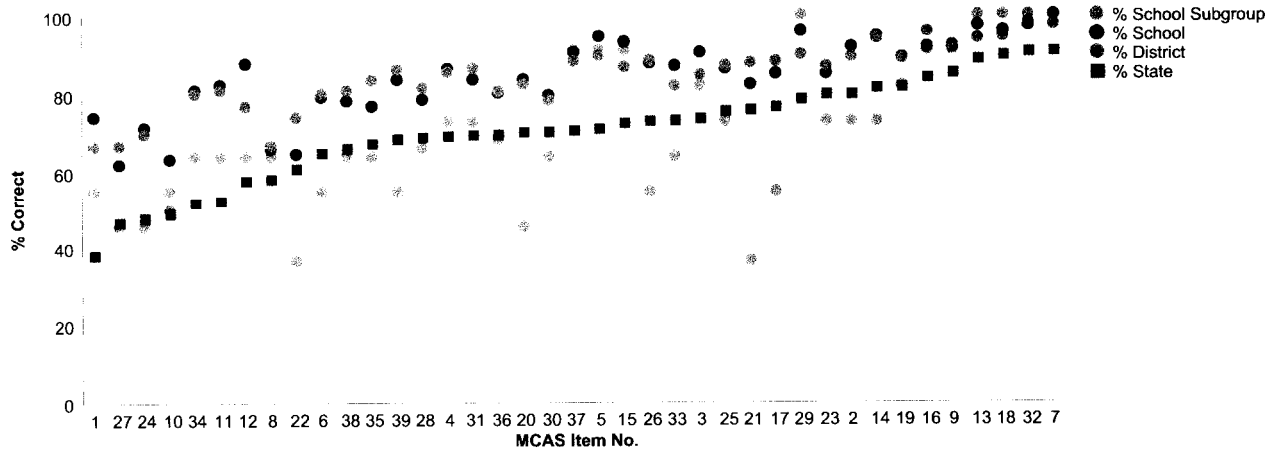
MCAS Year	MCAS Performance Level	District #	District %	State %
2006	Advanced	398	75%	40%
	Proficient	72	14%	27%
	Needs Improvement	45	9%	21%
	Failing	13	2%	12%
	2006 Students	528		
2007	Advanced	386	76%	42%
	Proficient	77	15%	27%
	Needs Improvement	30	6%	22%
	Failing	13	3%	9%
	2007 Students	506		
2008	Advanced	374	80%	43%
	Proficient	60	13%	29%
	Needs Improvement	30	6%	19%
	Failing	6	1%	9%
	2008 Students	470		
2009	Advanced	413	83%	47%
	Proficient	56	11%	28%
	Needs Improvement	22	4%	18%
	Failing	8	2%	8%
	2009 Students	499		

* October enrollment filter is applied to the District results only. State results include On or After Oct. 1.

School Item Analysis Graph by SPED Status - Preliminary Data
 Lexington, Joseph Estabrook - 2009 MCAS Grade 4 Math

Students Included: On or after Oct 1 (73)

Subgroup: SPED (11)



1 27 24 10 34 11 12 8 22 6 38 35 39 28 4 31 36 20 30 37 5 15 26 33 3 25 21 17 29 23 2 14 19 16 9 13 18 32 7

*Items are sorted in order of % State Correct.

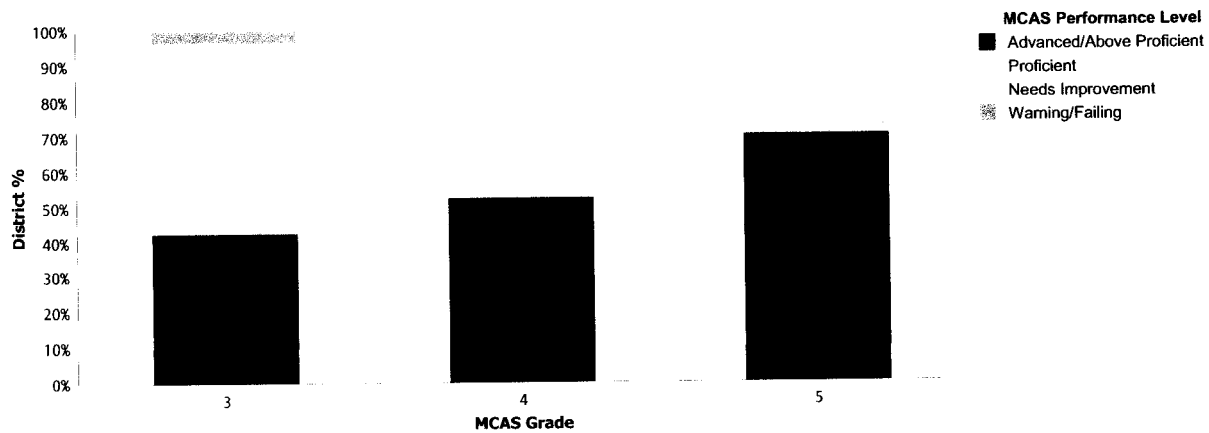
GRADE 5-ELA

GRADE 5-ELA				Reading and Literature																																				Language										Composition		
				MC																																			OR										MC		WP	
				1	10	11	12	13	14	15	18	19	2	20	21	22	23	24	25	28	29	3	30	31	32	33	34	37	38	39	4	40	5	6	7	8	17	27	36	9	16	26	35	WP1	WP2							
School	MCAS	Score	1	10	11	12	13	14	15	18	19	2	20	21	22	23	24	25	28	29	3	30	31	32	33	34	37	38	39	4	40	5	6	7	8	17	27	36	9	16	26	35	WP1	WP2								
Student 1	A	NI	234	+	+		+	+	+	+		+	+	+		+	+			+	+	+	+	+	+	+		+	+	+	+	+	+	+	2	2	1	2			+		7	7								
Student 2	A	P	250	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	2	2	2	+				8	8							
Student 3	A	P	240						+		+			+	+			+	+		+	+	+		+	+	+		+			+	+	+	+	4	3	4	3					8	8							
Student 4	A	P	242	+	+	+	+	+	+	+		+	+	+	+		+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	2	2	2	+		+		9	7							
Student 5	A	P	246			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2	3	2	3	+	+	+	+	6	6							
Student 6	B	WF	218	+							+	+	+	+			+					+	+	+	+	+	+	+	+	+	+	+	+	+	1	1	0	2	+	+	+	+	4	4								
Student 7	B	P	244	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3	2	2	2		+	+	+	6	6								
Student 8	B	WF	218	+			+	+				+	+	+	+			+				+	+	+	+	+	+	+	+	+	+	+	+	+	1	2	1	2			+		5	4								
Student 9	B	P	244	+	+	+	+	+	+	+	+	+	+	+			+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	2	1	1	1	+	+	+	+	9	8								
Student 10	B	NI	230		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	4	3	1	0	+		+		6	6							
Student 11	C	NI	232		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	0	2	1	+	+	+	+	6	6							
Student 12	C	P	244	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3	1	2	3	+	+	+	+	6	6								
Student 13	C	NI	226	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	0	1	0	+	+	+	+	5	6							
Student 14	C	WF	218	+			+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	1	0	1		+	+		6	6							
Student 15	D	NI	228		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	0	1	1		+	+		5	5							
Student 16	D	NI	234		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	2	2	1		+	+		6	6							
Student 17	E	NI	222	+			+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	1	1	0		+	+		5	5							
Student 18	E	NI	226		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	1	0	0	+	+	+		6	6							
Student 19	E	WF	216		+		+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2	2	0	0	+	+	+		2	3							
Student 20	F	NI	220			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	1	1	2	+	+	+		4	4							
Student 21	F	NI	232	+		+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2	0	2	2	+		+		7	7							



2009 MCAS Results are Preliminary Results
District Graduating Class History
 Lexington - Class of 2016 Math

School(s): Joseph Estabrook



Note: This report shows the MCAS history for a district graduating class that is not a 'matched cohort' of students.

MCAS Year	MCAS Grade	MCAS Performance Level	District #	District %	State %
2007	3	Above Proficient	38	42%	19%
		Proficient	37	41%	41%
		Needs Improvement	12	13%	24%
		Warning/Failing	3	3%	16%
			90		
2008	4	Advanced	44	52%	20%
		Proficient	29	35%	29%
		Needs Improvement	11	13%	38%
		Warning/Failing	0	0%	13%
			84		
2009	5	Advanced	61	70%	22%
		Proficient	21	24%	32%
		Needs Improvement	5	6%	29%
		Warning/Failing	0	0%	18%
			87		

Appendix B

Student Growth Model



MCAS Student Growth Percentiles: State Report

October 2009

Massachusetts Department of Elementary and Secondary Education
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Phone 781-338-3000 TTY: N.E.T. Relay 800-439-2370
www.doe.mass.edu

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Introduction

This report describes a new method of interpreting student achievement using results from the Massachusetts Comprehensive Assessment System (MCAS). In the traditional view, measures of student performance reflect the extent to which students have mastered the standards contained in the English Language Arts (ELA) and Mathematics Massachusetts Curriculum Frameworks each school year.

In order to complement the traditional MCAS scaled scores and performance levels, we have designed Student Growth Percentiles (SGPs) to measure how much a student's or group of students' achievement has grown or changed over time. For K–12 education in Massachusetts, the phrase “growth model” describes a method of measuring individual student progress on statewide assessments by tracking student scores from one year to the next. Each student in grades 4 through 8 and 10 with at least two consecutive years of MCAS scores will receive a *student growth percentile*, which measures how much the student gained from one year to the next relative to other students statewide with similar MCAS test score histories. Student growth percentiles range from 1 to 99, where higher numbers represent relatively higher growth and lower numbers represent relatively lower growth.

The Importance of Measuring Growth

Making sense of results over time

In 2006 the Department began testing all students each year in ELA and Mathematics in Grades 3–8 and 10. Naturally, educators and parents with access to student results wanted to compare each student's performance from one year to the next. Although the tests and the curriculum frameworks for each grade are adjusted to cover different content in each subject each year, the scaled score results were not designed to allow direct comparisons of student scores from one year to the next.

The typical¹ “growth” or change in a typical student's score from one year to another varies widely depending on three factors: the student's grade level; the subject; and where on the MCAS scale each student started. So while it may be common for high performing 3rd graders to score lower when they move on to the more challenging 4th grade frameworks, the opposite can be true for tests in the other grades and other subjects. In order to accurately measure growth, we developed a method that accounted for all three factors.

Fairness

Student growth percentiles capture growth from each student's starting point. The growth percentile is not dictated by student performance on the MCAS in previous years, because growth is measuring change in performance rather than absolute performance.

¹ “Typical,” throughout this document, means: “neither high growth nor low growth, but growth that was somewhere in the middle of the distribution.”

In this way, all students at all performance levels are provided an equal chance to demonstrate growth at any percentile on the next year's test. Similarly, all districts, schools, grades, programs, or groups also have an equal opportunity to demonstrate growth regardless of the populations they serve.

What Is a Student Growth Percentile (SGP)?

A student growth percentile is a measure of student progress that compares changes in a student's MCAS scores to changes in MCAS scores of other students with similar achievement profiles. The model establishes cohorts of students with "similar performance profiles" by identifying all students with the same (or very similar) MCAS scores in prior years; all MCAS data for a student since 2006 are used (where available) to establish academic peers.

Percentiles are familiar to most educators and parents because they are used to report performance on some national standardized tests and in other common arenas such as pediatrics, where charts put children in percentiles depending on their height and weight. The key distinction between those customary uses of percentiles and those used to measure academic progress in this report is that student growth percentiles measure change instead of an absolute quantity. For example:

- A student with a growth percentile of 90 in 5th grade mathematics grew as much or more than 90 percent of her academic peers (students with similar score histories) from the 4th grade math MCAS to the 5th grade math MCAS. Only 10 percent of her academic peers grew more in math than she did.
- A student with a growth percentile of 23 in 8th grade English language arts grew as much or more than 23 percent of her academic peers (students with similar score histories) from the 7th grade ELA MCAS to the 8th grade ELA MCAS. More than three-fourths of her academic peers grew more in ELA than she did.

Student Growth Percentiles in the Aggregate: Median Growth Percentiles

To report student growth at the subgroup, grade, school, or district level, individual student growth percentiles can be aggregated. The most appropriate measure for reporting growth for a group is the median student growth percentile: the middle score if the individual student growth percentiles are ranked from highest to lowest. The average or mean is not an appropriate measure when comparing percentiles. A typical school or district in the Commonwealth would have a median student growth percentile of 50.

No matter how student growth percentiles are aggregated, whether at the subgroup, grade, school, or district level, the statistic and its interpretation remain the same. The comparison group is always the students' academic peers: students with similar MCAS test score histories. For example, if the students with disabilities in a district have a median student growth percentile of 53, it could be stated that that particular group of students progressed at a relatively higher level than their academic peers—a group of

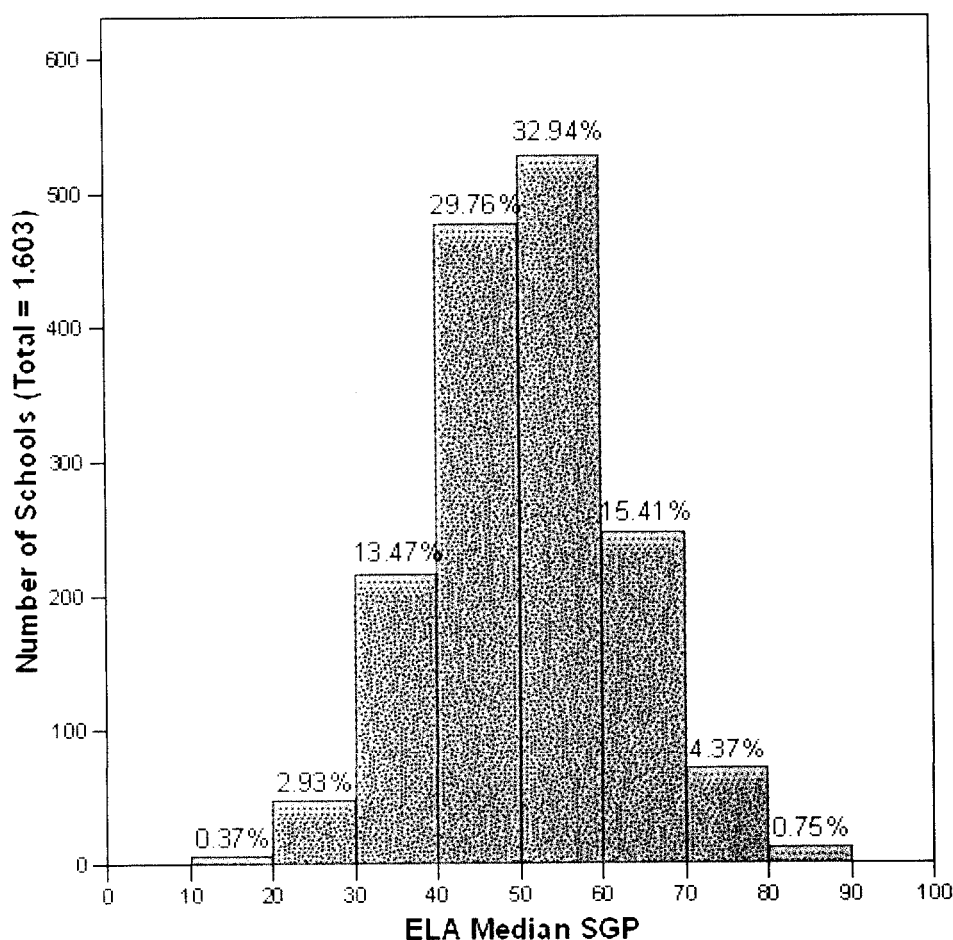
students who may or may not be students with disabilities. The measure does not indicate that students with disabilities improved more than 53 percent of other students with disabilities.

Statewide trends in 2009

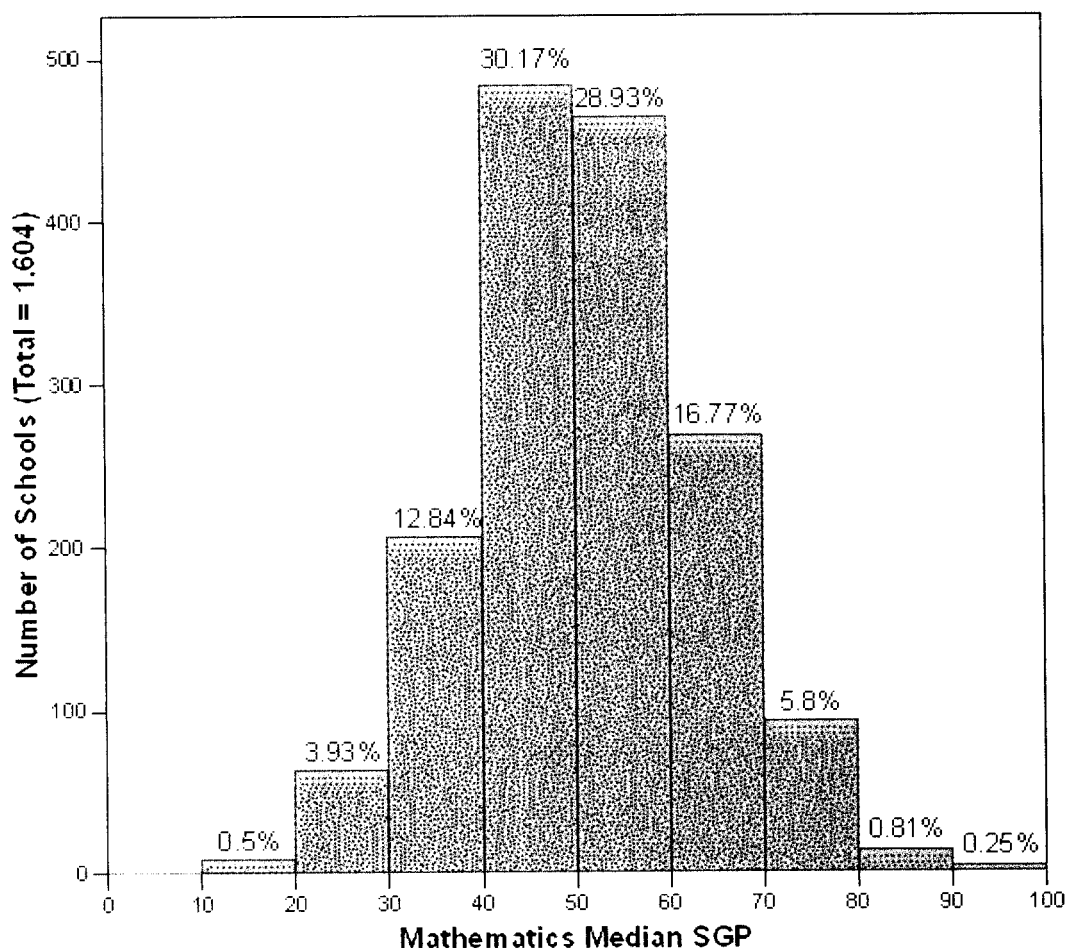
It is important to note that growth statistics are norm-referenced, therefore they will always be centered around 50. The figures below are designed to show how common or uncommon it is for schools to grow at various median percentiles. The first pair of graphs shows the distribution of median growth percentiles statewide at the school level.

Figures 1 and 2 depict how many schools are growing at relatively higher (above 60), typical (between 40 and 60), or lower rates (below 40) on both the ELA and mathematics MCAS tests. Consistent with the nature of percentiles, the majority of schools (63 percent in ELA; 60 percent in mathematics) had medians between 40 and 60.

**Figure 1: Distribution of School
Median Student Growth Percentiles for ELA, 2009 (all grades)**



**Figure 2: Distribution of School
Median Student Growth Percentiles for Mathematics, 2009 (all grades)**



The Education Data Warehouse provides districts and schools with several reports that will help them analyze their growth profile. For district and school personnel as well as the public at large, the “MCAS Student Growth Percentiles Interpretive Guide” provides examples of these reports and commentary on how to read and interpret them. The stacked bar charts” (pages 7–10 of the Interpretive Guide) are particularly helpful in highlighting how local and statewide performance compare.

The data presented in this next set of charts shows the median student growth percentiles for selected student groups. The median student growth percentile for all students at the state level is 50.² The median growth percentiles of select populations, however, reveal that some groups are progressing at a higher or lower rate from the statewide median student growth percentile.

² In rare instances when the number of score points in the baseline is limited, as in Grade 4, the median can vary from 50 by a point or two.

Table 1. 2009 Statewide ELA Median Student Growth Percentiles

Group	All Grades # Included	Median Student Growth Percentiles						
		All Grades	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
All Students	396,371	50	50	50	50	50	50	50
African-American/Black	30,107	48	41	44	52	47	53	51
Asian	18,925	60	58	61	62	59	62	59
Hispanic/Latino	49,717	46	42	45	49	46	51	45
Multi-race/Non-Hispanic	7,341	50	48	50	49	51	53	49
Native American	1,089	47	46	49	48	50	46	46
White	288,750	50	52	51	49	50	49	50
Non-Low Income	277,329	52	54	53	51	52	50	51
Low Income	118,989	45	41	44	47	45	49	45
LEP	13,474	48	44	46	52	49	57	50
Formerly LEP	10,008	54	50	51	58	55	59	56
Female	194,583	53	55	53	55	54	49	50
Male	201,735	47	44	47	45	46	51	49
Students w/ Disabilities	66,224	40	34	42	41	41	43	39
Non-Title 1	298,227	51	54	52	51	51	50	51
Title 1	98,091	46	42	45	49	45	51	44

Table 2. 2009 Statewide Mathematics Median Student Growth Percentiles

Group	All Grades # Included	Median Student Growth Percentiles						
		All Grades	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
All Students	397,572	50	50	50	50	50	50	50
African-American/Black	30,260	46	40	48	46	45	50	48
Asian	18,987	60	61	62	62	58	58	60
Hispanic/Latino	50,091	44	41	43	46	45	48	45
Multi-race/Non-Hispanic	7,350	49	52	49	48	49	49	46
Native American	1,090	47	48	47	46	42	50	52
White	289,352	51	52	50	50	51	50	50
Non-Low Income	277,863	52	54	52	52	52	52	51
Low Income	119,659	44	42	44	45	45	47	46
LEP	13,727	48	40	46	51	53	55	48
Formerly LEP	10,030	52	49	50	55	53	56	52
Female	194,984	50	49	49	51	52	52	49
Male	202,538	50	51	51	49	49	49	51
Students w/ Disabilities	66,303	43	39	41	41	43	45	47
Non-Title 1	298,807	51	54	52	51	51	51	50
Title 1	98,715	46	42	46	47	46	48	49

Tables 1 and 2 help us answer questions such as:

- How did the growth of a subgroup compare to the growth of all students across all grades and in a given grade? For example,
 - The median growth percentile of 48 for African-American students in ELA across grades 3–8 and 10 is very close to the statewide median of 50 for all students.
 - The median growth percentile of 56 for formerly limited English proficient students in mathematics in grade 8 is higher than the corresponding median growth percentile of 50 for white students.
- How did the growth of a subgroup change as they progressed through the grades?
 - Hispanic/Latino students make steady progress from a lower median student growth percentile of 42 in ELA in grade 4 to an more typical median student growth percentile of 51 in grade 8, but then experienced slightly lower growth of 45 in 10th grade.
 - The 8th grade ELA results for LEP students show the typical student at that grade is growing at the 57th percentile when compared to students with similar MCAS scores in 7th grade and before. A reasonable interpretation of this median is that 8th grade LEP students are more than keeping pace with their academic peers.

One more finding of interest is that lower than typical growth in the lower grades increases to typical (or higher) growth in the later grades for many subgroups in ELA. This trend is particularly interesting and warrants further study.

Interpreting School, District and Group-level Growth

Because student growth percentiles are normative (they describe how each student changed relative to what was normal), the medians for all districts, schools, and subgroups will be centered around 50. Therefore, statewide, there should be just about as many schools above 50 as below 50 and this will be true even if achievement levels rise. Depending on the test, between 60 and 65 percent of groups will have a median somewhere between the 40th and 60th percentile.

As with all data driven decision making, educators are advised to use caution and not overemphasize small differences. Always consider the number of students being measured, as scores for small groups are likely to change much more than for larger groups. For this reason, the tables and charts used to display growth and achievement data include an indication of the number of students included in the growth calculations. Median growth percentiles are not calculated for groups smaller than 20.

Best Practices for Using Growth Data

Don't allow growth data to obscure achievement data. Use growth data to complement achievement data.

It is the Department's goal to help every student in the state reach proficiency and beyond. Achievement data, therefore, is still an extremely important measure of how students stand relative to proficiency. Growth data is best used to add context to achievement data.

Use two years of data if it's available.

The Department has gathered two years of growth data for students in grades 4 through 8. The 10th grade results could only be calculated for the first time in 2009; hence, only one year of growth data is available for grade 10.

Look at differences across grades as well as between grades.

Because every student has an equal opportunity to grow at a relatively high or low level, regardless of their grade, it is appropriate to combine grades at the school, district, or group level. However, be sure to look at the growth of groups in schools and grades and by subgroup, because overall growth scores can often mask patterns.

Differences in medians of less than 10 points are not likely to be meaningful.

At the school level there is a correlation³ between median growth scores in 2008 and median growth scores in 2009. Despite the correlation, the average school saw its medians fluctuate by 10 points from year to year. Therefore, as a rule of thumb, differences in medians of less than 10 are not likely to be educationally meaningful at the school or district level, except in rare cases when those differences occur among particularly large numbers of students (i.e. 1,000 students or more).

Medians above 60 or below 40 are relatively unusual.

Figures 1 and 2 show that roughly one school in five had a median growth percentile higher than 60 and a slightly smaller proportion had medians below 40. About five percent had medians above 70 or below 30 and less than one percent had growth scores higher than 80 or below 20.

³ Among the 1,304 elementary and middle schools with valid growth scores in 2008 and 2009, the correlation between ELA medians was .561 (R-squared = 32%) and mathematics medians was .527 (R-squared = 28%).

Rethinking Performance

The Department conducted a field test of the growth model with a diverse group of nine districts from April 29th to July 2, 2009. The participating districts were: Community Day Charter Public School, Franklin, Lowell, Malden, Newton, Northampton, Sharon, Springfield, and Winchendon. The field test provided important feedback and recommendations to improve the clarity and usability of growth model reports.

Soon after the start of this growth model field test, we realized that we needed to revisit our notion of student performance. With this added dimension of growth, we concluded that the definition of performance needs to be expanded from solely “achievement” to “achievement plus growth.” This concept is illustrated in the following example:

Table 3: ELA MCAS 2009: Grade 10 School Results

	ACHIEVEMENT		GROWTH
	% Proficient or Advanced	CPI	Median Growth Percentile
School A	75%	88.3	63
School B	75%	88.9	32

Schools A and B both had similar achievement profiles. They both saw exactly 75 percent of their students reach *Proficiency* or above, and their Composite Performance Index scores were virtually identical. However, School A had an unusually high median growth percentile of 63, meaning that half of its students grew at or above the 63rd percentile. Meanwhile, School B had an unusually low median growth percentile of 32, meaning that half of its students grew at or below the 32nd percentile. Therefore, while these two schools have extremely similar levels of achievement, School A, due to its high growth, is performing better than School B.

Availability of Growth Data

School and district growth reports are now available online alongside the MCAS test results posted to the Department’s “School and District Profiles” (<http://profiles.doe.mass.edu/>). Tables of results by district, by grade, by school, and by subgroup have also been appended to the 2008 and 2009 MCAS results report (http://profiles.doe.mass.edu/state_report/mcas.aspx). In addition, graphical displays like the figure below are available on each district profile by clicking the “Assessment” then “MCAS Student Growth Report” tabs.”

2009 General Students Teachers Finances **Assessment** Accountability

> MCAS Percent of Students at Each Performance Level Subject: Year: Grade:

> Item by Item Results (for each Grade Subject)
 > MCAS Annual Comparisons
 > MCAS Student Growth Report
 > MCAS Results by Subgroup
 > Participation Report
 > High School Science and Technology Engineering Results

Growth and Achievement

Moving Toward Better Conversations about Teaching and Learning

The advent of a statistically valid growth model in Massachusetts is intended to make it easier for instructional leaders to make inquiries and start meaningful conversations about good teaching and learning at the student and classroom levels, where the information can be most useful. In the Education Data Warehouse, users with access to student level data (mainly school and district administrators) can experience a dynamic interface that allows educators to identify factors associated with high growth rates.

It is important to keep in mind that the student growth percentile is another piece of data that educators may use to better understand their students' performance. There is a personal history behind every student growth percentile, a history that reflects the impact of the curricular and instructional program that the student experienced. The Department hopes that this new measure of student performance provokes high quality conversations about students, programs, schools, curriculum, and the teaching and learning that take place in every classroom across the Commonwealth.

Appendix B2

Massachusetts Student Growth Percentiles, 2009 District Report

This report provides a new lens for viewing student achievement using results from the Massachusetts Comprehensive Assessment System (MCAS). Student Growth Percentiles (SGP) are designed to measure how much a student or group of students have grown or changed in their achievement levels to complement the traditional MCAS scaled scores and performance levels. In the traditional view, measures of student performance reflect the extent to which students have mastered the standards contained in the English Language Arts (ELA) and Mathematics Massachusetts Curriculum Frameworks at the end of each school year.

Directions: To access a district report, first click on the green-shaded cell. Next, click on the arrow icon to access a drop-down list of districts. Finally, scroll down the list to select a district to view its test results. To access the data file for all districts, click on the DATAFILE_MATH or DATAFILE_ELA sheet at the bottom of the screen.

DISTR	Lexington
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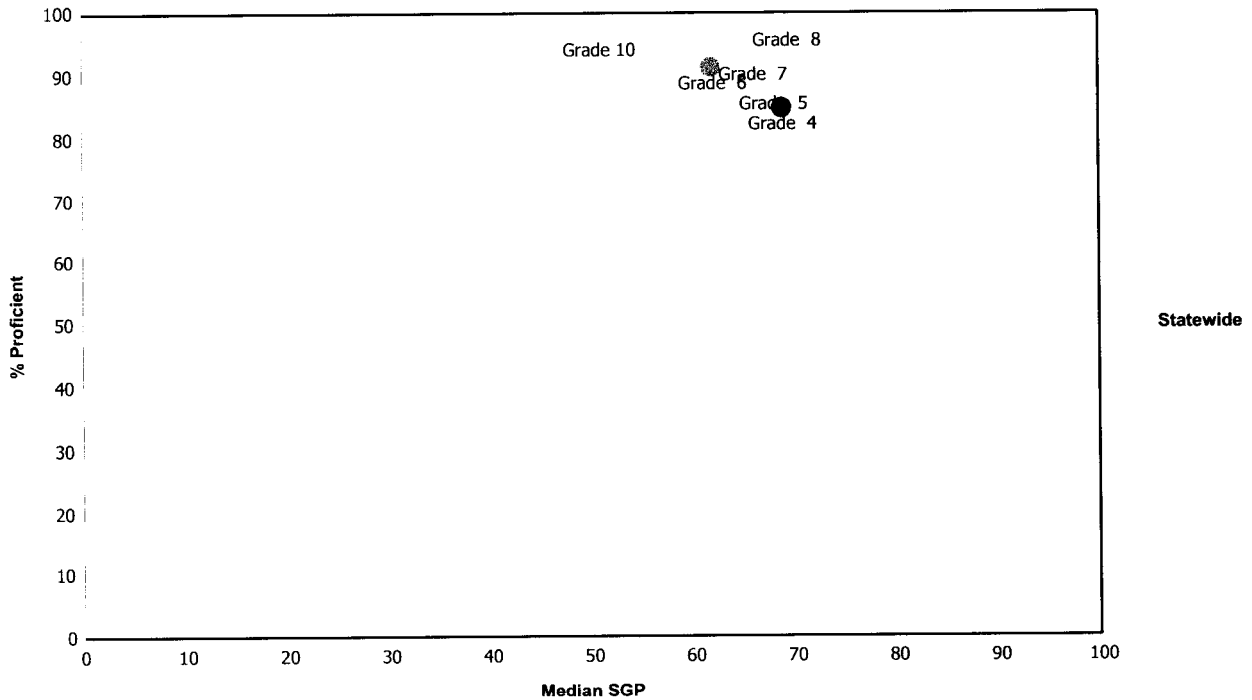
Table 1. ELA Median Student Growth Percentiles

Group		All Grades	All Grades Median SGP	Grade 4 Median SGP	Grade 5 Median SGP	Grade 6 Median SGP	Grade 7 Median SGP	Grade 8 Median SGP	Grade 10 Median SGP
All Students		2,722	64.0	69.0	68.0	62.0	66.0	68.5	51.0
Subgroups									
Gender	Female	1,369	66.0	76.0	71.5	69.0	71.0	65.5	48.0
	Male	1,353	62.0	65.0	62.0	56.5	63.0	71.0	56.0
Race/Ethnicity	Asian	678	74.0	79.0	77.0	68.0	72.0	79.0	62.0
	African-American/Black	131	50.0	54.0	47.5	61.0	--	68.0	--
	Hispanic/Latino	102	68.0	--	--	62.5	--	--	--
	White	1,728	61.0	69.0	66.0	60.0	66.0	61.0	48.0
Student Status	Low Income	154	55.0	56.5	60.0	60.0	--	63.0	44.0
	LEP	43	63.0	79.5	--	--	--	--	--
	Formerly LEP	58	78.0	--	--	--	--	--	--
	Students with Disabilities	477	58.0	55.0	60.5	58.5	52.0	66.0	52.0

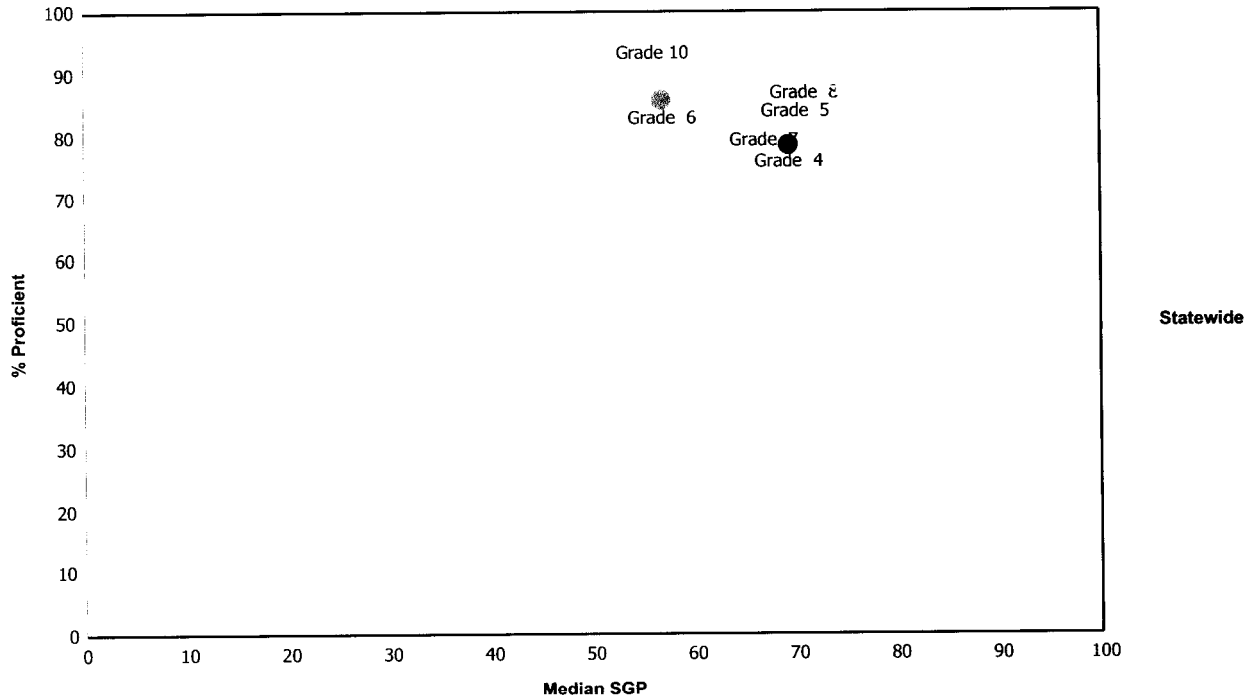
Table 2. Math Median Student Growth Percentiles

Group		All Grades	All Grades Median SGP	Grade 4 Median SGP	Grade 5 Median SGP	Grade 6 Median SGP	Grade 7 Median SGP	Grade 8 Median SGP	Grade 10 Median SGP
All Students		2,724	65.0	69.5	70.0	57.0	67.0	71.0	55.5
Subgroups									
Gender	Female	1,369	64.0	68.0	69.0	57.0	66.0	68.5	57.0
	Male	1,355	66.0	70.0	72.0	56.5	68.0	71.5	54.0
Race/Ethnicity	Asian	678	72.0	77.0	77.0	65.0	75.5	71.0	61.0
	African-American/Black	132	59.5	55.0	68.5	44.0	--	59.0	--
	Hispanic/Latino	103	61.0	--	--	50.0	--	--	--
	White	1,728	64.0	67.0	68.5	54.0	65.0	70.0	53.5
Student Status	Low Income	153	60.0	49.0	60.5	57.0	--	61.0	67.0
	LEP	43	64.0	65.5	--	--	--	--	--
	Formerly LEP	58	76.5	--	--	--	--	--	--
	Students with Disabilities	476	64.0	59.0	69.0	59.0	64.0	68.0	57.5

Note: Summary statistics are not shown for groups with fewer than 20 students.

District Achievement and Growth by Grade**Lexington - 2009 MCAS Grade 4, 5, 6, 7, 8, 10 English Language Arts****Lexington - 2009 MCAS Grade 4, 5, 6, 7, 8, 10 English Language Arts**

	N Students	Median SGP	% Proficient
Grade 4	430	69	85
Grade 5	461	68	88
Grade 6	418	62	91
Grade 7	475	66	93
Grade 8	490	69.5	98
Grade 10	441	51	97

District Achievement and Growth by Grade
Lexington - 2009 MCAS Grade 4, 5, 6, 7, 8, 10 Mathematics

Lexington - 2009 MCAS Grade 4, 5, 6, 7, 8, 10 Mathematics

	N Students	Median SGP	% Proficient
Grade 4	430	69.5	78
Grade 5	464	70	86
Grade 6	418	57	86
Grade 7	474	67	82
Grade 8	490	71	89
Grade 10	441	56	96